



Chip by chip to the top



SuperV-Drills

Solid carbide high-performance twist drills



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V-Drills

Multi-purpose twist drills



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Gun Drills

Single- or two-fluted deep hole drills



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Threading Tools

Taps and cold forming taps



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SuperF-UT End Mills

Solid carbide high performance end mills



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End Mills

Solid carbide and HSS end mills



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Reamers and Countersinks



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Tool Stock Systems



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PRECISION CUTTING TOOLS

EDITION 2012

This catalogue replaces all other price documents. Reprinting, even by extract is not allowed.

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Precision Cutting Tools

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Structure of our delivery programme

Standard programme ●

Basis of our delivery programme is the standard programme. It is built up to solve nearly all application cases economically. The products of the standard programme are manufactured in series and are usually available ex-stock and are marked in extra bold print.

T-programme ○

The products of the T-programme are rarely needed. If sold out special manufacture can be started on demand. The relevant articles are printed in cursive.

Delivery conditions

General conditions of delivery

We are delivering according to our delivery and payment conditions only. They can be send on demand.

Minimum order charges

For orders below € 100.00 we may charge an appropriate minimum order surcharge.

banking account

Commerzbank AG. Berlin
(BLZ 100 400 00) 881 500 300
BIC: COBA DE BB FF XXX
IBAN: DE87 1004 0000 0881 5003 00

Delivery conditions of special tools

In case of special tools we are allowed to deliver approx. 10%. however minimum 2 pcs. more or less. The delivered quantity will be invoiced.

banking account

Deutsche Bank AG. Berlin
(BLZ 100 700 00) 1 613 652 00
BIC: DEUT DE BB XXX
IBAN: DE90 1007 0000 0161 3652 00

Postbank. Berlin
(BLZ 100 100 10) 18 64 101
BIC: PBNK DE FF 100
IBAN: DE17 1001 0010 0001 8641 01

Packaging details

Tool group	Standard	Units per package
Straight shank HSS twist drills	DIN 338 DIN 1897 and similar Stock standards	≤ Ø 7.50 mm packed in units of 10 > Ø 7.50 ... Ø 10.60 mm packed in units of 5 > Ø 10.60 mm 1 unit per package
	DIN 339 DIN 340 and similar Stock standards	≤ Ø 6.70 mm packed in units of 10 > Ø 6.70 ... Ø 10.60 mm packed in units of 5 > Ø 10.60 mm 1 unit per package
	DIN 1869	≤ Ø 7.50 mm packed in units of 10 > Ø 7.50 ... Ø 10.60 mm packed in units of 5 > Ø 10.60 mm 1 unit per package
Taper shank twist drills	all DIN-standards and Stock standards	all sizes supplied 1 unit per package
Carbide and carbide tipped twist drills	all DIN-standards and Stock standards	all sizes supplied 1 unit per package
Micro-precision drills	DIN 1899	all sizes supplied 10 units per package
Centre drills	DIN 333 form A. form R	≤ Ø 4.00 mm packed in units of 10 > Ø 4.00 mm 1 unit per package
	DIN 333 form B	≤ Ø 2.50 mm packed in units of 10 > Ø 2.50 mm 1 unit per package
Uncoated HSS taps/ Forming taps	DIN 371 DIN 376 DIN 374 DIN 2174 DIN 2184	≤ Ø M6 packed in units of 10 > Ø M6 1 unit per package
Uncoated HSS taps/ Forming taps (TiN. TiAlN. TiCN)		all sizes supplied 1 unit per package
Solid carbide oil feed taps	Stock standard	all sizes supplied 1 unit per package
Milling cutters. reamers and countersinks all tool materials	all DIN-standards and Stock standards	all sizes supplied 1 unit per package

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Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
51122	266	135	DIN 338	TiAlN	Short lengths drills	HSS-Co	V66 Ti
51132	293	115	Stock std.	TiAlN	Twist drills with reinforced shank	HSS-E-PM	V-PM
51158	278	137	DIN 338	TiAlN	Short lengths drills	HSS-Co	V97
51159	237	137	DIN 1897	TiAlN	Stub drills	HSS-Co	V97
51184	186	102	DIN 6539	TiAlN nano	Stub drills	Solid Carbide	N
51750	62	121	DIN 6537 K	TiAlSiN	SuperV-drills without internal coolant	Solid Carbide	SuperV-S
51752	79	121	DIN 6537 K	TiAlSiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-S
51753	79	121	DIN 6537 K	TiAlSiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-S
51754	99	121	DIN 6537 L	TiAlSiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-S
51755	99	121	DIN 6537 L	TiAlSiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-S
51756	112	121	Stock std.	TiAlSiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-S
51760	95	165	DIN 6537 L	TiAlN	SuperV-drills with internal coolant	Solid Carbide	SuperV-GR
51761	112	165	Stock std.	TiAlN	SuperV-drills with internal coolant	Solid Carbide	SuperV-GR
51764	129	165	Stock std.	AlTiN - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-T
51765	131	165	Stock std.	AlTiN - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-T
51766	133	165	Stock std.	AlTiN - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-T
51767	135	165	Stock std.	AlTiN - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-T
51768	137	165	Stock std.	AlTiN - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-T
51770	83	121	DIN 6537 K	AlTiN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-VA
51771	83	121	DIN 6537 K	AlTiN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-VA
51772	103	121	DIN 6537 L	AlTiN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-VA
51773	103	121	DIN 6537 L	AlTiN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-VA
51776	75	121	DIN 6537 K	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51781	95	121	DIN 6537 L	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51787	66	121	DIN 6537 L	TiAlN nano	SuperV-drills without internal coolant	Solid Carbide	SuperV-U
51789	109	121	Stock std.	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51871	62	121	DIN 6537 K	TiAlN nano	SuperV-drills without internal coolant	Solid Carbide	SuperV-U
51873	62	121	DIN 6537 K	TiAlN nano	SuperV-drills without internal coolant	Solid Carbide	SuperV-U
51875	72	121	DIN 6537 K	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-F
51876	75	121	DIN 6537 K	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51880	92	121	DIN 6537 L	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-F
51881	95	121	DIN 6537 L	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51887	66	121	DIN 6537 L	TiAlN nano	SuperV-drills without internal coolant	Solid Carbide	SuperV-U
51889	109	121	Stock std.	TiAlN nano	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51893	122	121	Stock std.	TiAlN nano - tip coated	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
51998	146	164	Stock std.	AlTiN	SuperV-NX solid carbide high-performance microdrills	Solid Carbide	SuperV-IK-NX
51999	148	164	Stock std.	AlTiN - tip coated	SuperV-NX solid carbide high-performance microdrills	Solid Carbide	SuperV-IK-NX
52360	756	120	Stock std.	bright	Deburring forks	Solid Carbide	SuperE-U
52365	674/755	120	Stock std.	AlTiN nano	Front/back deburrer 90°	Solid Carbide	SuperAD-90
53050	438	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv Synchro
53051	439	103	DIN 376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv Synchro
53052	486	103	DIN 374	TiCN	Machine taps for ISO metric fine threads	HSS-E-PM	Intensiv Synchro
53053	436	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv Synchro
53054	437	103	DIN 376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv Synchro
53055	485	103	DIN 374	TiCN	Machine taps for ISO metric fine threads	HSS-E-PM	Intensiv Synchro
53393	670/751	117	Stock std.	AlTiN	Deburring end mill 60°	Solid Carbide	SuperAF-60
53394	670/751	117	Stock std.	AlTiN	Deburring end mill 60°	Solid Carbide	SuperAF-60
53395	671/752	117	Stock std.	AlTiN	Deburring end mill 90°	Solid Carbide	SuperAF-90
53396	672/753	117	Stock std.	AlTiN	Deburring end mill 90°	Solid Carbide	SuperAF-90
53397	673/754	117	Stock std.	AlTiN	Deburring end mill 120°	Solid Carbide	SuperAF-120
53398	673/754	117	Stock std.	AlTiN	Deburring end mill 120°	Solid Carbide	SuperAF-120
53620	524	103	~ DIN 371	AlCrN	Fluteless machine taps for ISO metric threads	HSS-E-PM	Durativ
53621	525	103	~ DIN 371	AlCrN	Fluteless machine taps for ISO metric threads	HSS-E-PM	Durativ
53622	526	103	~ DIN 376	AlCrN	Fluteless machine taps for ISO metric threads	HSS-E-PM	Durativ
53640	459	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv H
53641	470	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HD
53642	456	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E	Produktiv H
53643	471	103	DIN 376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HD
53661	461	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E	Intensiv H
53662	475	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HD
53665	476	103	DIN 376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HD
53666	477	103	DIN 371/376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HDX
53667	477	103	DIN 371/376	TiCN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HDX
53668	466	103	DIN 371/376	AlTiN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HX
53669	466	103	DIN 371/376	AlTiN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HX
53670	467	103	DIN 371	TiCN	Machine taps for ISO metric threads	HSS-E-PM	HDX
53810	530	108	Stock std.	TiCN	Thread milling cutters for metric ISO threads	Solid Carbide	TMC SP
53820	531	108	Stock std.	TiCN	Thread milling cutters for metric ISO fine threads	Solid Carbide	TMC SP
53830	532	108	Stock std.	TiCN	Thread milling cutters for metric ISO threads	Solid Carbide	TM SP
54080	684	112	Stock std.	TiAlN	Micro Slot drills, 3-fluted	M42	N
54180	685	112	Stock std.	TiAlN	Micro Slot drills, 3-fluted	M42	N
54201	644	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	NH

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Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
54205	644	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	NH
54206	642	106	DIN 6527 L	TiAlN	End mills with corner radius	Solid Carbide	N
54207	645	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	H
54221	646	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	NH
54225	646	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	NH
54227	647	106	Stock std.	TiAlN	Finishing End Mills, multiple fluted	Solid Carbide	H
54275	694	112	DIN 327	TiAlN	Ball nose end mills, 2-fluted	M42	N
54276	695	112	Stock std.	TiAlN	Ball nose end mills, 2-fluted	M42	N
54294	683	112	DIN 844 L	TiAlN	Slot drills, 3-fluted	M42	N
54300	666	106	Stock std.	AlTiN	Trace End Mills with Ball Nose	Solid Carbide	N
54301	667	106	Stock std.	AlTiN	Trace End Mills with Ball Nose	Solid Carbide	N
54302	662	106	Stock std.	AlTiN	Trace End Mills with Torus form	Solid Carbide	N
54303	663	106	Stock std.	AlTiN	Trace End Mills with Torus form	Solid Carbide	N
54304	660	106	Stock std.	TiAlN	Trace End Mills with Torus form	Solid Carbide	H
54305	661	106	Stock std.	TiAlN	Trace End Mills with Torus form	Solid Carbide	H
54306	664	106	Stock std.	TiAlN	Trace End Mills with Ball Nose	Solid Carbide	H
54307	665	106	Stock std.	TiAlN	Trace End Mills with Ball Nose	Solid Carbide	H
54404	618	117	Stock std.	TiAlN	Slot drills, 2-fluted	Solid Carbide	N
54424	623	117	Stock std.	TiAlN	Slot drills, 3-fluted	Solid Carbide	N
54444	637	117	Stock std.	TiAlN	End mills, 4-fluted	Solid Carbide	N
54496	648	106	DIN 6527 L	TiAlN	Roughing end mills	Solid Carbide	NF
54497	649	106	DIN 6527 L	TiAlN	Roughing end mills	Solid Carbide	NF
54519	616	117	DIN 6527 L	TiAlN	Slot drills, 2-fluted	Solid Carbide	N
54520	614	117	DIN 6527 K	TiAlN	Slot drills, 2-fluted	Solid Carbide	N
54521	616	117	DIN 6527 L	TiAlN	Slot drills, 2-fluted	Solid Carbide	N
54522	638	117	DIN 6527 L	TiAlN	End mills with corner radius	Solid Carbide	N
54523	621	117	DIN 6527 L	TiAlN	Slot drills, 3-fluted	Solid Carbide	N
54524	635	117	DIN 6527 L	TiAlN	End mills, 4-fluted	Solid Carbide	N
54526	640	117	DIN 6527 L	TiAlN	End mills with corner radius	Solid Carbide	N
54531	657	117	DIN 6528	TiAlN	Ball nose end mills	Solid Carbide	N
54541	654	117	DIN 6527 L	TiAlN	Ball nose end mills	Solid Carbide	N
54551	565	106	DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
54552	567	106	Stock std.	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
54556	577	106	DIN 6527 L	TiAlN	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA
54558	574	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-X
54559	574	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-X
54560	571	106	DIN 6527 L	AlTiN+	SuperF-UT end mills Ti	Solid Carbide	SuperF-UT Ti
54561	571	106	DIN 6527 L	AlTiN+	SuperF-UT end mills Ti	Solid Carbide	SuperF-UT Ti
54562	566	106	Stock std.	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
54563	566	106	Stock std.	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
54564	569	106	~ DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N-3
54565	569	106	~ DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N-3
54566	568	106	DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N-F
54567	568	106	DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N-F
54568	576	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-XF
54569	576	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-XF
54570	580	106	~ DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al-F
54571	580	106	~ DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al-F
54572	583	106	DIN 6527 L	AlTiN	SuperF-UT end mills H	Solid Carbide	SuperF-UT H
54573	583	106	DIN 6527 L	AlTiN	SuperF-UT end mills H	Solid Carbide	SuperF-UT H
54574	575	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-X IK
54575	575	106	DIN 6527 L	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-X IK
54576	573	106	DIN 6527 K	AlTiN nano	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-X
54700	668	106	DIN 6527 L	AlTiN+	Pilot drill mill 180°	Solid Carbide	N
54815	689	112	DIN 844 K	TiAlN	Roughing and Finishing End Mills, 4-fluted	M42	NF
54816	691	112	DIN 844 K	TiAlN	Roughing end mills	M42	NR
54825	690	112	DIN 844 K	TiAlN	Roughing end mills	HSS-E-PM	NRf
54836	693	112	DIN 844 L	TiAlN	Roughing end mills	M42	NR
54845	692	112	DIN 844 K	TiAlN	Roughing end mills	HSS-E-PM	NRf
54847	687	112	DIN 844 L	TiAlN	End mills, multiple fluted	M42	N
55017	397	123	Stock std.	TiCN	Gun drill, Type SuperT-NX	Carbide	SuperT-NX
55018	396	123	Stock std.	TiCN	Gun drill, Type SuperT-NX	Carbide	SuperT-NX
55020	401	123	Stock std.	AlTiN+	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
55021	403	123	Stock std.	AlTiN+	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
55022	398	123	Stock std.	TiCN	Gun drill, Type SuperT-NX	Carbide	SuperT-NX
55023	399	123	Stock std.	TiCN	Gun drill, Type SuperT-NX	Carbide	SuperT-NX
55024	400	123	Stock std.	AlTiN+	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
55026	402	123	Stock std.	AlTiN+	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
55027	386	123	Stock std.	AlTiN nano	Gun drill, Type SuperT-AL	Solid Carbide	SuperT-AL
55028	388	123	Stock std.	AlTiN nano	Gun drill, Type SuperT-AL	Solid Carbide	SuperT-AL
55029	390	123	Stock std.	AlTiN nano	Gun drill, Type SuperT-AL	Solid Carbide	SuperT-AL
56011	182	141	Stock std.	TiAlN	Interchangeable inserts for SuperV-AP maxi	Solid Carbide	SuperV-AP maxi

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Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
57011	160	141	Stock std.	TiAlN	Interchangeable inserts for SuperV-AP mini	Solid Carbide	SuperV-AP mini GG
61112	241	135	DIN 1897	TiN	Stub drills	HSS-Co	VX
61115	255	130	DIN 338	TiN - tip coated	Short lengths drills	HSS	N
61116	255	131	DIN 338	TiN	Short lengths drills	HSS	N
61118	231	133	DIN 1897	TiN	Stub drills	HSS	N
61120	285	115	Stock std.	TiN	Twist drills with reinforced shank	HSS-Co	NX
61121	289	115	Stock std.	TiN	Twist drills with reinforced shank	HSS-Co	NX
61124	269	137	DIN 338	TiN	Short lengths drills	HSS	V70
61131	237	135	DIN 1897	TiN	Stub drills	HSS-E-PM	V-PM
61136	301	133	DIN 340	TiN	Long series twist drills	HSS	N
61150	308	137	DIN 340	TiN	Long series twist drills	HSS	V70
61158	274	137	DIN 338	TiN	Short lengths drills	HSS-Co	V70
61175	331	135	Stock std.	TiN	NC-spotting drills	HSS	N
61220	234	135	DIN 1897	TiN	Stub drills	HSS-Co	NX
61221	262	135	DIN 338	TiN	Short lengths drills	HSS-Co	NX
61222	305	135	DIN 340	TiN	Long series twist drills	HSS-Co	NX
61223	266	135	DIN 338	TiN	Short lengths drills	HSS-Co	V66 Ti
61232	278	135	DIN 338	TiN	Short lengths drills	HSS-E-PM	V-PM
61602	368	139	DIN 333	TiN	Center drills without flat	HSS	N
61823	87	128	DIN 6538 K	TiN	SuperV-drills with internal coolant	Carbide	SuperV90-U
61824	107	128	DIN 6538 M	TiN	SuperV-drills with internal coolant	Carbide	SuperV90-U
61825	116	128	DIN 6538 L	TiN	SuperV-drills with internal coolant	Carbide	SuperV90-U
61875	72	121	DIN 6537 K	TiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-F
61880	92	121	DIN 6537 L	TiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-F
61888	60	121	DIN 6539	TiN	SuperV-drills without internal coolant	Solid Carbide	SuperV-F
61889	109	121	Stock std.	TiN	SuperV-drills with internal coolant	Solid Carbide	SuperV-IK-U
62327	744	105	DIN 334	TiN	Countersinks 60°	HSS	
62347	745	105	DIN 335	TiN	Countersinks 90°	HSS	
62399	748	105	DIN 335	TiN	Countersink sets 90°	HSS	
63010	465	103	~ DIN 371	TiCN	Machine taps for ISO metric threads	Solid Carbide	H
63013	527	103	~ DIN 371	AlTiN	Oil feed fluteless taps f. ISO metric threads	Solid Carbide	Durativ
63033	440	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E	Produktiv N
63046	442	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E	Intensiv N
63048	443	103	DIN 376	TiN	Machine taps for ISO metric threads	HSS-E	Intensiv N
63119	522	103	~ DIN 371	TiN	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
63120	521	103	~ DIN 371	TiN	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
63121	528	103	DIN 371	TiN	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
63122	523	103	~ DIN 376	TiN	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
63123	529	103	~ DIN 376	TiN	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
63133	448	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E	Produktiv N
63138	450	103	DIN 376	TiN	Machine taps for ISO metric threads	HSS-E	Produktiv N
63146	453	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E	Intensiv N
63148	455	103	DIN 376	TiN	Machine taps for ISO metric threads	HSS-E	Intensiv N
63173	493	103	DIN 374	TiN	Machine taps for ISO metric fine threads	HSS-E	Intensiv N
63176	468	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E	Produktiv HD
63177	469	103	DIN 376	TiN	Machine taps for ISO metric threads	HSS-E	Produktiv HD
63201	483	103	DIN 371	AlTiN	Machine taps for ISO metric threads	HSS-E	G
63250	491	103	DIN 374	TiN	Machine taps for ISO metric fine threads	HSS-E	Produktiv N
63641	458	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv H
63643	460	103	DIN 376	TiN	Machine taps for ISO metric threads	HSS-E-PM	Produktiv H
63662	474	103	DIN 371	TiN	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HD
64080	624	117	Stock std.	TiAlN	Micro Slot drills, 3-fluted	Solid Carbide	N
64180	626	106	Stock std.	TiAlN	Micro Slot drills, 3-fluted	Solid Carbide	NH
64478	633	106	DIN 6527 L	TiAlN	Slot drills NH, 3-fluted	Solid Carbide	NH
64495	651	117	DIN 6527 L	TiAlN	Roughing end mills	Solid Carbide	NRf
64497	653	117	DIN 6527 L	TiAlN	Roughing end mills	Solid Carbide	HR
64522	620	117	DIN 6527 K	TiAlN	Slot drills, 3-fluted	Solid Carbide	N
64523	622	117	DIN 6527 L	TiAlN	Slot drills, 3-fluted	Solid Carbide	N
64525	636	117	DIN 6527 L	TiAlN	End mills, 4-fluted	Solid Carbide	N
64532	658	117	DIN 6527 L	TiAlN	Ball nose end mills	Solid Carbide	N
64535	659	117	Stock std.	TiAlN	Ball nose end mills	Solid Carbide	N
64542	655	117	DIN 6527 L	TiAlN	Ball nose end mills	Solid Carbide	N
64545	656	117	Stock std.	TiAlN	Ball nose end mills	Solid Carbide	N
64550	564	106	DIN 6527 K	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
64551	565	106	DIN 6527 L	TiAlN	SuperF-UT end mills N	Solid Carbide	SuperF-UT N
64557	577	106	DIN 6527 L	TiAlN	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA
64558	584	106	Stock std.	TiAlN	SuperF-UT end mills FS	Solid Carbide	SuperF-UT FS
64559	584	106	Stock std.	TiAlN	SuperF-UT end mills FS	Solid Carbide	SuperF-UT FS
64567	578	106	DIN 6527 L	TiAlN	SuperF-UT end mills VA	Solid Carbide	SuperF-UT VA-IK
64570	632	106	DIN 6527 K	TiAlN	Slot drills NH, 3-fluted	Solid Carbide	NH
64571	634	106	DIN 6527 L	TiAlN	Slot drills NH, 3-fluted	Solid Carbide	NH
64595	652	106	DIN 6527 L	TiAlN	Roughing end mills	Solid Carbide	NRf

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64604	681	112	DIN 327	TiAlN	Slot drills, 3-fluted	M42	N
64640	675	112	DIN 327	TiAlN	Slot drills, 2-fluted	M42	N
64641	682	112	DIN 844 K	TiAlN	Slot drills, 3-fluted	M42	N
64667	686	112	DIN 844 K	TiAlN	End mills, multiple fluted	M42	N
64670	677	112	DIN 844 K	TiAlN	Slot drills, 2-fluted	M42	N
64671	679	112	DIN 844 L	TiAlN	Slot drills, 2-fluted	M42	N
67011	160	141	Stock std.	TiAlN nano	Interchangeable inserts for SuperV-AP mini	Solid Carbide	SuperV-AP mini U
67012	164	141	Stock std.	AlTiN nano	Interchangeable inserts for SuperV-AP mini	Solid Carbide	SuperV-AP mini VA
71106	231	138	DIN 1897	bright	Stub drills	M42	N
71107	234	136	DIN 1897	bright/nitr. lands > Ø 2,36 mm	Stub drills	HSS	V97
71108	226	132	DIN 1897	bright/steam t. > Ø 2,36 mm	Stub drills	HSS	N
71109	231	134	DIN 1897	bright/steam t. > Ø 6,0 mm	Stub drills	HSS	N
71110	226	134	DIN 1897	bright	Stub drills	HSS	N
71111	226	138	DIN 1897	bright	Stub drills	HSS	N
71112	237	134	DIN 1897	bright/steam t. > Ø 2,36 mm	Stub drills	HSS-Co	VX
71113	244	138	Stock std.	bright	Stub drills	HSS	V72
71114	244	134	Stock std.	bright	Stub drills	HSS	V72
71115	248	130	DIN 338	bright/steam t. > Ø 2,36 mm	Short lengths drills	HSS	N
71116	248	130	DIN 338	bright	Short lengths drills	HSS	N
71117	259	134	DIN 338	bright	Short lengths drills	HSS	H
71119	248	134	DIN 338	bright	Short lengths drills	HSS	N
71122	266	134	DIN 338	bright	Short lengths drills	HSS-Co	V66 Ti
71123	262	134	DIN 338	bright/nitr. lands > Ø 2,0 mm	Short lengths drills	HSS-Co	V66
71124	269	136	DIN 338	bright	Short lengths drills	HSS	V70
71126	269	138	DIN 338	bright	Short lengths drills	HSS	V70
71128	274	136	DIN 338	bright	Short lengths drills	HSS	V72
71129	278	138	DIN 338	bright	Short lengths drills	HSS	V72
71130	298	134	DIN 339	bright/steam t. > Ø 2,36 mm	Bushing drills	HSS	N
71135	301	132	DIN 340	bright/steam t. > Ø 2,36 mm	Long series twist drills	HSS	N
71136	301	132	DIN 340	bright	Long series twist drills	HSS	N
71145	316	136	DIN 1869	bright/nitr. lands > Ø 2,36 mm	Extra long twist drills, series 1	HSS	V63
71146	319	136	DIN 1869	nitrided lands	Extra long twist drills, series 2	HSS	V63
71147	321	136	DIN 1869	nitrided lands	Extra long twist drills series 3	HSS	V63
71148	259	138	DIN 338	bright	Short lengths drills	M42	N
71149	259	134	DIN 338	bright/steam t. > Ø 2,36 mm	Short lengths drills	HSS-Co	N
71150	308	136	DIN 340	bright	Long series twist drills	HSS	V70
71152	308	138	DIN 340	bright	Long series twist drills	HSS	V70
71154	311	136	DIN 340	nitrided lands	Long series twist drills	HSS	V73
71156	311	136	DIN 340	nitrided lands	Long series twist drills	HSS-Co	V73
71158	274	136	DIN 338	nitrided lands	Short lengths drills	HSS-Co	V70
71160	283	130	DIN 338	bright/steam t. > Ø 2,36 mm	Set of jobber drills	HSS	N
71164	255	132	DIN 338	steam tempered	Short lengths drills	HSS	N
71168	295	138	Stock std.	bright	Stub drills with 16.0 mm dia. shank	HSS-Co	V72
71169	297	138	Stock std.	bright	Stub drills with 25.4 mm dia. shank	HSS-Co	V72
71175	331	134	Stock std.	bright	NC-spotting drills	HSS	N
71176	332	134	Stock std.	bright	NC-spotting drills	HSS	N
71180	194	102	DIN 8037	bright	Special drills with carbide blade	Carbide	N
71184	186	102	DIN 6539	bright	Drill drills	Solid Carbide	N
71187	327	134	DIN 1899	bright	Micro-precision drills	HSS-E-PM	N
71189	192	102	Stock std.	bright	NC-spotting drills	Solid Carbide	N
71190	192	102	Stock std.	bright	NC-spotting drills	Solid Carbide	N
71191	192	102	Stock std.	bright	NC-spotting drills	Solid Carbide	N
71192	316	136	DIN 1869	nitrided lands	Extra long twist drills, series 1	HSS-Co	V63
71193	319	138	DIN 1869	nitrided lands	Extra long twist drills, series 2	HSS-Co	V63
71195	323	136	Stock std.	nitrided lands	Extra long twist drills	HSS	V63
71196	324	138	Stock std.	bright	Extra long twist drills	HSS	V63
71220	234	134	DIN 1897	bright	Stub drills	HSS-Co	NX
71221	262	134	DIN 338	bright	Short lengths drills	HSS-Co	NX
71222	305	134	DIN 340	bright	Long series twist drills	HSS-Co	NX
71225	305	134	DIN 340	bright	Long series twist drills	HSS-Co	V66
71290	189	102	Stock std.	bright	Short lengths drills	Solid Carbide	N
71300	337	132	DIN 345	steam tempered	Standard length	HSS	N
71303	333	138	Stock std.	bright	Short lengths drills	HSS-Co8	N
71304	335	138	Stock std.	bright	Short lengths drills	HSS-Co8	N
71305	337	136	DIN 345	bright	Standard length	HSS	V70
71312	342	134	DIN 345	bright	Standard length	HSS-Co	V66 Ti
71313	344	138	DIN 346	bright	Standard length	HSS-Co	V66 Ti
71320	346	132	DIN 341	steam tempered	Bushing drills	HSS	N
71322	346	136	DIN 341	bright	Bushing drills	HSS	V70
71325	349	136	DIN 1870	nitr. lands/steam >16.0	Extra long twist drills, series 1	HSS	V63
71326	351	136	DIN 1870	nitr. lands/steam >16.0	Extra long twist drills, series 2	HSS	V63
71380	196	102	DIN 8041	bright	Special drills with carbide blade	Carbide	N

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Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
71416	337	134	DIN 345	steam tempered	Standard length	HSS-Co	N
71500	364	138	DIN 8376	steam tempered	Straight shank subland drills	HSS	N
71501	362	138	DIN 8374	steam tempered	Straight shank subland drills	HSS	N
71503	363	138	DIN 8378	steam tempered	Straight shank subland drills	HSS	N
71520	366	138	DIN 8377	steam tempered	Taper shank subland drills	HSS	N
71523	365	138	DIN 8379	steam tempered	Taper shank subland drills	HSS	N
71550	355	138	Stock std.	steam tempered	Twist drills with internal coolant, long	HSS-Co	V70-IK
71553	355	138	Stock std.	steam tempered	Twist drills with internal coolant, long	HSS-Co	V70-IK
71554	353	138	Stock std.	steam tempered	Twist drills with internal coolant	HSS	N-IK
71565	357	136	Stock std.	steam tempered	Extra-long spiral flute deep hole drill with internal coolant	HSS-Co	V63-IK
71566	359	136	Stock std.	steam tempered	Extra-long spiral flute deep hole drill with internal coolant	HSS-Co	V63-IK
71567	357	136	Stock std.	steam tempered	Extra-long spiral flute deep hole drill with internal coolant	HSS-Co	V63-IK
71568	359	136	Stock std.	steam tempered	Extra-long spiral flute deep hole drill with internal coolant	HSS-Co	V63-IK
71584	325	136	Stock std.	bright	Twist drills with internal coolant	HSS	V73-IK
71600	367	132	DIN 333	bright	Center drills without flat	HSS	N
71601	367	138	DIN 333	bright	Center drills without flat	HSS	N
71602	368	138	DIN 333	bright	Center drills without flat	HSS	N
71604	370	138	DIN 333	bright	Center drills without flat	HSS	N
71605	369	138	Stock std.	bright	Center drills without flat	HSS	N
71607	371	138	Stock std.	bright	Center drills with flat	HSS	N
71609	371	138	Stock std.	bright	Center drills with flat	HSS	N
71616	197	102	Stock std.	bright	Center drills without flat	Solid Carbide	N
71862	139	109	DIN 6537 L	bright	SuperV drills, 3-fluted	Solid Carbide	SuperV83-GAL
71994	118	121	Stock std.	bright	SuperV-drills with internal coolant	Solid Carbide	SuperV95-GG
71995	89	121	Stock std.	bright	SuperV-drills with internal coolant	Solid Carbide	SuperV95-GG
71996	120	121	Stock std.	bright	SuperV-drills with internal coolant	Solid Carbide	SuperV95-GG
71997	127	121	Stock std.	bright	SuperV-drills with internal coolant	Solid Carbide	SuperV95-GN
71998	142	164	Stock std.	AlTiN+	SuperV-NX solid carbide high-performance microdrills	Solid Carbide	SuperV-NX
71999	144	164	Stock std.	AlTiN+	SuperV-NX solid carbide high-performance microdrills	Solid Carbide	SuperV-NX
72210	372	138	DIN 343	steam tempered	Taper shank core drills	HSS	N
72304	749	105	DIN 373	bright	Counterbores with fixed pilot for fine tolerances	HSS	
72305	750	105	DIN 373	bright	Counterbores with fixed pilot for med. tolerances	HSS	
72326	744	105	DIN 334	bright	Countersinks 60°	HSS	
72346	745	105	DIN 335	bright	Countersinks 90°	HSS	
72356	747	105	DIN 335	bright	Countersinks 90°	HSS	
72399	748	105	DIN 335	bright	Countersink sets 90°	HSS	
72600	740	105	DIN 206	bright	Hand reamers	HSS	
72610	742	105	DIN 206	bright	Hand reamers	HSS	
72640	729	105	DIN 212-2	bright	Machine reamers	HSS-E	
72650	731	105	DIN 212-2	bright	Machine reamers	HSS-E	
72654	726	105	DIN 212-2	bright	Machine reamers	HSS-E	
72660	733	105	DIN 208	bright	Machine reamers	HSS-E	
72670	733	105	DIN 208	bright	Machine reamers	HSS-E	
72680	736	105	DIN 311	nitrided	Machine bridge reamers	HSS	
72690	735	105	DIN 212-2	bright	Quick spiral reamers	HSS-E	
72730	739	105	DIN 9	bright	Hand taper reamers	HSS	Taper 1:50
72741	737	105	DIN 2179	bright	Taper pin reamers	HSS-E	Taper 1:50
72742	738	105	DIN 2180	bright	Taper pin reamers	HSS-E	Taper 1:50
72859	720	120	~ DIN 8051	bright	Carbide brazed machine reamers	Carbide	
72860	720	120	~ DIN 8051	bright	Carbide brazed machine reamers	Carbide	
72867	716	120	~ DIN 8050	bright	Carbide brazed machine reamers	Carbide	
72868	716	120	~ DIN 8050	bright	Carbide brazed machine reamers	Carbide	
72870	708	166	Stock std.	AlTiN nano	Solid carbide high performance reamers	Solid Carbide	SuperR-HS-S
72871	708	166	Stock std.	AlTiN nano	Solid carbide high performance reamers	Solid Carbide	SuperR-HS-D
72872	710	166	Stock std.	AlTiN nano	Solid carbide high performance reamers	Solid Carbide	SuperR-HS-S
72873	710	166	Stock std.	AlTiN nano	Solid carbide high performance reamers	Solid Carbide	SuperR-HS-D
72880	718	120	~ DIN 8093	bright	Carbide brazed machine reamers	Carbide	
72881	718	120	~ DIN 8093	bright	Carbide brazed machine reamers	Carbide	
72900	722	105	DIN 212-3	bright	NC machine chucking reamers	HSS-E	
72910	722	105	DIN 212-3	bright	NC machine chucking reamers	HSS-E	
72920	712	120	Stock std.	bright	NC machine chucking reamers	Solid Carbide	
72930	712	120	Stock std.	bright	NC machine chucking reamers	Solid Carbide	
73011	482	103	DIN 371	bright	Machine taps for ISO metric threads	Solid Carbide	H
73033	440	103	DIN 371	steam tempered	Machine taps for ISO metric threads	HSS-E	Produktiv N
73038	441	103	DIN 376	steam tempered	Machine taps for ISO metric threads	HSS-E	Produktiv N
73046	442	103	DIN 371	steam tempered	Machine taps for ISO metric threads	HSS-E	Intensiv N
73047	444	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73048	443	103	DIN 376	steam tempered	Machine taps for ISO metric threads	HSS-E	Intensiv N
73101	533	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N
73102	533	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N
73103	534	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N
73105	536	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N-LH

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Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
73106	536	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N-LH
73107	537	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N-LH
73110	539	118	DIN 2181	bright	Hand taps for ISO metric fine threads	HSS	N
73111	539	118	DIN 2181	bright	Hand taps for ISO metric fine threads	HSS	N
73120	521	103	~ DIN 371	bright	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
73121	528	103	DIN 371	bright	Fluteless machine taps for ISO metric threads	HSS-E	Durativ
73126	445	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Massiv N
73131	478	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Produktiv W
73132	449	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Produktiv N
73133	448	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Produktiv N
73136	481	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Intensiv W
73138	450	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Produktiv N
73145	454	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73146	453	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73148	455	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73156	480	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv W
73173	493	103	DIN 374	bright	Machine taps for ISO metric fine threads	HSS-E	Intensiv N
73176	468	103	DIN 371	steam tempered	Machine taps for ISO metric threads	HSS-E	Produktiv HD
73177	469	103	DIN 376	steam tempered	Machine taps for ISO metric threads	HSS-E	Produktiv HD
73178	496	103	DIN 374	steam tempered	Machine taps for ISO metric fine threads	HSS-E	Produktiv HD
73180	497	103	DIN 374	steam tempered	Machine taps for ISO metric fine threads	HSS-E	Intensiv HD
73183	487	103	DIN 374	steam tempered	Machine taps for ISO metric fine threads	HSS-E	Produktiv N
73185	446	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	N
73187	488	103	DIN 374	steam tempered	Machine taps for ISO metric fine threads	HSS-E	Produktiv N
73189	479	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Produktiv W
73191	447	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	N
73194	498	103	DIN 374	nitrided	Machine taps for ISO metric fine threads	HSS-E	G
73201	483	103	DIN 371	nitrided	Machine taps for ISO metric threads	HSS-E	G
73211	484	103	DIN 376	nitrided	Machine taps for ISO metric threads	HSS-E	G
73221	451	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73227	452	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Intensiv N
73237	489	103	DIN 374	bright	Machine taps for ISO metric fine threads	HSS-E	N
73243	552	103	DIN 357	bright	Machine nut taps for ISO metric threads	HSS-E	N
73248	551	103	Stock std.	bright	Machine combination drill taps	HSS-E	N
73250	491	103	DIN 374	bright	Machine taps for ISO metric fine threads	HSS-E	Produktiv N
73286	516	103	DIN 5156	bright	Machine taps for BSP-threads	HSS-E	Intensiv N
73288	518	103	DIN 5156	steam tempered	Machine taps for BSP-threads	HSS-E	Intensiv HD
73293	513	103	Stock std.	steam tempered	Machine taps for NPT-threads	HSS-E	CVA
73296	520	103	DIN 40432	bright	Machine taps for PG-threads for electr. conduits	HSS-E	Produktiv N
73297	503	103	~ DIN 371	steam tempered	Machine taps for UNC-threads	HSS-E	Produktiv HD
73298	504	103	~ DIN 376	steam tempered	Machine taps for UNC-threads	HSS-E	Produktiv HD
73299	511	103	~ DIN 374	steam tempered	Machine taps for UNF-threads	HSS-E	Produktiv HD
73300	517	103	DIN 5156	steam tempered	Machine taps for BSP-threads	HSS-E	Produktiv HD
73301	541	118	~ DIN 352	bright	Hand taps for UNC-threads	HSS	N
73302	541	118	~ DIN 352	bright	Hand taps for UNC-threads	HSS	N
73303	542	118	~ DIN 352	bright	Hand taps for UNC-threads	HSS	N
73304	505	103	~ DIN 371	steam tempered	Machine taps for UNC-threads	HSS-E	Intensiv HD
73305	506	103	~ DIN 376	steam tempered	Machine taps for UNC-threads	HSS-E	Intensiv HD
73306	512	103	~ DIN 374	steam tempered	Machine taps for UNF-threads	HSS-E	Intensiv HD
73308	499	103	~ DIN 371	steam tempered	Machine taps for UNC-threads	HSS-E	Produktiv N
73309	500	103	~ DIN 376	steam tempered	Machine taps for UNC-threads	HSS-E	Produktiv N
73310	509	103	~ DIN 374	steam tempered	Machine taps for UNF-threads	HSS-E	Produktiv N
73311	546	118	~ DIN 352	bright	Hand taps for BSW-threads	HSS	N
73312	546	118	~ DIN 352	bright	Hand taps for BSW-threads	HSS	N
73313	547	118	~ DIN 352	bright	Hand taps for BSW-threads	HSS	N
73315	549	118	DIN 5157	bright	Hand taps for BSP-threads	HSS	N
73316	549	118	DIN 5157	bright	Hand taps for BSP-threads	HSS	N
73319	544	118	~ DIN 2181	bright	Hand taps for UNF-threads	HSS	N
73320	544	118	~ DIN 2181	bright	Hand taps for UNF-threads	HSS	N
73321	514	103	DIN 5156	steam tempered	Machine taps for BSP-threads	HSS-E	Produktiv N
73322	501	103	~ DIN 371	steam tempered	Machine taps for UNC-threads	HSS-E	Intensiv N
73323	502	103	~ DIN 376	steam tempered	Machine taps for UNC-threads	HSS-E	Intensiv N
73324	510	103	~ DIN 374	steam tempered	Machine taps for UNF-threads	HSS-E	Intensiv N
73325	515	103	DIN 5156	steam tempered	Machine taps for BSP-threads	HSS-E	Intensiv N
73326	507	103	~ DIN 371	nitrided	Machine taps for UNC-threads	HSS-E	G
73327	508	103	~ DIN 376	nitrided	Machine taps for UNC-threads	HSS-E	G
73345	519	103	DIN 5156	nitrided	Machine taps for BSP-threads	HSS-E	G
73400	553	103	DIN EN 22568	bright	Dies for ISO metric threads	HSS	
73410	553	103	DIN EN 22568	bright	Dies for ISO metric threads	HSS	
73413	553	103	DIN EN 22568	nitrided	Dies for ISO metric threads	HSS-E	
73521	539	118	DIN 2181	bright	Hand taps for ISO metric fine threads	HSS	N
73522	549	118	DIN 5157	bright	Hand taps for BSP-threads	HSS	N

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73523	544	118	~ DIN 2181	bright	Hand taps for UNF-threads	HSS	N
73531	533	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N
73532	536	118	DIN 352	bright	Hand taps for ISO metric threads	HSS	N-LH
73534	546	118	~ DIN 352	bright	Hand taps for BSW-threads	HSS	N
73535	541	118	~ DIN 352	bright	Hand taps for UNC-threads	HSS	N
73619	463	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E-PM	Intensiv H
73640	458	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E-PM	Produktiv H
73641	470	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HD
73642	456	103	DIN 371	nitrided	Machine taps for ISO metric threads	HSS-E	Produktiv H
73643	471	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E-PM	Produktiv HD
73645	457	103	DIN 376	nitrided	Machine taps for ISO metric threads	HSS-E	Produktiv H
73646	495	103	DIN 374	nitrided	Machine taps for ISO metric fine threads	HSS-E	Produktiv H
73659	473	103	DIN 376	steam tempered	Machine taps for ISO metric threads	HSS-E	Intensiv HD
73660	472	103	DIN 371	steam tempered	Machine taps for ISO metric threads	HSS-E	Intensiv HD
73661	461	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E	Intensiv H
73662	474	103	DIN 371	bright	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HD
73664	462	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E	Intensiv H
73665	476	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E-PM	Intensiv HD
73666	464	103	DIN 376	bright	Machine taps for ISO metric threads	HSS-E-PM	H R15
73810	530	108	Stock std.	bright	Thread milling cutters for metric ISO threads	Solid Carbide	TMC SP
73820	531	108	Stock std.	bright	Thread milling cutters for metric ISO fine threads	Solid Carbide	TMC SP
73830	532	108	Stock std.	bright	Thread milling cutters for metric ISO threads	Solid Carbide	TM SP
74080	684	112	Stock std.	bright	Micro Slot drills, 3-fluted	M42	N
74180	685	112	Stock std.	bright	Micro Slot drills, 3-fluted	M42	N
74202	629	117	DIN 6527 L	bright	Slot drills type W	Solid Carbide	W
74203	650	117	DIN 6527 L	bright	Roughing end mills	Solid Carbide	WR
74204	628	117	DIN 6527 K	bright	Slot drills type W	Solid Carbide	W
74206	630	117	Stock std.	bright	Slot drills type W	Solid Carbide	W
74231	675	112	DIN 327	bright	Slot drills, 2-fluted	M42	N
74243	677	112	DIN 844 K	bright	Slot drills, 2-fluted	M42	N
74244	679	112	DIN 844 L	bright	Slot drills, 2-fluted	M42	N
74276	695	112	Stock std.	bright	Ball nose end mills, 2-fluted	M42	N
74280	681	112	DIN 327	bright	Slot drills, 3-fluted	M42	N
74282	682	112	DIN 844 K	bright	Slot drills, 3-fluted	M42	N
74303	650	106	DIN 6527 L	bright	Roughing end mills	Solid Carbide	WR
74404	618	117	Stock std.	bright	Slot drills, 2-fluted	Solid Carbide	N
74424	623	117	Stock std.	bright	Slot drills, 3-fluted	Solid Carbide	N
74471	634	106	DIN 6527 L	bright	Slot drills NH, 3-fluted	Solid Carbide	NH
74478	633	106	DIN 6527 L	bright	Slot drills NH, 3-fluted	Solid Carbide	NH
74479	631	106	Stock std.	bright	Slot drills type W	Solid Carbide	W
74520	614	117	DIN 6527 K	bright	Slot drills, 2-fluted	Solid Carbide	N
74521	616	117	DIN 6527 L	bright	Slot drills, 2-fluted	Solid Carbide	N
74522	620	117	DIN 6527 K	bright	Slot drills, 3-fluted	Solid Carbide	N
74523	621	117	DIN 6527 L	bright	Slot drills, 3-fluted	Solid Carbide	N
74525	636	117	DIN 6527 L	bright	End mills, 4-fluted	Solid Carbide	N
74531	657	117	DIN 6528	bright	Ball nose end mills	Solid Carbide	N
74543	654	117	DIN 6527 L	bright	Ball nose end mills	Solid Carbide	N
74545	656	117	Stock std.	bright	Ball nose end mills	Solid Carbide	N
74552	581	106	~ DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al-3
74553	582	106	~ DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al-3
74554	579	106	DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al
74555	579	106	DIN 6527 L	bright	SuperF-UT end mills Alu	Solid Carbide	SuperF-UT Al
74617	686	112	DIN 844 K	bright	End mills, multiple fluted	M42	N
74800	688	112	Stock std.	bright	End mills, multiple fluted	M42	N
74815	689	112	DIN 844 K	bright	Roughing and Finishing End Mills, 4-fluted	M42	NF
74816	691	112	DIN 844 K	bright	Roughing end mills	M42	NR
74825	690	112	DIN 844 K	bright	Roughing end mills	HSS-E-PM	NRf
74836	693	112	DIN 844 L	bright	Roughing end mills	M42	NR
74845	692	112	DIN 844 K	bright	Roughing end mills	HSS-E-PM	NRf
74847	687	112	DIN 844 L	bright	End mills, multiple fluted	M42	N
75017	393	123	Stock std.	TiN	Gun drill, Type SuperT-N	Carbide	SuperT-N
75018	392	123	Stock std.	TiN	Gun drill, Type SuperT-N	Carbide	SuperT-N
75020	401	123	Stock std.	bright	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
75021	403	123	Stock std.	bright	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
75022	394	123	Stock std.	TiN	Gun drill, Type SuperT-N	Carbide	SuperT-N
75023	395	123	Stock std.	TiN	Gun drill, Type SuperT-N	Carbide	SuperT-N
75024	400	123	Stock std.	bright	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
75026	402	123	Stock std.	bright	Gun drills TBE-VHM	Solid Carbide	TBE-VHM
75030	404	123	Stock std.	bright	Two-fluted gun drill, Type SuperT-GG	Carbide	SuperT-GG
76000	174	140	Stock std.	nickel-plated	Tool holders SuperV-AP maxi		SuperV-AP maxi
76001	176	140	Stock std.	nickel-plated	Tool holders SuperV-AP maxi		SuperV-AP maxi
76003	178	140	Stock std.	nickel-plated	Tool holders SuperV-AP maxi		SuperV-AP maxi

Catalog no. Index

Catalog no.	Standard range, page	Discount group	Standard	Surface	Description	Tool material	Type
76011	180	141	Stock std.	TiN	Interchangeable inserts for SuperV-AP maxi	Solid Carbide	SuperV-AP maxi
76012	180	141	Stock std.	bright	Interchangeable inserts for SuperV-AP maxi	Solid Carbide	SuperV-AP maxi
76020	184	140	Stock std.		Clamping screw		
76021	173/185	140	Stock std.		Torx screw drivers		
77000	152	140	Stock std.	nickel-plated	Tool holders SuperV-AP mini		SuperV-AP mini
77001	154	140	Stock std.	nickel-plated	Tool holders SuperV-AP mini		SuperV-AP mini
77003	156	140	Stock std.	nickel-plated	Tool holders SuperV-AP mini		SuperV-AP mini
77004	158	140	Stock std.	nickel-plated	Tool holders SuperV-AP mini		SuperV-AP mini
77007	150	140	Stock std.	nickel-plated	Tool holders SuperV-AP mini		SuperV-AP mini
77011	168	141	Stock std.	AlTiN nano	Interchangeable inserts for SuperV-AP mini	Solid Carbide	SuperV-AP mini NC
77012	164	141	Stock std.	bright	Interchangeable inserts for SuperV-AP mini	Solid Carbide	SuperV-AP mini AL
77020	172	140	Stock std.		Clamping screw		
77021	173/185	140	Stock std.		Torx socket sets		
77022	172/184	114	Stock std.		Torque wrenches		
78877	284	138	Stock std.		Stands for twist drill sets		
78878	284	138	Stock std.		Cases for twist drill sets		
78879	282	130	DIN 338	bright/steam t. > Ø 2,36 mm	Set of jobber drills in case	HSS	N/NX
78880	282	130	DIN 338	TiN - tip coated	Set of jobber drills in case	HSS	N
51782	70	–	Stock std.	TiAlN	SuperV-drills without internal coolant	Solid Carbide	SuperV70
51783	125	–	Stock std.	TiAlN	SuperV-drills with internal coolant	Solid Carbide	SuperV70
71560	361	138			Oil feed adaptors		



Chip – by Chip – to the Top

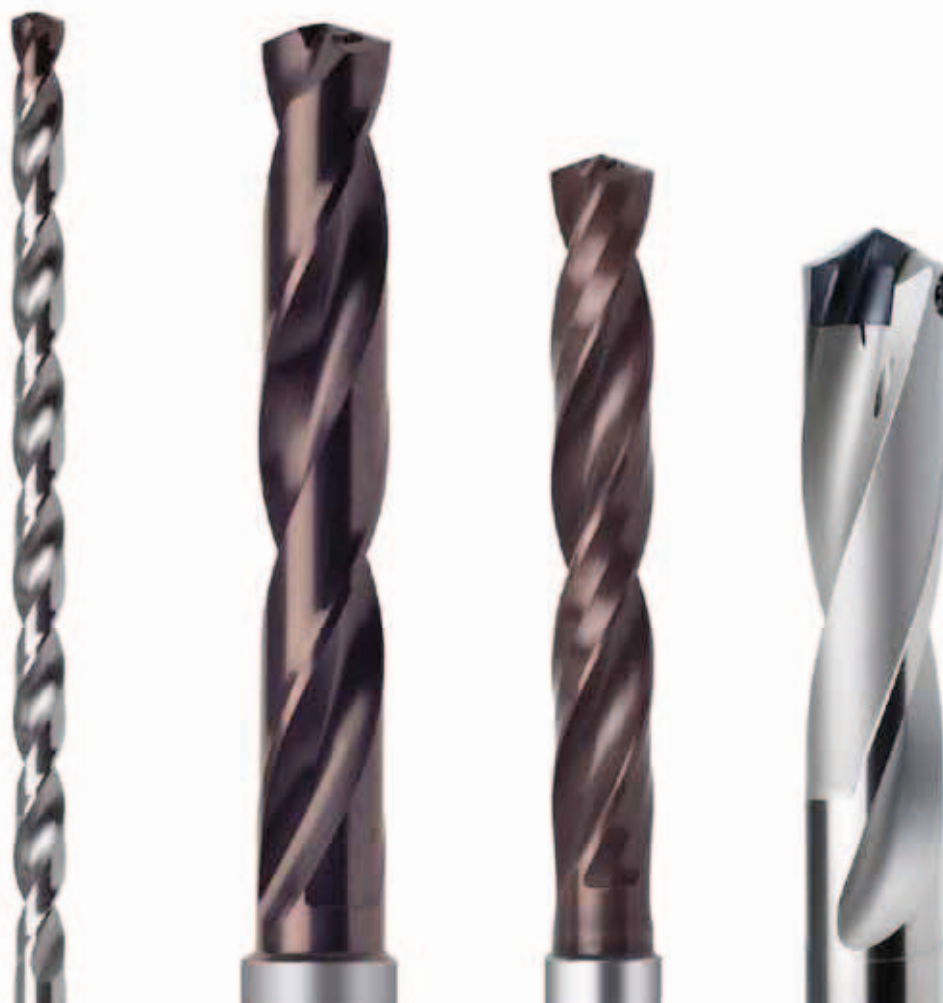


AIRCRAFT INDUSTRY












CARBIDE DRILLS



SuperV-drills

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperV-drills without internal coolant

	SuperV-F	cyl.	3xD	Solid Carbide	TiN	DIN 6539	3,000 - 12,000	61888	121	60
	SuperV-U	HA	3xD	Solid Carbide	TiAlN nano	DIN 6537 K	3,000 - 20,000	51873	121	62
	SuperV-U	HE	3xD	Solid Carbide	TiAlN nano	DIN 6537 K	3,000 - 20,000	51871	121	62
	SuperV-S	HA	3xD	Solid Carbide	TiAlSiN	DIN 6537 K	3,000 - 20,000	51750	121	62
	SuperV-U	HA	5xD	Solid Carbide	TiAlN nano	DIN 6537 L	3,000 - 20,000	51787	121	66
	SuperV-U	HE	5xD	Solid Carbide	TiAlN nano	DIN 6537 L	3,000 - 20,000	51887	121	66
	SuperV70	HA	8xD	Solid Carbide	TiAlN	Stock std.	4,000 - 20,000	51782	–	70

SuperV-drills

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperV-drills with internal coolant

	SuperV-IK-F	HE	3xD	Solid Carbide	TiN	DIN 6537 K	4,000 - 22,000	61875	121	72
	SuperV-IK-F	HE	3xD	Solid Carbide	TiAlN nano	DIN 6537 K	5,000 - 16,000	51875	121	72
	SuperV-IK-U	HA	3xD	Solid Carbide	TiAlN nano	DIN 6537 K	3,000 - 20,000	51776	121	75
	SuperV-IK-U	HE	3xD	Solid Carbide	TiAlN nano	DIN 6537 K	3,000 - 20,000	51876	121	75
	SuperV-IK-S	HA	3xD	Solid Carbide	TiAlSiN	DIN 6537 K	3,000 - 20,000	51752	121	79
	SuperV-IK-S	HE	3xD	Solid Carbide	TiAlSiN	DIN 6537 K	3,000 - 20,000	51753	121	79
	SuperV-VA	HA	3xD	Solid Carbide	AlTiN nano	DIN 6537 K	3,000 - 20,000	51770	121	83
	SuperV-VA	HE	3xD	Solid Carbide	AlTiN nano	DIN 6537 K	3,000 - 20,000	51771	121	83
	SuperV90-U	HE	3xD	Carbide	TiN	DIN 6538 K	9,500 - 18,100	61823	128	87
	SuperV95-GG	HA	4xD	Solid Carbide	bright	Stock std.	3,000 - 20,000	71995	121	89
	SuperV-IK-F	HE	5xD	Solid Carbide	TiN	DIN 6537 L	4,000 - 25,000	61880	121	92
	SuperV-IK-F	HE	5xD	Solid Carbide	TiAlN nano	DIN 6537 L	5,000 - 18,000	51880	121	92
	SuperV-IK-U	HA	5xD	Solid Carbide	TiAlN nano	DIN 6537 L	3,000 - 20,000	51781	121	95

SuperV-drills

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperV-drills with internal coolant

	SuperV-IK-U	HE	5xD	Solid Carbide	TiAlN nano	DIN 6537 L	3,000 - 20,000	51881	121	95
	SuperV-GR	HA	5xD	Solid Carbide	TiAlN	DIN 6537 L	3,000 - 20,000	51760	165	95
	SuperV-IK-S	HA	5xD	Solid Carbide	TiAlSiN	DIN 6537 L	3,000 - 20,000	51754	121	99
	SuperV-IK-S	HE	5xD	Solid Carbide	TiAlSiN	DIN 6537 L	3,000 - 20,000	51755	121	99
	SuperV-VA	HA	5xD	Solid Carbide	AlTiN nano	DIN 6537 L	3,000 - 20,000	51772	121	103
	SuperV-VA	HE	5xD	Solid Carbide	AlTiN nano	DIN 6537 L	3,000 - 20,000	51773	121	103
	SuperV90-U	HE	5xD	Carbide	TiN	DIN 6538 M	10,000 - 20,000	61824	128	107
	SuperV-IK-U	HA	7xD	Solid Carbide	TiN	Stock std.	5,000 - 20,000	61889	121	109
	SuperV-IK-U	HA	7xD	Solid Carbide	TiAlN nano	Stock std.	3,000 - 20,000	51789	121	109
	SuperV-IK-U	HE	7xD	Solid Carbide	TiAlN nano	Stock std.	3,000 - 20,000	51889	121	109
	SuperV-IK-S	HA	7xD	Solid Carbide	TiAlSiN	Stock std.	3,000 - 16,000	51756	121	112
	SuperV-GR	HA	7xD	Solid Carbide	TiAlN	Stock std.	4,000 - 20,000	51761	165	112
	SuperV90-U	HE	7xD	Carbide	TiN	DIN 6538 L	9,600 - 17,000	61825	128	116

SuperV-drills

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperV-drills with internal coolant

	SuperV95-GG	HA	7xD	Solid Carbide	bright	Stock std.	3,000 - 20,000	71994	121	118
	SuperV95-GG	HA	10xD	Solid Carbide	bright	Stock std.	3,000 - 20,000	71996	121	120
	SuperV-IK-U	HA	12xD	Solid Carbide	TiAlN nano - tip coated	Stock std.	3,000 - 20,000	51893	121	122
	SuperV95-GN	HA	15xD	Solid Carbide	bright	Stock std.	5,000 - 14,000	71997	121	127
	SuperV-T	HA	15xD	Solid Carbide	AlTiN - tip coated	Stock std.	3,000 - 14,000	51764	165	129
	SuperV-T	HA	20xD	Solid Carbide	AlTiN - tip coated	Stock std.	3,000 - 14,000	51765	165	131
	SuperV-T	HA	25xD	Solid Carbide	AlTiN - tip coated	Stock std.	3,000 - 12,000	51766	165	133
	SuperV-T	HA	30xD	Solid Carbide	AlTiN - tip coated	Stock std.	3,000 - 10,000	51767	165	135
	SuperV-T	HA	40xD	Solid Carbide	AlTiN - tip coated	Stock std.	3,000 - 8,000	51768	165	137
	SuperV70	HA	12xD	Solid Carbide	TiAlN	Stock std.	4,000 - 20,000	51783	–	125

SuperV-drills

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperV drills, 3-fluted



SuperV83-GAL	HA	5xD	Solid Carbide	bright	DIN 6537 L	3,000 - 20,000	71862	109	139
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SuperV-NX solid carbide high-performance microdrills



SuperV-NX	cyl.	4xD	Solid Carbide	AlTiN+	Stock std.	0,500 - 3,000	71998	164	142
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SuperV-NX	cyl.	7xD	Solid Carbide	AlTiN+	Stock std.	0,500 - 3,000	71999	164	144
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SuperV-IK-NX	cyl.	8xD	Solid Carbide	AlTiN	Stock std.	1,400 - 3,000	51998	164	146
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SuperV-IK-NX	cyl.	15xD	Solid Carbide	AlTiN - tip coated	Stock std.	1,400 - 3,000	51999	164	148
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SuperV Drilling system

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Tool holders SuperV-AP mini



SuperV-AP mini	HE	1,5xD		nickel-plated	Stock std.	11,000 - 40,000	77007	140	150
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SuperV-AP mini	HE	3xD		nickel-plated	Stock std.	11,000 - 40,000	77000	140	152
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SuperV-AP mini	HE	5xD		nickel-plated	Stock std.	11,000 - 40,000	77001	140	154
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SuperV-AP mini	HE	7xD		nickel-plated	Stock std.	11,000 - 40,000	77003	140	156
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SuperV-AP mini	HE	10xD		nickel-plated	Stock std.	11,000 - 32,990	77004	140	158
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Interchangeable inserts for SuperV-AP mini



SuperV-AP mini GG			Solid Carbide	TiAlN	Stock std.	11,000 - 40,000	57011	141	160
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SuperV-AP mini U			Solid Carbide	TiAlN nano	Stock std.	11,000 - 40,000	67011	141	160
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SuperV-AP mini VA			Solid Carbide	AlTiN nano	Stock std.	11,000 - 40,000	67012	141	164
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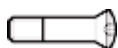


SuperV-AP mini AL			Solid Carbide	bright	Stock std.	11,000 - 40,000	77012	141	164
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SuperV-AP mini NC			Solid Carbide	AlTiN nano	Stock std.	11,000 - 40,000	77011	141	168
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Clamping screw



					Stock std.	M 2,2 - M 6	77020	140	172
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SuperV Drilling system

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Torque wrenches



Stock std.	-	77022	114	172
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Torx socket sets



Stock std.	T 6 - T10	77021	140	173
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Torx screw drivers



Stock std.	T7 - T20	76021	140	173
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Tool holders SuperV-AP maxi



SuperV-AP maxi	HE	3xD	nickel-plated	Stock std.	17,000 - 40,500	76000	140	174
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SuperV-AP maxi	HE	5xD	nickel-plated	Stock std.	17,000 - 40,500	76001	140	176
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SuperV-AP maxi	HE	7xD	nickel-plated	Stock std.	17,000 - 40,500	76003	140	178
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Interchangeable inserts for SuperV-AP maxi



SuperV-AP maxi	Solid Carbide	bright	Stock std.	16,000 - 40,500	76012	141	180
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SuperV-AP maxi	Solid Carbide	TiN	Stock std.	16,000 - 40,500	76011	141	180
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SuperV-AP maxi	Solid Carbide	TiAlN	Stock std.	16,000 - 40,500	56011	141	182
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SuperV Drilling system

Type	Shank form	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Clamping screw



Stock std.	M 3 X0,35 - M 5 X0,5	76020	140	184
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Torque wrenches



Stock std.	-	77022	114	184
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Torx socket sets



Stock std.	T 6 - T10	77021	140	185
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Torx screw drivers



Stock std.	T7 - T20	76021	140	185
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Carbide drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Stub drills



N	right-hand	118	Solid Carbide	bright	DIN 6539	1,000 - 15,000	71184	102	186
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N	right-hand	118	Solid Carbide	TiAlN nano	DIN 6539	1,000 - 12,000	51184	102	186
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Jobber drills



N	right-hand	118	Solid Carbide	bright	Stock std.	1,000 - 12,000	71290	102	189
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NC-spotting drills



N	right-hand	90	Solid Carbide	bright	Stock std.	5,000 - 20,000	71190	102	192
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N	right-hand	120	Solid Carbide	bright	Stock std.	5,000 - 20,000	71191	102	192
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N	right-hand	142	Solid Carbide	bright	Stock std.	4,000 - 20,000	71189	102	192
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Special drills with carbide blade



N	right-hand	118	Carbide	bright	DIN 8037	1,500 - 20,000	71180	102	194
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Special drills with carbide blade



N	right-hand	118	Carbide	bright	DIN 8041	11,000 - 33,000	71380	102	196
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Solid carbide centre drills

Form	Cutting direction		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Center drills without flat



A	right-hand	Solid Carbide	bright	Stock std.	1,000 - 6,300	71616	102	197
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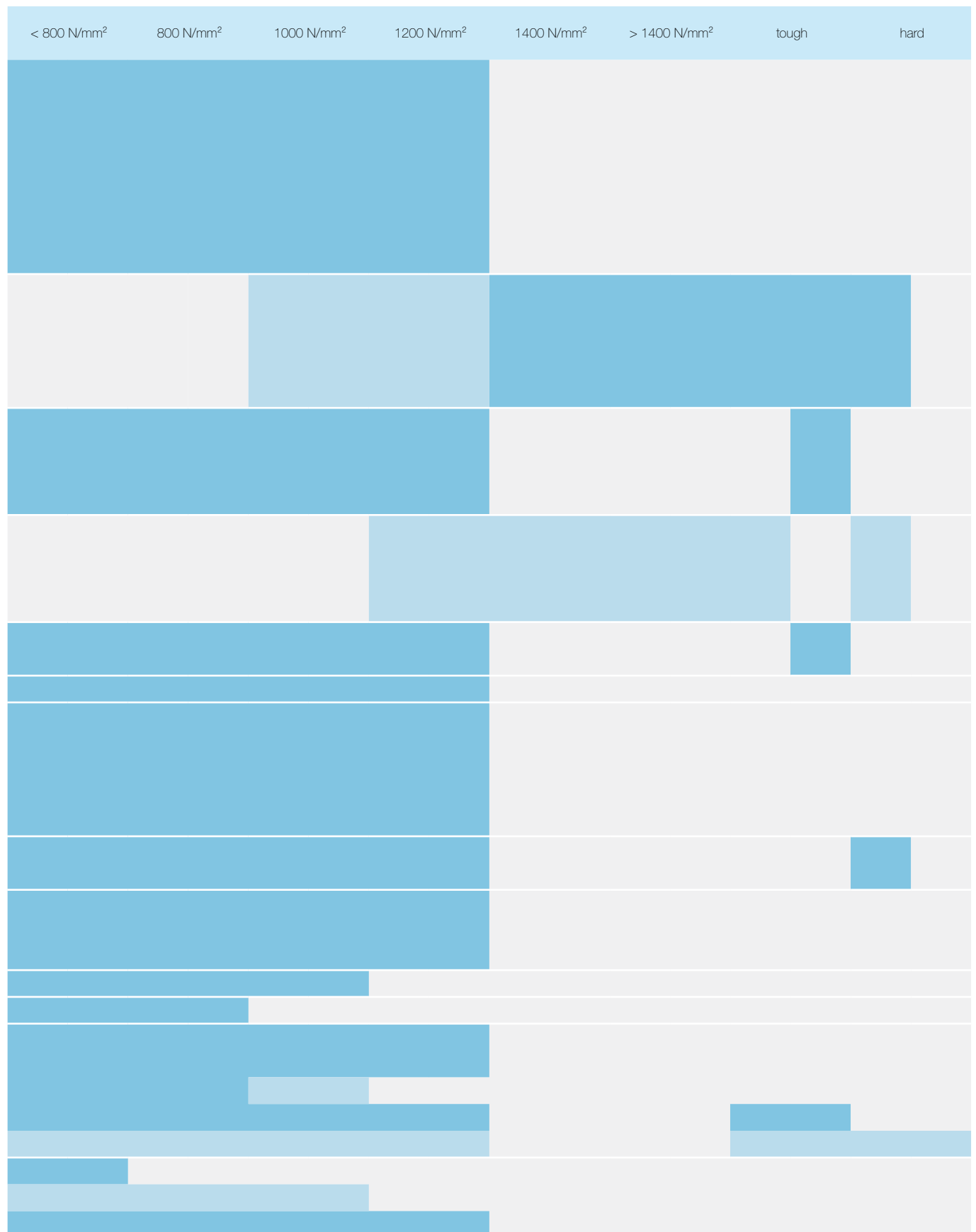
Application

by materials

Type	Catalogue no.		Non-ferrous metals, Aluminium	Steels	Cast iron	Stainless and acid- resistant steels	Nickel, Ti-alloys	Hardened steels
	without IC	with IC						
SuperV-U	51873	51776						
	51871	51876						
	51787	51781						
	51887	51881						
		51789						
		51889						
		51893						
		61889						
SuperV-S	51750	51752						
		51753						
		51754						
		51755						
		51756						
SuperV-VA		51770						
		51771						
		51772						
		51773						
SuperV-F	61888	61875						
		51875						
		61880						
		51880						
SuperV-NX	71998	51998						
	71999	51999						
SuperV70	51782	51783						
SuperV-T		51764						
		51765						
		51766						
		51767						
		51768						
SuperV-GR		51760						
		51761						
SuperV95-GG		71995						
		71994						
		71996						
SuperV95-GN		71997						
SuperV83-GAL	71862							
SuperV-AP mini		67011						
		57011						
		77012						
		67012						
		77011						
SuperV-AP maxi		76012	NC-indexable insert for centering and pilot holes					
		76011						
		56011						
			optimal	well suited				

■ optimal
 ■ well suited

by tensile strength



Application recommendations for SuperV drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P

Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Bold letter in the type box indicates:

- G** for cast iron, AlSi-alloys
- S** for high tensile materials
- U** for universal operations, carbon steels

* use tools with large backtaper

Lubricants:

- cutting oil, highly activated
- soluble oil (emulsion)
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		
Hardened steels	-		≤40-48 HRC >48-60 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	
Chilled cast iron	-		≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	>600-850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		
Kevlar	Kevlar		-	
Glass/carbon-concentr. plastics	GFK/CFK		-	

≤3×D drilling depth

Catalogue no.	61823	61888	51873	51871	51750	61875	51875	51776	51876
Tool material	TCT	STC	STC	STC	STC	STC	STC	STC	STC
Carbide grade	P	K/P	K/P	K/P	K/P	K/P	K/P	K/P	K/P
Surface finish	TiN	TiN	TiAlN nano	TiAlN nano	TiAlSiN	TiN	TiAlN nano	TiAlN nano	TiAlN nano
DIN/Form	6538K	6539	6537K	6537K	6537K	6537K	6537K	6537K	6537K
Type	V90-U	F	U	U	S	IK-F	IK-F	IK-U	IK-U
Coolant	axial					axial	axial	axial	axial
Page	87	60	62	62	62	72	72	75	75



V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed column no.		V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed column no.		
95	F	100	F	130	G	G	130	G	110	F	145	G	G	G
80	E	85	E	110	F	F	110	F	90	E	120	F	F	F
95	G	110	G	145	H	H	145	H	130	G	170	H	H	H
75	F	85	F	110	G	G	110	G	110	G	145	H	H	H
80	F	90	F	120	G	G	120	G	100	G	130	H	H	H
75	F	85	F	110	G	G	110	G	95	F	125	G	G	G
70	F	80	F	105	G	G	105	G	90	F	120	G	G	G
75	F	80	F	105	G	G	105	G	90	F	120	G	G	G
60	E	75	E	100	F	F	100	F	80	F	105	G	G	G
90	G	100	G	130	H	H	130	H	110	G	145	H	H	H
75	F	90	F	120	G	G	120	G	90	F	120	G	G	G
60	E	65	D	85	E	E	85	E	65	D	85	E	E	E
75	F	75	E	100	F	F	100	F	85	F	110	G	G	G
60	E	70	D	90	E	E	90	E	80	D	105	E	E	E
45	E	50	E	65	F	F	65	F	60	E	80	F	F	F
35	E	40	D	55	E	E	55	E	50	D	65	E	E	E
40	D	40	C				55	D	45	C	60	D	D	D
		45	B	45	C	C	45	C	45	B	60	C	C	C
40	B	40	C	55	D	D			45	D	60	E	E	E
35	B	35	C	45	D	D			40	D	55	E	E	E
35	B	35	B	45	C	C			35	D	45	E	E	E
		35	B	45	C	C	45	C	40	B	55	C	C	C
		20	A	25	B	B	25	B	25	A	35	B	B	B
		20	C	25	D	D	25	D	25	C	35	D	D	D
150	G	160	G	210	H	H			160	H	210	I	I	I
110	G	120	G	155	H	H			120	H	160	I	I	I
110	G	120	G	155	G	G			100	H	140	I	I	I
90	F	95	G	125	G	G			95	G	130	H	H	H
		25	B	35	C	C			30	B	40	C	C	C
		30	B	40	D	D	40	C	35	C	45	D	D	D
		25	B	35	C	C	35	C	30	B	40	C	C	C
200	H	200	H	260	I	I			240	H	310	I	I	I
200	H	200	H	260	I	I			240	H	310	I	I	I
170	H	170	H	220	H	H			200	H	260	I	I	I
140	G	140	G	180	H	H			170	H	220	I	I	I
		200	G	260	H	H			230	G	280	H	H	H
		80	F	105	G	G			95	F	125	G	G	G
		210	G	270	H	H			250	G	325	H	H	H
		140	F	180	G	G			170	F	220	G	G	G
		80	E	105	F	F			95	F	125	G	G	G
		65	E	85	F	F			80	E	105	F	F	F
		60	D	80	E	E			70	E	90	F	F	F
		45	D	60	E	E			60	E	80	F	F	F

Application recommendations for SuperV drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

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Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		
Hardened steels	-		≤40-48 HRC >48-60 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	
Chilled cast iron	-		≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	>600-850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		
Kevlar	Kevlar		-	
Glass/carbon-concentr. plastics	GFK/CFK		-	

Application recommendations for SuperV drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

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- soluble oil (emulsion) ■
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Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■
Kevlar	Kevlar		-	
Glass/carbon-concentr. plastics	GFK/CFK		-	

$\leq 5 \times D$ drilling depth

Catalogue no.	51880	51781	51881
Tool material	STC	STC	STC
Carbide grade	K/P	K/P	K/P
Surface finish	TiAlN nano	TiAlN nano	TiAlN nano
DIN/Form	6537L	6537L	6537L
Type	IK-F	IK-U	IK-U
Coolant	axial	axial	axial
Page	92	95	95

51754	51755
STC	STC
K/P	K/P
TiAlSiN	TiAlSiN
6537L	6537L
IK-S	IK-S
axial	axial
99	99

51772	51773
STC	STC
K/P	K/P
AlTiN nano	AlTiN nano
6537L	6537L
VA	VA
axial	axial
103	103

51760
STC
K/P
TiAlN
6537L
GR
axial
95

71862
STC
K
bright
6537L
V83-GAL
139



V _c m/min	Feed column no.		
145	G	G	G
120	F	F	F
170	H	H	H
145	H	H	H
130	H	H	H
125	G	G	G
120	G	G	G
120	G	G	G
105	G	G	G
145	H	H	H
120	G	G	G
85	E	E	E
105	G	G	G
100	E	E	E
70	F	F	F
55	E	E	E
60	D	E	E
60	C	C	C
60	E	E	E
55	E	E	E
50	E	E	E
55	C	C	C
35	B	B	B
35	D	D	D
195	I	I	I
160	I	I	I
140	I	I	I
130	H	H	H
40	C	C	C
45	D	D	D
40	C	C	C
310	I	I	I
310	I	I	I
260	I	I	I
220	I	I	I
280	H	H	H
125	G	G	G
325	H	H	H
220	G	G	G
125	G	G	G
105	F	F	F
90	F	F	F
80	F	F	F

V _c m/min	Feed column no.	
145	G	G
120	F	F
170	H	H
145	H	H
130	H	H
125	G	G
120	G	G
120	G	G
105	G	G
145	H	H
120	G	G
85	E	E
110	G	G
105	E	E
80	F	F
65	E	E
60	D	D
60	C	C
55	C	C
35	B	B
35	D	D
45	D	D
40	C	C

V _c m/min	Feed column no.	
80	E	E
60	B-C	B-C
80	E	E
30	B	B
35	B	B

V _c m/min	Feed no.
210	I
160	I
160	I
130	H
130	H
100	H
100	H
80	H
60	H

V _c m/min	Feed no.
100	F
80	F
80	F
70	F
180	G
160	G
150	G
120	F
180	F
180	F

Application recommendations for SuperV drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P

Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Bold letter in the type box indicates:

- G** for cast iron, AlSi-alloys
- S** for high tensile materials
- U** for universal operations, carbon steels

* use tools with large backtaper

Lubricants:

- cutting oil, highly activated
- soluble oil (emulsion)
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		
Hardened steels	-		≤40-48 HRC >48-60 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	
Chilled cast iron	-		≤350 HB	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	>600-850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		
Kevlar	Kevlar		-	
Glass/carbon-concentr. plastics	GFK/CFK		-	

$$\leq 8 \times D \quad \leq 10 \times D$$

Catalogue no.	61825	61889	51789	51889	51756	51761	71994	51782	71996
Tool material	TCT	STC	STC	STC	STC	STC	STC	STC	STC
Carbide grade	P	K/P	K/P	K/P	K/P	K/P	K	K	K
Surface finish	TiN	TiN	TiAlN nano		TiAlSiN	TiAlN	bright	TiAlN	bright
DIN/Form	6538L	Stock	Stock	Stock	Stock	Stock	Stock	Stock	Stock
Type	V90-U	IK-U	IK-U	IK-U	IK-S	GR	V95-GG	V70	V95-GG
Coolant	axial	axial	axial	axial	axial	axial	axial		axial
Page	116	109	109	109	112	112	118	70	120



V _c m/min	Feed no.	V _c m/min	Feed no.	V _c m/min	Feed column no.		V _c m/min	Feed no.	V _c m/min	Feed no.	V _c m/min	Feed no.	V _c m/min	Feed no.	V _c m/min	Feed no.
95	D	110	E	145	F	F	145	F					100	E		
75	C	90	D	120	E	E	120	E					85	D		
90	E	130	F	170	G	G	170	G					110	F		
75	D	110	F	145	G	G	145	G					85	F		
80	D	100	F	130	G	G	130	G					90	F		
75	D	95	E	125	F	F	125	F					85	E		
60	D	90	E	120	F	F	120	F					80	E		
75	D	90	E	120	F	F	120	F					80	E		
60	C	80	E	105	F	F	105	F					75	E		
90	E	110	F	145	G	G	145	G					100	F		
75	D	90	E	120	F	F	120	F					85	E		
55	C	65	C	85	D	D	85	D					60	C		
75	D	80	E	110	F	F	110	F					75	E		
55	C	75	D	105	D	D	105	D					70	D		
40	C	55	D	80	E	E	80	E					50	D		
35	C	40	C	65	D	D	65	D					35	C		
40	B	45	B	60	D	D	60	C					40	B		
		45	A	60	B	B	60	B					40	A		
													40	C		
													40	C		
													30	C		
		40	A	55	B	B	55	B					35	A		
							35	A					20	A		
		25	B	35	C	C	35	C					20	B		
150	E	150	G	195	H	H			210	H	120	F	130	G	120	F
110	E	120	G	160	H	H			160	H	100	F	110	G	100	F
110	E	100	G	140	H	H			160	H	90	F			90	F
90	D	95	F	130	G	G			130	G	80	F			80	F
		30	A	40	B	B					40	B			40	A
							45	C								
							40	D					90	G		
180	F	240	G	310	H	H					410	H	85	F	410	H
180	F	240	G	310	H	H					410	H	25	A	410	H
160	F	200	G	260	H	H					380	H	30	A	380	H
130	E	170	G	220	H	H					330	H			330	H
		230	F	280	G	G							220	G		
		95	F	125	F	F							220	G		
		250	G	325	G	G					280	G	180	G	280	G
		170	F	220	F	F							150	G		
		95	F	125	F	F					110	F	210	F	110	F
		80	E	105	E	E					80	E	85	F	80	E
		70	E	90	E	E							220	G		
		60	E	80	E	E							150	F		
									130	G						
									100	G						
									80	G						
									60	G						

Application recommendations for SuperV drills

Feed column										
Code-letter		A	B	C	D	E	F	G	H	I
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P

Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Bold letter in the type box indicates:

- G** for cast iron, AlSi-alloys
- S** for high tensile materials
- U** for universal operations, carbon steels

* use tools with large backtaper

Application recommendations for SuperV-T-drills:

In order to achieve optimal machining results when producing deep holes, we recommend:

- Production of a cylindrical pilot hole (tolerance F9) with a min. drilling depth of 1 x D with our SuperV drill type U or VA (140° point angle, tolerance m7). Or alternatively the Pilot Drill-Mill cat. no. 54700
- Entry in the pilot hole: speed approx. 300 rev./min, feed rate approx. 500 mm/min.
- Setting of coolant pressure and speed.
- Continuous drilling to complete hole depth without withdrawing.
- For through holes with plain - i.e. 90° - exit, reduce feed rate v_f to 50 % approx. 1 mm prior to break-through.
- For through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to break-through.
- After reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear.

Lubricants:

- cutting oil, highly activated ☒
- soluble oil (emulsion) ☒
- without lubricant ☐
- air only ☐

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(S133), 1.0486 P275N(S1E285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/>
Free-cutting steels	1.0718 11SMnPB30 (9SMnPB28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/>
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000 ≥650-1000		<input checked="" type="checkbox"/>
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3			<input checked="" type="checkbox"/>
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		<input checked="" type="checkbox"/>
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		<input checked="" type="checkbox"/>
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		<input checked="" type="checkbox"/>
Hardened steels	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB ≤300 HB	<input checked="" type="checkbox"/>
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤350 HB	<input checked="" type="checkbox"/>
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		<input checked="" type="checkbox"/>
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		<input type="checkbox"/>
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		<input checked="" type="checkbox"/>
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		<input checked="" type="checkbox"/>
	2.0790 CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			<input checked="" type="checkbox"/>
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/>
Kevlar	Kevlar		-	<input type="checkbox"/>
Glass/carbon-concentr. plastics	GFK/CFK		-	<input type="checkbox"/>

$\leq 12 \times D$
 $\leq 15 \times D$ $\leq 15 \times D$ $\leq 20 \times D$ $\leq 25 \times D$ $\leq 30 \times D$ $\leq 40 \times D$

Catalogue no.	51893
Tool material	STC
Carbide grade	K/P
Surface finish	TiAlN nano
DIN/Form	Stock
Type	IK-U
Coolant	axial
Page	122



51783
STC
K
TiAlN
Stock
V70
axial
125



71997
STC
K
bright
Stock
V95-GN
axial
127



51764
STC
K/P
AlTiN
Stock
T
axial
129



51765
STC
K/P
AlTiN
Stock
T
axial
131



51766
STC
K/P
AlTiN
Stock
T
axial
133



51767
STC
K/P
AlTiN
Stock
T
axial
135



51768
STC
K/P
AlTiN
Stock
T
axial
137

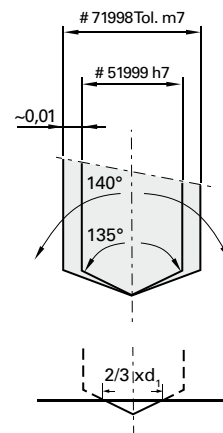


V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.	V _C m/min	Feed no.
110	H	90	F			110	H	110	H	100	H	80	G	80	G
110	H	80	E			110	H	110	H	100	H	80	G	80	G
120	H	100	G			120	H	120	H	120	H	100	H	100	H
120	H	90	G			120	H	120	H	100	H	100	H	100	H
110	F	90	G			110	F	110	F	110	F	110	F	110	F
110	H	80	F			110	H	110	H	100	H	80	G	80	G
100	G	80	F			100	G	100	G	100	G	80	G	80	G
110	G	80	F			110	G	110	G	100	G	80	G	80	F-G
110	F	60	F			110	F	110	F	100	F	80	F	80	F
110	H	90	G			110	H	110	H	100	H	80	G	80	G
110	G	80	F			110	G	110	G	100	G	80	F	80	F
110	F	60	D			110	F	110	F	100	F	80	F	80	F
100	E	60	F			100	E	100	E	80	E	80	E	80	E
80	E	50	D			80	E	80	E	60	E	60	E	60	E
100	F	50	E			100	F-G	100	F	90	F	80	F	80	F-G
80	E	40	D			80	E	80	E	70	D	70	D	70	D
50	E	35	D			50	E	50	E	50	D	50	D	50	D
50	E	35	B			50	E	50	E	50	D	50	D	50	D
60	E	40	D			100	E	100	E	100	E	80	E	80	E
		40	D			70	B-C	60	C	60	C	60	C	70	B-C
		40	D			100	E	100	E	100	E	80	E	80	E
50	D					50	D	50	D	50	D	50	D	50	D
30	B					30	B	30	B	30	B	30	B	30	B
140	H	120	H	120	E	140	H	140	H	130	H	120	H	120	H
100	H	120	H	100	E	100	H	100	H	90	H	80	H	80	H
140	H	90	H	90	E	140	H	140	H	130	H	120	H	120	H
100	D	80	G	80	E	100	H	100	H	90	H	80	H	80	H
40	B			40	A										
250	F	150	H	410	F										
250	F	150	H	410	F										
220	G	150	H	380	G										
180	G	120	H	330	G										
		150	G												
120	A	80	F			120	A	120	A	120	A	120	A	120	A
120	H	120	G	280	F	120	H	120	H	110	H	100	H	100	H
125	F	40	F	110	E										
125	E			80	D										
90	E														
80	E	40	E												
100	F					100	F	100	F	90	F	80	F	80	F
100	F					100	F	100	F	90	F	80	F	80	F
90	D					90	H	90	H	80	H	70	H	70	H

SuperV-NX sol. carb. high-performance micro drills

Application recommendations

Feed column															
Code-letter	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM		
Drill-Ø mm	0,50	0,006	0,012	0,018	0,022	0,030	0,035	0,040	0,045	0,050	0,050	0,055	0,060	0,060	Feed f (mm/rev)
	0,80	0,008	0,016	0,024	0,032	0,040	0,050	0,060	0,070	0,080	0,080	0,080	0,090	0,090	
	1,00	0,012	0,022	0,032	0,042	0,060	0,070	0,080	0,090	0,100	0,100	0,110	0,110	0,120	
	1,50	0,021	0,036	0,051	0,066	0,090	0,100	0,120	0,130	0,150	0,150	0,160	0,170	0,180	
	2,00	0,032	0,052	0,072	0,092	0,120	0,140	0,160	0,180	0,200	0,210	0,220	0,230	0,240	
	2,50	0,045	0,070	0,095	0,120	0,150	0,170	0,200	0,220	0,250	0,260	0,270	0,280	0,300	
	3,00	0,060	0,090	0,120	0,150	0,180	0,210	0,240	0,270	0,300	0,310	0,330	0,340	0,360	



K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Tools with feed column no. **in bold** are preferred choices for listed material group.

Security advices: For safety reasons it is very important, that a drill does not exceed a speed of $n = 6000$ rev./min when not supported. The centrifugal forces could break these long tools before reaching the workpiece surface!

General hints: No play in spindle bearings, alignment accurate tool holders. We recommend the application of hydraulic chucks or shrink fit chucks. We recommend lubrication by soluble oil or neat oil, coolant pressure min. 40 bar.

Pilot drilling

For the application of solid carbide SuperV-NX-drills 15xD we recommend a pilot hole 1xD up to 2xD depth.

For this pilot hole, the solid carbide SuperV-NX-drill 4xD is optimally suitable. Its point angle and its diameter tolerance are adapted.

Centering

In order to achieve full performance with SuperV-NX-drills from 8xD drilling depth, we recommend centering.

The SuperV-NX-drills up to 4xD, Catalog no. 71998, can be applied for this purpose. The centering diameter should be approximately 2/3xD. Centering can alternatively be made with the NC-drill 142°, Catalog no. 71189.

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Cool-ant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 60S20, 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4 1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤850 >850-1000 ≥650-1000		■ ■ ■
High speed steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Spring steels	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
Stainless steels, sulphured	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
austenitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
martensitic	-			■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■ ■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ ■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ ■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ ■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB <300 HB ≤350 HB	■ ■ ■
Chilled cast iron	-			■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■ ■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn5Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn5Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
long-chipping	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■ ■

$\leq 4 \times D$
 $\leq 7 \times D$
 $\leq 8 \times D$
 $\leq 15 \times D$

Catalogue no.	71998	71999	51998	51999
Tool material	STC	STC	STC	STC
Carbide grade	K/P	K/P	K/P	K/P
Surface finish	AlTiN+	AlTiN+	AlTiN	AlTiN tip coated
DIN	Stock std.	Stock std.	Stock std.	Stock std.
Type	SuperV-NX	SuperV-NX	SuperV-NX	SuperV-NX
Internal cooling			axial	axial
Page	142	144	146	148



V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.
90-120	II	90-120	GG	90-120	CC	90-120	CC
90-110	II	90-110	GG	90-110	CC	90-110	CC
90-120	II	90-120	GG	90-120	DD	90-120	DD
80-100	HH	80-100	FF	80-100	DD	80-100	DD
80-110	II	80-110	GG	80-110	CC	80-110	CC
80-110	II	80-110	GG	80-110	CC	80-110	CC
80-100	HH	80-100	FF	80-100	CC	80-100	CC
80-100	HH	80-100	FF	80-100	CC	80-100	CC
60-80	GG	60-80	EE	60-80	CC	60-80	CC
90-110	HH	90-110	FF	90-110	BB	90-110	BB
70-100	HH	70-100	FF	70-100	CC	70-100	CC
60-80	GG	60-80	EE	60-80	CC	60-80	CC
60-80	GG	60-80	EE	60-80	BB	60-80	BB
50-70	GG	50-70	EE	50-70	BB	50-70	BB
40-60	GG	40-60	EE	40-60	CC	40-60	CC
40-60	GG	40-60	EE	40-60	CC	40-60	CC
40-60	BB	40-60	BB	40-60	BB	40-60	BB
40-60	BB	40-60	BB	40-60	BB	40-60	BB
30	BB	30	BB	60-80	BB	60-80	BB
15	AA	15	AA	60	AA	60	AA
30	BB	30	BB	60-80	BB	60-80	BB
10	AA	10	AA	25	AA	25	AA
<150	MM	<150	KK	<150	EE	<150	EE
<140	MM	<140	KK	<140	EE	<140	EE
<140	MM	<140	KK	<140	EE	<140	EE
<130	LL	<130	JJ	<130	EE	<130	EE
15	AA	15	AA	35	AA	35	AA
15	AA	15	AA	35	AA	35	AA
60-80	MM	60-80	LL	60-80	MM	60-80	MM
60-80	MM	60-80	LL	60-80	MM	60-80	MM
120-150	DD	120-150	DD	120-150	DD	120-150	DD
120-150	DD	120-150	DD	120-150	DD	120-150	DD
105	AA	105	AA	100	AA	100	AA
120	BB	120	BB	100	BB	100	BB
105	BB	105	BB	100	BB	100	BB
85	BB	85	BB	100	BB	100	BB

SuperV-AP mini - Drilling system

Application recommendations

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
										f (mm/rev)

Tools with feed column no. in **bold** are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Please consider the additional information on page 59!

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	≤330 HB		■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)			■
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	800-1000		■
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	1200-1400		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Tool holders $\leq 1,5 \times D$, for pilot drilling
Catalogue no. 77007



Catalogue no.	67011	67012	57011	77012	77011
Tool material	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Carbide grade	K/P	K/P	K	K/P	K/P
Surface finish	TiAlN nano	AlTiN nano	TiAlN	blank	AlTiN nano
especially suitable for the machining of	steel	stainless steel	cast iron	Aluminium and Al-alloys	piloting/chamfering



V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.
130	F							130	F
110	E							110	E
130	G							130	G
110	F							110	F
130	F							130	F
125	F							125	F
110	E							110	E
110	F							110	F
90	E							90	E
130	G							130	G
110	F							110	F
70	D							70	D
105	E							105	E
70	D							70	D
60	E							60	E
55	D							55	D
55	C							55	C
50	B							50	B
		55	C					55	C
		40	C					40	C
		35	C					35	C
		25	B					25	B
		25	B					25	B
				100	F			100	F
				90	F			90	F
				80	E			80	E
				80	E			80	E
				80	E			80	E
				80	E			80	E
				120	G			120	G
				100	F			100	F
		90	F					90	F
		40	C					40	C
		35	B					35	B
						200	G	200	G
						180	G	180	G
						150	G	150	G
						120	G	120	G
						180	G	180	G
						70	F	70	F
						180	G	180	G
						120	F	120	F
						70	F	70	F
						50	F	50	F
						45	F	45	F
						35	E	35	E

SuperV-AP mini - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in **bold** are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Please consider the additional information on page 59!

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	≤330 HB		■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)			■
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	800-1000		■
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	1200-1400		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

SuperV-AP mini - Drilling system

Application recommendations

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
										f (mm/rev)

Tools with feed column no. in **bold** are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Please consider the additional information on page 59!

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)			■
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	800-1000		■
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	1200-1400		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Tool holders $\leq 5 \times D$

Catalogue no. 77001



Catalogue no.	67011	67012	57011	77012
Tool material	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Carbide grade	K/P	K/P	K/P	K
Surface finish	TiAlN nano	AlTiN nano	TiAlN	bright
especially suitable for the machining of	steel	stainless steel	cast iron	Aluminium and Al-alloys

V_c m/min	Feed column no.	V_c m/min	Feed column no.	V_c m/min	Feed column no.	V_c m/min	Feed column no.
125	F						
105	E						
125	G						
105	F						
125	F						
120	F						
105	E						
105	F						
85	E						
125	G						
105	F						
70	D						
105	E						
70	D						
55	D						
50	D						
55	C						
50	B						
		55	C				
		40	C				
		35	C				
		25	B				
		25	B				
				100	F		
				90	F		
				80	E		
				80	E		
				80	E		
				80	E		
				120	G		
				100	F		
		90	F				
		40	C				
		35	B				
						180	G
						180	G
						140	G
						110	G
						180	G
						70	F
						180	G
						120	F
						70	F
						50	F
						45	F
						35	E

SuperV-AP mini - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in **bold** are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Please consider the additional information on page 59!

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	≤330 HB		■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)			■
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	800-1000		■
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	1200-1400		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

SuperV-AP mini - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in **bold** are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Please consider the additional information on page 59!

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)			■
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	800-1000		■
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	1200-1400		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■

SuperV-AP maxi - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Alloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
Unalloyed case hardened steels	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Alloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
	1.7043 38Cr4	850-≤1000		■
Nitriding steels	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19PB	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		-	■
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■
Kevlar	Kevlar		-	■
Glass/carbon-concentr. plastics	GFK/CFK		-	■

Tool holders $\leq 3 \times D$

Catalogue no. 76000



Catalogue no.	56011
Tool material	Solid carbide
Carbide grade	K/P
Surface finish	TiAlN
especially suitable for the machining of	general steel



Catalogue no.	76011
Tool material	Solid carbide
Carbide grade	K/P
Surface finish	TiN
especially suitable for the machining of	general steel



Catalogue no.	76012
Tool material	Solid carbide
Carbide grade	K
Surface finish	bright
especially suitable for the machining of	cast iron, Aluminium and Al-alloys



V _c m/min	Feed column no.
130	F
110	E
130	G
110	F
130	F
125	F
110	E
110	F
90	E
130	G
110	F
70	D
105	E
70	D
55	E
50	D
55	C
50	B
55	C
40	C
35	C
25	B
210	G
155	G
155	G
130	F
35	B
40	C
35	B
290	G
260	G
235	G
195	G
260	G
105	F
270	G
180	F
105	F
85	F
65	F
55	E
105	E
105	E
105	E
105	E

V _c m/min	Feed column no.
100	F
85	E
100	G
85	F
100	F
95	F
85	E
85	F
70	E
100	G
85	F
55	D
80	E
55	D
40	E
35	D
40	C
35	B
40	C
30	C
25	C
20	B
160	G
80	G
120	G
100	F
25	B
30	C
25	B
220	G
200	G
180	G
150	G
200	G
80	F
210	G
140	F
80	F
65	F
50	F
40	E
80	E
80	E
80	E
80	E

V _c m/min	Feed column no.
100	G
80	G
80	G
70	F
10	B
200	G
180	G
150	G
120	G
180	G
70	F
180	G
120	F
70	F
50	F
45	F
35	E
50	E
50	E
50	E
50	E

SuperV-AP maxi - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19PB	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren		-	■
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■
Kevlar	Kevlar		-	■
Glass/carbon-concentr. plastics	GFK/CFK		-	■

Tool holders $\leq 5 \times D$

Catalogue no. 76001



Catalogue no.	56011
Tool material	Solid carbide
Carbide grade	K/P
Surface finish	TiAlN

especially suitable
for the
machining of

general steel



76011
Solid carbide
K/P
TiN

general steel



76012
Solid carbide
K
bright

cast iron, Aluminium
and Al-alloys



V _c m/min	Feed column no.
125	F
105	E
125	G
105	F
125	F
120	F
105	E
105	F
85	E
125	G
105	F
70	D
105	E
70	D
55	E
50	D
55	C
50	B
55	C
40	C
35	C
25	B
25	B
195	G
145	G
145	G
120	F
35	B
40	C
35	B
260	G
260	G
220	G
180	G
260	G
105	F
270	G
180	F
105	F
85	F
65	F
55	E
105	E
105	E
105	E
105	E

V _c m/min	Feed column no.
95	F
80	E
95	G
80	F
95	F
90	F
80	E
80	F
65	E
95	G
80	F
55	D
80	E
55	D
40	E
35	D
40	C
35	B
40	C
30	C
25	C
20	B
20	B
150	G
110	G
110	G
90	F
25	B
30	C
25	B
200	G
200	G
170	G
140	G
200	G
80	F
210	G
140	F
80	F
65	F
50	F
40	E
80	E
80	E
80	E
80	E

V _c m/min	Feed column no.
90	G
70	G
70	G
60	F
10	B
180	G
180	G
140	G
110	G
180	G
70	F
180	G
120	F
70	F
50	F
45	F
35	E
50	E
50	E
50	E
50	E

SuperV-AP maxi - Drilling system

Application recommendations

Feed column											
Code-letter	A	B	C	D	E	F	G	H	I		
drill-Ø mm	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	feed f (mm/rev)
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
Unalloyed tempering steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Alloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
Unalloyed case hardened steels	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Alloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
	1.7043 38Cr4	850-≤1000		■
Nitriding steels	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19PB	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Bakelit, Resopal, Pertinax, Moltopren	-		■
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■
Kevlar	Kevlar	-		■
Glass/carbon-concentr. plastics	GFK/CFK	-		■

Tool holders $\leq 7 \times D$

Catalogue no. 76003



Catalogue no.	56011
Tool material	Solid carbide
Carbide grade	K/P
Surface finish	TiAlN

especially suitable
for the
machining of

general steel



76011
Solid carbide
K/P
TiN

general steel



76012
Solid carbide
K
bright

cast iron, Aluminium
and Al-alloys



V _c m/min	Feed column no.
120	E
105	D
120	F
105	E
120	E
110	E
100	D
100	E
85	D
120	F
100	E
70	D
105	D
70	C
55	D
50	C
55	B
50	B
55	B
40	B
35	B
25	A
25	A
195	F
145	F
145	F
120	E
35	B
40	B
35	A
260	F
260	F
220	F
180	F
260	F
105	E
270	F
180	E
105	E
85	E
65	E
55	D
105	D
105	D
105	D
105	D

V _c m/min	Feed column no.
90	E
80	D
90	F
80	E
90	E
85	E
75	D
75	E
65	D
90	F
75	E
55	D
80	D
55	C
40	D
35	C
40	B
35	B
40	B
30	B
25	B
20	A
20	A
150	F
110	F
110	F
90	E
25	B
30	B
25	A
200	F
200	F
170	F
140	F
200	F
80	E
210	F
140	E
80	E
65	E
50	E
40	D
80	D
80	D
80	D
80	D

V _c m/min	Feed column no.
90	F
70	F
70	F
60	E
10	B
180	F
180	F
140	F
110	F
180	F
70	E
180	F
120	E
70	E
50	E
45	E
35	D
50	D
50	D
50	D
50	D

Application recommendations for carbide drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
	50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
	63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
	80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	2,000	

Tools with feed column no. in bold are preferred choices for listed material group.

K, P, K/P

Since our new carbide grades are universally applicable we now define our carbide application groups as K or K/P only.

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(ST33), 1.0486 P275N(STE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		
Kevlar	Kevlar		-	
Glass/carbon-concentr. plastics	GFK/CFK		-	

$\leq 3 \times D$ drilling depth

$\leq 5 \times D$

Catalogue no.	71184	51184
Tool material	STC	STC
Carbide grade	K10/K20	K/P
Surface finish	bright	TiAlN nano
DIN/Form	6539	6539
Type	N	N
Coolant		
Page	186	186

71380	71180
TCT	TCT
K10/K20	K10/K20
bright	bright
8041	8037
N	N
196	194

71290
STC
K10/K20
bright
Stock std.
N
189



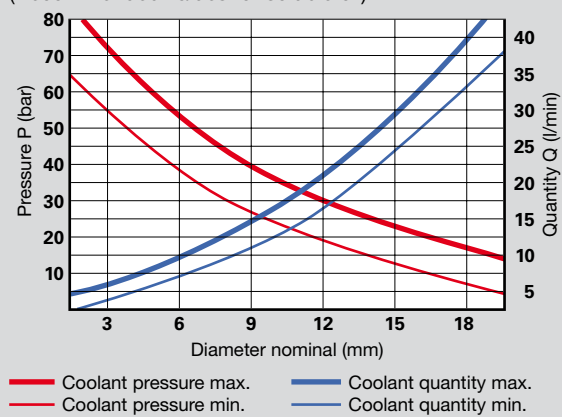
V _C m/min	Feed column no.	V _C m/min	Feed column no.	V _C m/min	Feed column no.	V _C m/min	Feed column no.
80	D	104	E			80	D
70	D	91	E			70	D
80	E	104	F	80	D	80	E
70	D	91	E	70	C	70	D
80	D	104	E			80	D
70	D	91	E			70	D
60	D	78	E			60	D
60	D	78	E			60	D
80	E	104	F			80	E
60	D	78	E			60	D
50	D	65	E			50	D
50	C	65	D			50	C
25	B	32	C	25	B	25	B
25	D	32	E			25	D
25	C	32	D			25	C
25	C	32	D			25	C
20	C	26	D			20	C
15	B	20	C	20	C	15	B
90	D	117	E	10	B	90	D
80	D	104	E			80	D
80	D	91	E	90	D	80	D
70	D	104	E	80	D	80	D
				80	D	70	D
				70	D	80	D
				10	A		
20	C	26	D			20	C
15	B	20	C			15	B
200	G	260	H			200	G
200	G	260	H			200	G
150	F	195	G			150	F
120	F	156	G			120	F
180	F	234	F			180	E
80	E	104	F			80	E
180	E	234	F	180	E	180	E
180	E	234	F	180	E	180	E
120	E	156	F			120	E
120	E	156	F			120	E
70	D	91	E			70	D
50	C	65	D			50	C
50	D	65	E			50	D
40	C	52	D			40	C
80	C	104	D			80	C

Stock SuperV-Drills

Coolant recommendations

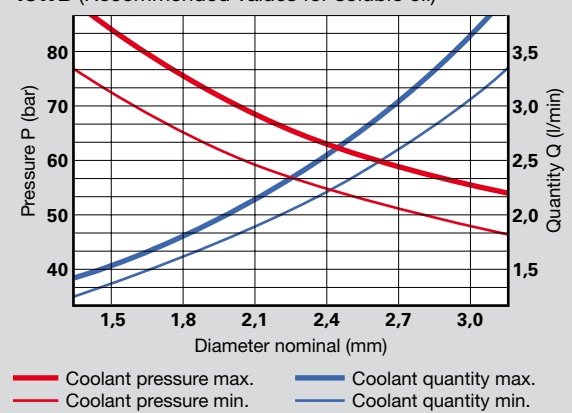
Coolant values SuperV-T

(Recommended values for soluble oil)



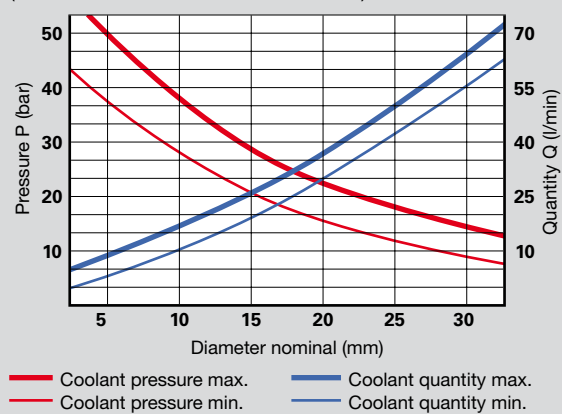
Coolant values Solid carbide micro-precision drills

15 x D (Recommended values for soluble oil)



Coolant values SuperV 95-GG/GN

(Recommended values for soluble oil)



Stock SuperV-AP-Drilling systems

General recommendations

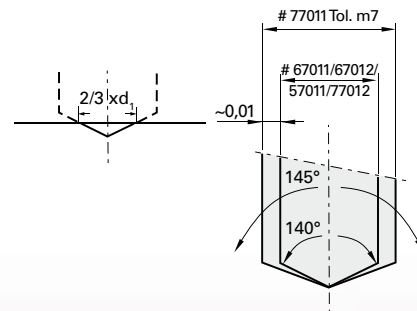
for all Tool-Holders

- For through holes supporting lands must remain in permanent contact.
- Don't apply drilling tool without trial for interrupted cutting (grooves, transverse holes). For interrupted cutting (max. $0.2 \times D$) it is recommended to reduce the feed rate whenever possible.
- In contrast to conventional indexable inserts, SuperV-AP tools are also suitable for the drilling of stacked sheets.
- On a lathe (stationary tool) it must be ensured that the tool is accurately centred.
- Pre-condition for optimal machining results is a sufficient cooling lubricant supply with soluble or neat oil.
- The tool is only of limited suitability for dry machining or MQL.

Please contact our application engineers for further assistance.

Additional recommendations for tool-holders **from $5 \times D$**

- For drilling depths from $5 \times D$ we generally recommend centring or pilot drilling with holder, Catalogue-No. 77007 and pilot insert Catalogue-No. 77011.
Alternatively – depending on the material to be machined – SuperV-Drills Type U, GG or VA and the NC pre-drill Catalogue-No. 71189 can be applied.
- for through holes supporting lands must remain in permanent contact. In addition, we recommend reducing the feed rate prior to exiting.



SuperV-drills

SuperV-drills without internal coolant

Catalog no. 61888



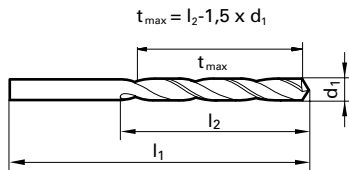
Rigid high performance drill for drilling long chipping, tough materials with a tensile strength of up to 1400 N/mm² like: heat treatable steels, high alloyed steels, stainless, non-corrosive and heat resistant steels, Inconel, Hastelloy, Monel, also brass, bronze, aluminium and magnesium and their respective alloys, Titan and Titan alloys, Sinter metals. The special carbide grade and geometry make this tool especially suitable for the machining of high tensile materials.

Advantages: Highest speed and feed rates possible (see application recommendations), high alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self-centring qualities as well as producing short chips.

Preconditions for use: Powerful machines. No play in spindle bearings. Accurately aligned tool holders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6539	3xD
Tool material	Solid Carbide
Surface	TiN
Type	SuperV-F
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: special Shank: straight	

SuperV-drills without internal coolant



Catalog no.

61888

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

121

Surface

TiN

Type

SuperV-F

Drilling depth

3xD

d1	l1	l2	price per piece
mm	mm	mm	
3.000	46.00	16.00	○
3.100	49.00	18.00	○
3.200	49.00	18.00	○
3.400	52.00	20.00	○
3.500	52.00	20.00	○
3.600	52.00	20.00	○
4.000	55.00	22.00	○
4.200	55.00	22.00	○
4.300	58.00	24.00	○
4.500	58.00	24.00	○
4.700	58.00	24.00	○
5.000	62.00	26.00	○
5.100	62.00	26.00	○
5.200	62.00	26.00	○
5.500	66.00	28.00	○
5.700	66.00	28.00	○
5.800	66.00	28.00	○
6.000	66.00	28.00	○
6.100	70.00	31.00	○
6.200	70.00	31.00	○
6.400	70.00	31.00	○
6.500	70.00	31.00	○
6.600	70.00	31.00	○
6.700	70.00	31.00	○
6.800	74.00	34.00	○
7.000	74.00	34.00	○
7.200	74.00	34.00	○
7.300	74.00	34.00	○
7.500	74.00	34.00	○
7.700	79.00	37.00	○
7.800	79.00	37.00	○
8.000	79.00	37.00	○
8.400	79.00	37.00	○
8.500	79.00	37.00	○
8.700	84.00	40.00	○
8.900	84.00	40.00	○
9.000	84.00	40.00	○
9.100	84.00	40.00	○
9.200	84.00	40.00	○
9.300	84.00	40.00	○
9.400	84.00	40.00	○
9.500	84.00	40.00	○
9.700	89.00	43.00	○
10.000	89.00	43.00	○
10.100	89.00	43.00	○
10.200	89.00	43.00	○
12.000	102.00	51.00	○

SuperV-drills

SuperV-drills without internal coolant

Catalog no. 51873



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

Web thinning: SuperV
Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: normal
Shank: HA

SuperV-drills without internal coolant

Catalog no. 51871



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

Web thinning: SuperV
Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: normal
Shank: HE

SuperV-drills without internal coolant

Catalog no. 51750



High performance drill for using in steels up to 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

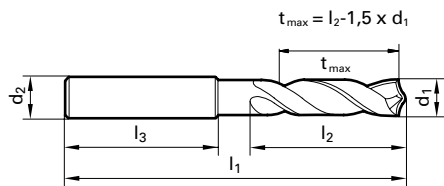
Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

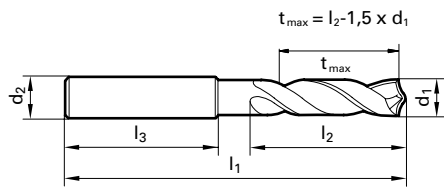
web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills without internal coolant



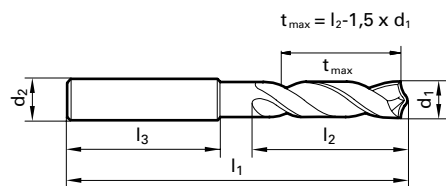
Catalog no.						51873	51871	51750
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	121
Surface						TiAlN nano	TiAlN nano	TiAlSiN
Type						SuperV-U	SuperV-U	SuperV-S
Drilling depth						3xD	3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
1/8	3.000	6.000	62.00	20.00	36.00	●	●	●
	3.100	6.000	62.00	20.00	36.00	●	●	●
	3.170	6.000	62.00	20.00	36.00	●	●	●
	3.200	6.000	62.00	20.00	36.00	●	●	●
	3.250	6.000	62.00	20.00	36.00	●	●	●
9/64	3.300	6.000	62.00	20.00	36.00	●	●	●
	3.400	6.000	62.00	20.00	36.00	●	●	●
	3.500	6.000	62.00	20.00	36.00	●	●	●
	3.570	6.000	62.00	20.00	36.00	●	●	●
	3.600	6.000	62.00	20.00	36.00	●	●	●
5/32	3.700	6.000	62.00	20.00	36.00	●	●	●
	3.800	6.000	66.00	24.00	36.00	●	●	●
	3.900	6.000	66.00	24.00	36.00	●	●	●
	3.970	6.000	66.00	24.00	36.00	●	●	●
	4.000	6.000	66.00	24.00	36.00	●	●	●
11/64	4.100	6.000	66.00	24.00	36.00	●	●	●
	4.200	6.000	66.00	24.00	36.00	●	●	●
	4.300	6.000	66.00	24.00	36.00	●	●	●
	4.370	6.000	66.00	24.00	36.00	●	●	●
	4.400	6.000	66.00	24.00	36.00	●	●	●
3/16	4.500	6.000	66.00	24.00	36.00	●	●	●
	4.600	6.000	66.00	24.00	36.00	●	●	●
	4.650	6.000	66.00	24.00	36.00	●	●	●
	4.700	6.000	66.00	24.00	36.00	●	●	●
	4.760	6.000	66.00	28.00	36.00	●	●	●
13/64	4.800	6.000	66.00	28.00	36.00	●	●	●
	4.900	6.000	66.00	28.00	36.00	●	●	●
	5.000	6.000	66.00	28.00	36.00	●	●	●
	5.100	6.000	66.00	28.00	36.00	●	●	●
	5.160	6.000	66.00	28.00	36.00	●	●	●
7/32	5.200	6.000	66.00	28.00	36.00	●	●	●
	5.300	6.000	66.00	28.00	36.00	●	●	●
	5.400	6.000	66.00	28.00	36.00	●	●	●
	5.500	6.000	66.00	28.00	36.00	●	●	●
	5.550	6.000	66.00	28.00	36.00	●	●	●
15/64	5.560	6.000	66.00	28.00	36.00	●	●	●
	5.600	6.000	66.00	28.00	36.00	●	●	●
	5.700	6.000	66.00	28.00	36.00	●	●	●
	5.800	6.000	66.00	28.00	36.00	●	●	●
	5.900	6.000	66.00	28.00	36.00	●	●	●
1/4	5.950	6.000	66.00	28.00	36.00	●	●	●
	6.000	6.000	66.00	28.00	36.00	●	●	●
	6.100	8.000	79.00	34.00	36.00	●	●	●
	6.200	8.000	79.00	34.00	36.00	●	●	●
	6.300	8.000	79.00	34.00	36.00	●	●	●
17/64	6.350	8.000	79.00	34.00	36.00	●	●	●
	6.400	8.000	79.00	34.00	36.00	●	●	●
	6.500	8.000	79.00	34.00	36.00	●	●	●
	6.600	8.000	79.00	34.00	36.00	●	●	●
	6.700	8.000	79.00	34.00	36.00	●	●	●
9/32	6.750	8.000	79.00	34.00	36.00	●	●	●
	6.800	8.000	79.00	34.00	36.00	●	●	●
	6.900	8.000	79.00	34.00	36.00	●	●	●
	7.000	8.000	79.00	34.00	36.00	●	●	●
	7.100	8.000	79.00	41.00	36.00	●	●	●
9/32	7.140	8.000	79.00	41.00	36.00	●	●	●
	7.200	8.000	79.00	41.00	36.00	●	●	●

SuperV-drills without internal coolant



Catalog no.						51873	51871	51750
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	121
Surface						TiAlN nano	TiAlN nano	TiAlSiN
Type						SuperV-U	SuperV-U	SuperV-S
Drilling depth						3xD	3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
19/64	7.300	8.000	79.00	41.00	36.00	●	●	●
	7.400	8.000	79.00	41.00	36.00	●	●	●
	7.500	8.000	79.00	41.00	36.00	●	●	●
	7.540	8.000	79.00	41.00	36.00	●	●	●
	7.600	8.000	79.00	41.00	36.00	●	●	●
5/16	7.700	8.000	79.00	41.00	36.00	●	●	●
	7.800	8.000	79.00	41.00	36.00	●	●	●
	7.900	8.000	79.00	41.00	36.00	●	●	●
	7.940	8.000	79.00	41.00	36.00	●	●	●
	8.000	8.000	79.00	41.00	36.00	●	●	●
21/64	8.100	10.000	89.00	47.00	40.00	●	●	●
	8.200	10.000	89.00	47.00	40.00	●	●	●
	8.300	10.000	89.00	47.00	40.00	●	●	●
	8.330	10.000	89.00	47.00	40.00	●	●	●
	8.400	10.000	89.00	47.00	40.00	●	●	●
11/32	8.500	10.000	89.00	47.00	40.00	●	●	●
	8.600	10.000	89.00	47.00	40.00	●	●	●
	8.700	10.000	89.00	47.00	40.00	●	●	●
	8.730	10.000	89.00	47.00	40.00	●	●	●
	8.800	10.000	89.00	47.00	40.00	●	●	●
23/64	8.900	10.000	89.00	47.00	40.00	●	●	●
	9.000	10.000	89.00	47.00	40.00	●	●	●
	9.100	10.000	89.00	47.00	40.00	●	●	●
	9.130	10.000	89.00	47.00	40.00	●	●	●
	9.200	10.000	89.00	47.00	40.00	●	●	●
3/8	9.250	10.000	89.00	47.00	40.00	●	●	●
	9.300	10.000	89.00	47.00	40.00	●	●	●
	9.400	10.000	89.00	47.00	40.00	●	●	●
	9.500	10.000	89.00	47.00	40.00	●	●	●
	9.520	10.000	89.00	47.00	40.00	●	●	●
25/64	9.600	10.000	89.00	47.00	40.00	●	●	●
	9.700	10.000	89.00	47.00	40.00	●	●	●
	9.800	10.000	89.00	47.00	40.00	●	●	●
	9.900	10.000	89.00	47.00	40.00	●	●	●
	9.920	10.000	89.00	47.00	40.00	●	●	●
13/32	10.000	10.000	89.00	47.00	40.00	●	●	●
	10.100	12.000	102.00	55.00	45.00	●	●	●
	10.200	12.000	102.00	55.00	45.00	●	●	●
	10.300	12.000	102.00	55.00	45.00	●	●	●
	10.320	12.000	102.00	55.00	45.00	●	●	●
7/16	10.400	12.000	102.00	55.00	45.00	●	●	●
	10.500	12.000	102.00	55.00	45.00	●	●	●
	10.600	12.000	102.00	55.00	45.00	●	●	●
	10.700	12.000	102.00	55.00	45.00	●	●	●
	10.800	12.000	102.00	55.00	45.00	●	●	●
	10.900	12.000	102.00	55.00	45.00	●	●	●
	11.000	12.000	102.00	55.00	45.00	●	●	●
	11.100	12.000	102.00	55.00	45.00	●	●	●
	11.110	12.000	102.00	55.00	45.00	●	●	●
	11.200	12.000	102.00	55.00	45.00	●	●	●
	11.300	12.000	102.00	55.00	45.00	●	●	●
	11.400	12.000	102.00	55.00	45.00	●	●	●
	11.500	12.000	102.00	55.00	45.00	●	●	●
	11.600	12.000	102.00	55.00	45.00	●	●	●
	11.700	12.000	102.00	55.00	45.00	●	●	●
	11.800	12.000	102.00	55.00	45.00	●	●	●
	11.900	12.000	102.00	55.00	45.00	●	●	●

SuperV-drills without internal coolant



Catalog no.						51873	51871	51750
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	121
Surface						TiAlN nano	TiAlN nano	TiAlSiN
Type						SuperV-U	SuperV-U	SuperV-S
Drilling depth						3xD	3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
15/32	11.910	12.000	102.00	55.00	45.00			
	12.000	12.000	102.00	55.00	45.00	●	●	●
	12.100	14.000	107.00	60.00	45.00		●	
31/64	12.200	14.000	107.00	60.00	45.00	●	●	●
	12.300	14.000	107.00	60.00	45.00		●	
	12.400	14.000	107.00	60.00	45.00		●	
1/2	12.500	14.000	107.00	60.00	45.00	●	●	●
	12.600	14.000	107.00	60.00	45.00		●	
	12.700	14.000	107.00	60.00	45.00	●	●	●
	12.800	14.000	107.00	60.00	45.00		●	●
	13.000	14.000	107.00	60.00	45.00	●	●	●
	13.200	14.000	107.00	60.00	45.00		●	
	13.300	14.000	107.00	60.00	45.00		●	●
	13.500	14.000	107.00	60.00	45.00	●	●	●
	13.700	14.000	107.00	60.00	45.00	●	●	●
	13.800	14.000	107.00	60.00	45.00		●	●
	14.000	14.000	107.00	60.00	45.00	●	●	●
	14.100	16.000	115.00	65.00	48.00		●	
9/16	14.200	16.000	115.00	65.00	48.00	●	●	●
	14.290	16.000	115.00	65.00	48.00		●	●
	14.300	16.000	115.00	65.00	48.00		●	●
	14.400	16.000	115.00	65.00	48.00		●	●
	14.500	16.000	115.00	65.00	48.00	●	●	●
	14.700	16.000	115.00	65.00	48.00	●	●	●
	15.000	16.000	115.00	65.00	48.00	●	●	●
	15.200	16.000	115.00	65.00	48.00	●	●	●
	15.300	16.000	115.00	65.00	48.00		●	●
	15.500	16.000	115.00	65.00	48.00	●	●	●
	15.600	16.000	115.00	65.00	48.00		●	●
	15.700	16.000	115.00	65.00	48.00	●	●	●
	15.800	16.000	115.00	65.00	48.00		●	●
	16.000	16.000	115.00	65.00	48.00	●	●	●
	16.100	18.000	123.00	73.00	48.00		●	
	16.200	18.000	123.00	73.00	48.00		●	●
	16.300	18.000	123.00	73.00	48.00		●	●
	16.500	18.000	123.00	73.00	48.00	●	●	●
	16.900	18.000	123.00	73.00	48.00		●	●
	17.000	18.000	123.00	73.00	48.00	●	●	●
	17.300	18.000	123.00	73.00	48.00		●	●
	17.500	18.000	123.00	73.00	48.00	●	●	●
	18.000	18.000	123.00	73.00	48.00	●	●	●
	18.300	20.000	131.00	79.00	50.00		●	●
	18.500	20.000	131.00	79.00	50.00	●	●	●
	18.900	20.000	131.00	79.00	50.00		●	●
	19.000	20.000	131.00	79.00	50.00	●	●	●
3/4	19.050	20.000	131.00	79.00	50.00		●	●
	19.300	20.000	131.00	79.00	50.00		●	●
	19.500	20.000	131.00	79.00	50.00	●	●	●
	20.000	20.000	131.00	79.00	50.00	●	●	●

SuperV-drills

SuperV-drills without internal coolant

Catalog no. 51787



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills without internal coolant

Catalog no. 51887



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

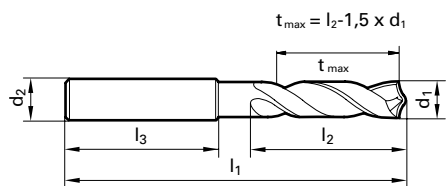
Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 L 5xD

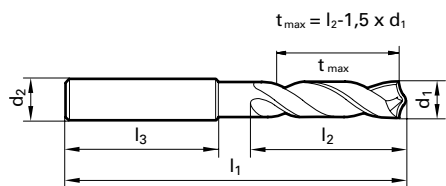
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills without internal coolant



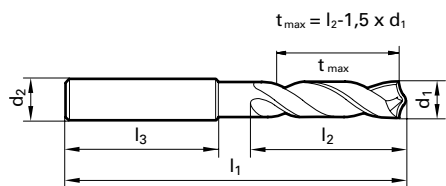
Catalog no.						51787	51887
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-U	SuperV-U
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
9/64	3.000	6.000	66.00	28.00	36.00	●	●
	3.100	6.000	66.00	28.00	36.00	●	●
	3.200	6.000	66.00	28.00	36.00	●	●
	3.300	6.000	66.00	28.00	36.00	●	●
	3.400	6.000	66.00	28.00	36.00	●	●
	3.500	6.000	66.00	28.00	36.00	●	●
5/32	3.570	6.000	66.00	28.00	36.00	●	●
	3.600	6.000	66.00	28.00	36.00	●	●
	3.700	6.000	66.00	28.00	36.00	●	●
11/64	3.800	6.000	74.00	36.00	36.00	●	●
	3.900	6.000	74.00	36.00	36.00	●	●
	3.970	6.000	74.00	36.00	36.00	●	●
	4.000	6.000	74.00	36.00	36.00	●	●
	4.100	6.000	74.00	36.00	36.00	●	●
	4.200	6.000	74.00	36.00	36.00	●	●
3/16	4.300	6.000	74.00	36.00	36.00	●	●
	4.370	6.000	74.00	36.00	36.00	●	●
	4.400	6.000	74.00	36.00	36.00	●	●
	4.500	6.000	74.00	36.00	36.00	●	●
	4.600	6.000	74.00	36.00	36.00	●	●
	4.700	6.000	74.00	36.00	36.00	●	●
13/64	4.760	6.000	82.00	44.00	36.00	●	●
	4.800	6.000	82.00	44.00	36.00	●	●
	4.900	6.000	82.00	44.00	36.00	●	●
	5.000	6.000	82.00	44.00	36.00	●	●
	5.100	6.000	82.00	44.00	36.00	●	●
	5.160	6.000	82.00	44.00	36.00	●	●
7/32	5.200	6.000	82.00	44.00	36.00	●	●
	5.300	6.000	82.00	44.00	36.00	●	●
	5.400	6.000	82.00	44.00	36.00	●	●
	5.500	6.000	82.00	44.00	36.00	●	●
	5.560	6.000	82.00	44.00	36.00	●	●
	5.600	6.000	82.00	44.00	36.00	●	●
15/64	5.700	6.000	82.00	44.00	36.00	●	●
	5.800	6.000	82.00	44.00	36.00	●	●
	5.900	6.000	82.00	44.00	36.00	●	●
	5.950	6.000	82.00	44.00	36.00	●	●
	6.000	6.000	82.00	44.00	36.00	●	●
	6.100	8.000	91.00	53.00	36.00	●	●
1/4	6.200	8.000	91.00	53.00	36.00	●	●
	6.300	8.000	91.00	53.00	36.00	●	●
	6.350	8.000	91.00	53.00	36.00	●	●
	6.400	8.000	91.00	53.00	36.00	●	●
	6.500	8.000	91.00	53.00	36.00	●	●
	6.600	8.000	91.00	53.00	36.00	●	●
9/32	6.700	8.000	91.00	53.00	36.00	●	●
	6.750	8.000	91.00	53.00	36.00	●	●
	6.800	8.000	91.00	53.00	36.00	●	●
	6.900	8.000	91.00	53.00	36.00	●	●
	7.000	8.000	91.00	53.00	36.00	●	●
	7.100	8.000	91.00	53.00	36.00	●	●
19/64	7.140	8.000	91.00	53.00	36.00	●	●
	7.200	8.000	91.00	53.00	36.00	●	●
	7.300	8.000	91.00	53.00	36.00	●	●
	7.400	8.000	91.00	53.00	36.00	●	●
	7.500	8.000	91.00	53.00	36.00	●	●
	7.540	8.000	91.00	53.00	36.00	●	●

SuperV-drills without internal coolant



Catalog no.						51787	51887
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-U	SuperV-U
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
5/16	7.600	8.000	91.00	53.00	36.00	●	●
	7.700	8.000	91.00	53.00	36.00	●	●
	7.800	8.000	91.00	53.00	36.00	●	●
	7.900	8.000	91.00	53.00	36.00	●	●
	7.940	8.000	91.00	53.00	36.00	●	●
	8.000	8.000	91.00	53.00	36.00	●	●
21/64	8.100	10.000	103.00	61.00	40.00	●	●
	8.200	10.000	103.00	61.00	40.00	●	●
	8.300	10.000	103.00	61.00	40.00	●	●
	8.330	10.000	103.00	61.00	40.00	●	●
	8.400	10.000	103.00	61.00	40.00	●	●
	8.500	10.000	103.00	61.00	40.00	●	●
11/32	8.600	10.000	103.00	61.00	40.00	●	●
	8.700	10.000	103.00	61.00	40.00	●	●
	8.730	10.000	103.00	61.00	40.00	●	●
	8.800	10.000	103.00	61.00	40.00	●	●
	8.900	10.000	103.00	61.00	40.00	●	●
	9.000	10.000	103.00	61.00	40.00	●	●
23/64	9.100	10.000	103.00	61.00	40.00	●	●
	9.130	10.000	103.00	61.00	40.00	●	●
	9.200	10.000	103.00	61.00	40.00	●	●
	9.300	10.000	103.00	61.00	40.00	●	●
	9.400	10.000	103.00	61.00	40.00	●	●
	9.500	10.000	103.00	61.00	40.00	●	●
3/8	9.520	10.000	103.00	61.00	40.00	●	●
	9.600	10.000	103.00	61.00	40.00	●	●
	9.700	10.000	103.00	61.00	40.00	●	●
	9.800	10.000	103.00	61.00	40.00	●	●
	9.900	10.000	103.00	61.00	40.00	●	●
	9.920	10.000	103.00	61.00	40.00	●	●
25/64	10.000	10.000	103.00	61.00	40.00	●	●
	10.100	12.000	118.00	71.00	45.00	●	●
	10.200	12.000	118.00	71.00	45.00	●	●
	10.300	12.000	118.00	71.00	45.00	●	●
	10.400	12.000	118.00	71.00	45.00	●	●
	10.500	12.000	118.00	71.00	45.00	●	●
	10.600	12.000	118.00	71.00	45.00	●	●
	10.700	12.000	118.00	71.00	45.00	●	●
	10.800	12.000	118.00	71.00	45.00	●	●
	10.900	12.000	118.00	71.00	45.00	●	●
	11.000	12.000	118.00	71.00	45.00	●	●
	11.100	12.000	118.00	71.00	45.00	●	●
	11.200	12.000	118.00	71.00	45.00	●	●
	11.300	12.000	118.00	71.00	45.00	●	●
	11.400	12.000	118.00	71.00	45.00	●	●
	11.500	12.000	118.00	71.00	45.00	●	●
	11.600	12.000	118.00	71.00	45.00	●	●
	11.700	12.000	118.00	71.00	45.00	●	●
	11.800	12.000	118.00	71.00	45.00	●	●
	11.900	12.000	118.00	71.00	45.00	●	●
	12.000	12.000	118.00	71.00	45.00	●	●
	12.100	14.000	124.00	77.00	45.00	●	●
	12.200	14.000	124.00	77.00	45.00	●	●
	12.500	14.000	124.00	77.00	45.00	●	●
1/2	12.700	14.000	124.00	77.00	45.00	●	●
	13.000	14.000	124.00	77.00	45.00	●	●
	13.500	14.000	124.00	77.00	45.00	●	●

SuperV-drills without internal coolant



Catalog no.						51787	51887
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-U	SuperV-U
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	13.700	14.000	124.00	77.00	45.00	●	●
	14.000	14.000	124.00	77.00	45.00	●	●
	14.100	16.000	133.00	83.00	48.00		●
	14.200	16.000	133.00	83.00	48.00	●	●
	14.500	16.000	133.00	83.00	48.00	●	●
	14.700	16.000	133.00	83.00	48.00	●	●
	15.000	16.000	133.00	83.00	48.00	●	●
	15.200	16.000	133.00	83.00	48.00	●	●
	15.500	16.000	133.00	83.00	48.00	●	●
	15.700	16.000	133.00	83.00	48.00	●	●
	16.000	16.000	133.00	83.00	48.00	●	●
	16.500	18.000	143.00	93.00	48.00	●	●
	17.000	18.000	143.00	93.00	48.00	●	●
	17.500	18.000	143.00	93.00	48.00	●	●
	18.000	18.000	143.00	93.00	48.00	●	●
	18.500	20.000	153.00	101.00	50.00	●	●
	19.000	20.000	153.00	101.00	50.00	●	●
	19.500	20.000	153.00	101.00	50.00	●	●
	20.000	20.000	153.00	101.00	50.00	●	●

SuperV-drills

SuperV-drills without internal coolant

Catalog no. 51782



High-performance drill especially for the efficient drilling of deep holes up to 8xD. They are designed to machine nearly every short and long chipping material, e. g. common structural and case hardened steels, tempering steels, alloyed steels up to a tensile strength of appr. 1000 N/mm², tool steels, carbon steels, cast steels, cast iron, aluminium and aluminium alloys.

Advantages:

- safe chip break also with long chipping materials. The 8xD drill machines appr. 70 percent of all materials without internal coolant and without swarf removal
- excellent self centering
- tight hole tolerances, high concentricity
- improved surface qualities
- high drilling performance

Preconditions for use: Use with performance machines. No spindle play. Alignment accurate tool holders. Max. concentricity error of clamped tool 0,02 mm. Chatterfree, defined feeds.

Stock std. 8xD

Tool material	Solid carbide
Surface	TiAlN
Type	SuperV70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	4.00
Tolerance	m7

Web thinning: SuperV

Helix angle: 40°

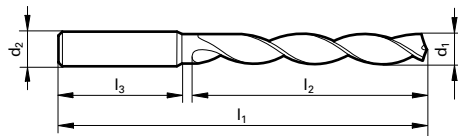
Web thickness: greater than standard

Web taper: none

Flute form: optimized V70-profile

Shank: HA

SuperV-drills without internal coolant

						Catalog no.	51782
						Tool material	Solid carbide
						Carbide grade	K / P
						Discount group	-
						Surface	TiAlN
						Type	SuperV70
						Drilling depth	8 x D
	d1	d1	d2	l1	l2	l3	Gross price
inch	mm	mm	mm	mm	mm	mm	
	4.000	6.000	83.00	45.00	36.00		on request
	4.200	6.000	83.00	45.00	36.00		on request
	4.300	6.000	83.00	45.00	36.00		on request
	4.500	6.000	83.00	45.00	36.00		on request
	5.000	6.000	97.00	57.00	36.00		on request
	5.200	6.000	97.00	57.00	36.00		on request
	5.500	6.000	97.00	57.00	36.00		on request
	6.000	6.000	97.00	57.00	36.00		on request
	6.500	8.000	117.00	78.00	36.00		on request
	6.800	8.000	117.00	78.00	36.00		on request
	7.000	8.000	117.00	78.00	36.00		on request
	7.500	8.000	117.00	78.00	36.00		on request
	7.800	8.000	117.00	78.00	36.00		on request
	8.000	8.000	117.00	78.00	36.00		on request
	8.500	10.000	143.00	96.00	40.00		on request
	8.800	10.000	143.00	96.00	40.00		on request
	9.000	10.000	143.00	96.00	40.00		on request
	9.500	10.000	143.00	96.00	40.00		on request
	10.000	10.000	143.00	96.00	40.00		on request
	10.200	12.000	163.00	114.00	45.00		on request
	10.500	12.000	163.00	114.00	45.00		on request
	10.800	12.000	163.00	114.00	45.00		on request
	11.000	12.000	163.00	114.00	45.00		on request
	11.500	12.000	163.00	114.00	45.00		on request
	11.800	12.000	163.00	114.00	45.00		on request
	12.000	12.000	163.00	114.00	45.00		on request
	12.500	14.000	182.00	133.00	45.00		on request
	13.000	14.000	182.00	133.00	45.00		on request
	13.500	14.000	182.00	133.00	45.00		on request
	14.000	14.000	182.00	133.00	45.00		on request
	14.500	16.000	204.00	152.00	48.00		on request
	15.000	16.000	204.00	152.00	48.00		on request
	15.500	16.000	204.00	152.00	48.00		on request
	16.000	16.000	204.00	152.00	48.00		on request
	16.500	18.000	223.00	171.00	48.00		on request
	17.000	18.000	223.00	171.00	48.00		on request
	17.500	18.000	223.00	171.00	48.00		on request
	18.000	18.000	223.00	171.00	48.00		on request
	18.500	20.000	244.00	190.00	50.00		on request
	19.000	20.000	244.00	190.00	50.00		on request
	19.500	20.000	244.00	190.00	50.00		on request
	20.000	20.000	244.00	190.00	50.00		on request

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 61875



High performance drill for machining of materials with a high tensile strength upto 1400 N/mm². The high rigidity and wear-resistance enables this tool for drilling of hard, abrasive or hardened as well as short- and long-chipping materials. (high alloyed steels, acid- and heat-resistant and stainless steels, Inconel, Hastelloy, Monel but also cast iron, brass, bronze, aluminium and magnesium as well as their alloys. Ti- and Ti-alloys, sintered powder metals. high-alloyed steels

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiN
Type	SuperV-IK-F
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	4.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant

Catalog no. 51875



High performance drill for machining of materials with a high tensile strength upto 1400 N/mm². The high rigidity and wear-resistance enables this tool for drilling of hard, abrasive or hardened as well as short- and long-chipping materials. (high alloyed steels, acid- and heat-resistant and stainless steels, Inconel, Hastelloy, Monel but also cast iron, brass, bronze, aluminium and magnesium as well as their alloys. Ti- and Ti-alloys, sintered powder metals. high-alloyed steels

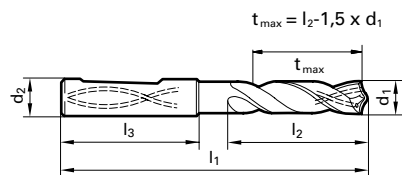
Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

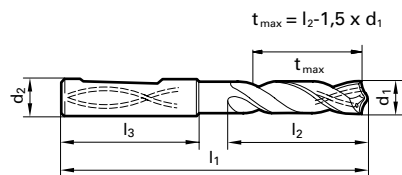
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-F
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	5.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant



Catalog no.						61875	51875
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiN	TiAlN nano
Type						SuperV-IK-F	SuperV-IK-F
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	4.000	6.000	66.00	24.00	36.00	○	
	4.100	6.000	66.00	24.00	36.00	○	
	4.200	6.000	66.00	24.00	36.00	○	
	4.300	6.000	66.00	24.00	36.00	○	
	4.500	6.000	66.00	24.00	36.00	○	
	4.600	6.000	66.00	24.00	36.00	○	
	4.700	6.000	66.00	24.00	36.00	○	
	5.000	6.000	66.00	28.00	36.00	○	○
	5.200	6.000	66.00	28.00	36.00	○	
	5.300	6.000	66.00	28.00	36.00	○	
	5.500	6.000	66.00	28.00	36.00	○	○
	5.800	6.000	66.00	28.00	36.00	○	
	6.000	6.000	66.00	28.00	36.00	○	○
	6.300	8.000	79.00	34.00	36.00	○	
	6.500	8.000	79.00	34.00	36.00	○	○
	6.600	8.000	79.00	34.00	36.00	○	
	6.800	8.000	79.00	34.00	36.00	○	○
	7.000	8.000	79.00	34.00	36.00	○	○
	7.200	8.000	79.00	41.00	36.00	○	
	7.300	8.000	79.00	41.00	36.00	○	
	7.400	8.000	79.00	41.00	36.00	○	
	7.500	8.000	79.00	41.00	36.00	○	○
	7.600	8.000	79.00	41.00	36.00	○	
5/16	7.940	8.000	79.00	41.00	36.00	○	
	8.000	8.000	79.00	41.00	36.00	○	○
	8.100	10.000	89.00	47.00	40.00	○	
	8.200	10.000	89.00	47.00	40.00	○	
	8.300	10.000	89.00	47.00	40.00	○	
	8.400	10.000	89.00	47.00	40.00	○	
	8.500	10.000	89.00	47.00	40.00	○	○
	8.600	10.000	89.00	47.00	40.00	○	
	8.800	10.000	89.00	47.00	40.00	○	
	8.900	10.000	89.00	47.00	40.00	○	
	9.000	10.000	89.00	47.00	40.00	○	○
	9.200	10.000	89.00	47.00	40.00	○	
	9.500	10.000	89.00	47.00	40.00	○	○
3/8	9.520	10.000	89.00	47.00	40.00	○	
	9.600	10.000	89.00	47.00	40.00	○	
	9.700	10.000	89.00	47.00	40.00	○	
	9.800	10.000	89.00	47.00	40.00	○	
	10.000	10.000	89.00	47.00	40.00	○	○
	10.100	12.000	102.00	55.00	45.00	○	
	10.200	12.000	102.00	55.00	45.00	○	○
	10.300	12.000	102.00	55.00	45.00	○	
	10.500	12.000	102.00	55.00	45.00	○	○
	10.700	12.000	102.00	55.00	45.00	○	
	10.800	12.000	102.00	55.00	45.00	○	
	11.000	12.000	102.00	55.00	45.00	○	○
	11.200	12.000	102.00	55.00	45.00	○	
	11.300	12.000	102.00	55.00	45.00	○	
	11.500	12.000	102.00	55.00	45.00	○	○
	11.800	12.000	102.00	55.00	45.00	○	
	12.000	12.000	102.00	55.00	45.00	○	○
	12.100	14.000	107.00	60.00	45.00	○	
31/64	12.300	14.000	107.00	60.00	45.00	○	
	12.500	14.000	107.00	60.00	45.00	○	○
	12.600	14.000	107.00	60.00	45.00	○	

SuperV-drills with internal coolant



Catalog no.						61875	51875
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiN	TiAlN nano
Type						SuperV-IK-F	SuperV-IK-F
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
1/2	12.700	14.000	107.00	60.00	45.00	○	
	12.800	14.000	107.00	60.00	45.00	○	
	13.000	14.000	107.00	60.00	45.00	○	○
	13.200	14.000	107.00	60.00	45.00	○	
	13.500	14.000	107.00	60.00	45.00	○	○
	14.000	14.000	107.00	60.00	45.00	○	○
	14.300	16.000	115.00	65.00	48.00	○	
	14.500	16.000	115.00	65.00	48.00	○	○
	15.000	16.000	115.00	65.00	48.00	○	○
	15.500	16.000	115.00	65.00	48.00	○	○
	16.000	16.000	115.00	65.00	48.00	○	○
	16.500	18.000	123.00	73.00	48.00	○	
	17.000	18.000	123.00	73.00	48.00	○	
	17.500	18.000	123.00	73.00	48.00	○	
	18.500	20.000	131.00	79.00	50.00	○	
	19.000	20.000	131.00	79.00	50.00	○	
	20.000	20.000	131.00	79.00	50.00	○	
	21.000	25.000	146.00	84.00	56.00	○	
	22.000	25.000	146.00	84.00	56.00	○	

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51776



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills with internal coolant

Catalog no. 51876



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

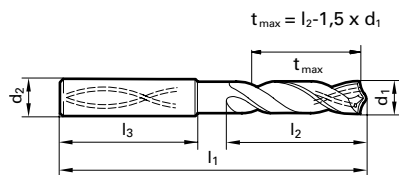
Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 K 3xD

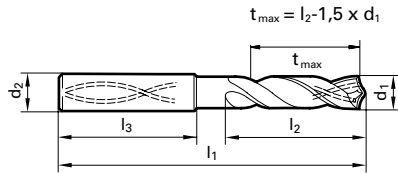
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant



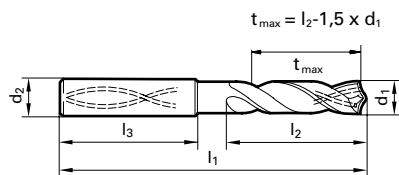
Catalog no.						51776	51876
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-IK-U	SuperV-IK-U
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	3.000	6.000	62.00	20.00	36.00	●	●
	3.100	6.000	62.00	20.00	36.00	●	●
	3.200	6.000	62.00	20.00	36.00	●	●
	3.300	6.000	62.00	20.00	36.00	●	●
	3.400	6.000	62.00	20.00	36.00	●	●
	3.500	6.000	62.00	20.00	36.00	●	●
	3.600	6.000	62.00	20.00	36.00	●	●
	3.700	6.000	62.00	20.00	36.00	●	●
	3.800	6.000	66.00	24.00	36.00	●	●
	3.900	6.000	66.00	24.00	36.00	●	●
	4.000	6.000	66.00	24.00	36.00	●	●
	4.100	6.000	66.00	24.00	36.00	●	●
	4.200	6.000	66.00	24.00	36.00	●	●
11/64	4.300	6.000	66.00	24.00	36.00	●	●
	4.370	6.000	66.00	24.00	36.00	●	●
	4.400	6.000	66.00	24.00	36.00	●	●
	4.500	6.000	66.00	24.00	36.00	●	●
	4.600	6.000	66.00	24.00	36.00	●	●
	4.650	6.000	66.00	24.00	36.00	●	●
	4.700	6.000	66.00	24.00	36.00	●	●
3/16	4.760	6.000	66.00	28.00	36.00	●	●
	4.800	6.000	66.00	28.00	36.00	●	●
	4.900	6.000	66.00	28.00	36.00	●	●
	5.000	6.000	66.00	28.00	36.00	●	●
13/64	5.100	6.000	66.00	28.00	36.00	●	●
	5.160	6.000	66.00	28.00	36.00	●	●
	5.200	6.000	66.00	28.00	36.00	●	●
	5.300	6.000	66.00	28.00	36.00	●	●
	5.400	6.000	66.00	28.00	36.00	●	●
	5.500	6.000	66.00	28.00	36.00	●	●
	5.550	6.000	66.00	28.00	36.00	●	●
7/32	5.560	6.000	66.00	28.00	36.00	●	●
	5.600	6.000	66.00	28.00	36.00	●	●
	5.700	6.000	66.00	28.00	36.00	●	●
	5.800	6.000	66.00	28.00	36.00	●	●
	5.900	6.000	66.00	28.00	36.00	●	●
15/64	5.950	6.000	66.00	28.00	36.00	●	●
	6.000	6.000	66.00	28.00	36.00	●	●
	6.100	8.000	79.00	34.00	36.00	●	●
	6.200	8.000	79.00	34.00	36.00	●	●
	6.300	8.000	79.00	34.00	36.00	●	●
1/4	6.350	8.000	79.00	34.00	36.00	●	●
	6.400	8.000	79.00	34.00	36.00	●	●
	6.500	8.000	79.00	34.00	36.00	●	●
	6.600	8.000	79.00	34.00	36.00	●	●
17/64	6.700	8.000	79.00	34.00	36.00	●	●
	6.750	8.000	79.00	34.00	36.00	●	●
	6.800	8.000	79.00	34.00	36.00	●	●
	6.900	8.000	79.00	34.00	36.00	●	●
	7.000	8.000	79.00	34.00	36.00	●	●
	7.100	8.000	79.00	41.00	36.00	●	●
9/32	7.140	8.000	79.00	41.00	36.00	●	●
	7.200	8.000	79.00	41.00	36.00	●	●
	7.300	8.000	79.00	41.00	36.00	●	●
	7.400	8.000	79.00	41.00	36.00	●	●
	7.500	8.000	79.00	41.00	36.00	●	●
19/64	7.540	8.000	79.00	41.00	36.00	●	●

SuperV-drills with internal coolant



Catalog no.						51776	51876
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-IK-U	SuperV-IK-U
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
5/16	7.600	8.000	79.00	41.00	36.00	●	●
	7.700	8.000	79.00	41.00	36.00	●	●
	7.800	8.000	79.00	41.00	36.00	●	●
	7.900	8.000	79.00	41.00	36.00	●	●
	7.940	8.000	79.00	41.00	36.00	●	●
	8.000	8.000	79.00	41.00	36.00	●	●
21/64	8.100	10.000	89.00	47.00	40.00	●	●
	8.200	10.000	89.00	47.00	40.00	●	●
	8.300	10.000	89.00	47.00	40.00	●	●
	8.330	10.000	89.00	47.00	40.00	●	●
	8.400	10.000	89.00	47.00	40.00	●	●
	8.500	10.000	89.00	47.00	40.00	●	●
11/32	8.600	10.000	89.00	47.00	40.00	●	●
	8.700	10.000	89.00	47.00	40.00	●	●
	8.730	10.000	89.00	47.00	40.00	●	●
	8.800	10.000	89.00	47.00	40.00	●	●
	8.900	10.000	89.00	47.00	40.00	●	●
	9.000	10.000	89.00	47.00	40.00	●	●
23/64	9.100	10.000	89.00	47.00	40.00	●	●
	9.130	10.000	89.00	47.00	40.00	●	●
	9.200	10.000	89.00	47.00	40.00	●	●
	9.250	10.000	89.00	47.00	40.00	●	●
	9.300	10.000	89.00	47.00	40.00	●	●
	9.400	10.000	89.00	47.00	40.00	●	●
3/8	9.500	10.000	89.00	47.00	40.00	●	●
	9.520	10.000	89.00	47.00	40.00	●	●
	9.600	10.000	89.00	47.00	40.00	●	●
	9.700	10.000	89.00	47.00	40.00	●	●
	9.800	10.000	89.00	47.00	40.00	●	●
	9.900	10.000	89.00	47.00	40.00	●	●
25/64	9.920	10.000	89.00	47.00	40.00	●	●
	10.000	10.000	89.00	47.00	40.00	●	●
	10.100	12.000	102.00	55.00	45.00	●	●
	10.200	12.000	102.00	55.00	45.00	●	●
	10.300	12.000	102.00	55.00	45.00	●	●
	10.320	12.000	102.00	55.00	45.00	●	●
13/32	10.400	12.000	102.00	55.00	45.00	●	●
	10.500	12.000	102.00	55.00	45.00	●	●
	10.600	12.000	102.00	55.00	45.00	●	●
	10.700	12.000	102.00	55.00	45.00	●	●
	10.800	12.000	102.00	55.00	45.00	●	●
	10.900	12.000	102.00	55.00	45.00	●	●
7/16	11.000	12.000	102.00	55.00	45.00	●	●
	11.100	12.000	102.00	55.00	45.00	●	●
	11.110	12.000	102.00	55.00	45.00	●	●
	11.200	12.000	102.00	55.00	45.00	●	●
	11.300	12.000	102.00	55.00	45.00	●	●
	11.400	12.000	102.00	55.00	45.00	●	●
15/32	11.500	12.000	102.00	55.00	45.00	●	●
	11.600	12.000	102.00	55.00	45.00	●	●
	11.700	12.000	102.00	55.00	45.00	●	●
	11.800	12.000	102.00	55.00	45.00	●	●
	11.900	12.000	102.00	55.00	45.00	●	●
	11.910	12.000	102.00	55.00	45.00	●	●
15/32	12.000	12.000	102.00	55.00	45.00	●	●
	12.100	14.000	107.00	60.00	45.00	●	●
	12.200	14.000	107.00	60.00	45.00	●	●

SuperV-drills with internal coolant



Catalog no.						51776	51876
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlN nano	TiAlN nano
Type						SuperV-IK-U	SuperV-IK-U
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
31/64	12.300	14.000	107.00	60.00	45.00		●
	12.400	14.000	107.00	60.00	45.00		●
	12.500	14.000	107.00	60.00	45.00	●	●
1/2	12.700	14.000	107.00	60.00	45.00	●	●
	13.000	14.000	107.00	60.00	45.00	●	●
	13.200	14.000	107.00	60.00	45.00		●
	13.500	14.000	107.00	60.00	45.00	●	●
	13.700	14.000	107.00	60.00	45.00	●	●
	14.000	14.000	107.00	60.00	45.00	●	●
9/16	14.100	16.000	115.00	65.00	48.00		●
	14.200	16.000	115.00	65.00	48.00	●	●
	14.290	16.000	115.00	65.00	48.00		●
	14.300	16.000	115.00	65.00	48.00		●
	14.500	16.000	115.00	65.00	48.00	●	●
	14.700	16.000	115.00	65.00	48.00	●	●
	14.900	16.000	115.00	65.00	48.00		●
	15.000	16.000	115.00	65.00	48.00	●	●
	15.200	16.000	115.00	65.00	48.00	●	●
	15.500	16.000	115.00	65.00	48.00	●	●
	15.600	16.000	115.00	65.00	48.00		●
	15.700	16.000	115.00	65.00	48.00	●	●
	16.000	16.000	115.00	65.00	48.00	●	●
	16.100	18.000	123.00	73.00	48.00		●
	16.200	18.000	123.00	73.00	48.00		●
	16.500	18.000	123.00	73.00	48.00	●	●
	17.000	18.000	123.00	73.00	48.00	●	●
	17.500	18.000	123.00	73.00	48.00	●	●
	17.700	18.000	123.00	73.00	48.00		●
	18.000	18.000	123.00	73.00	48.00	●	●
	18.500	20.000	131.00	79.00	50.00	●	●
	19.000	20.000	131.00	79.00	50.00	●	●
	19.500	20.000	131.00	79.00	50.00	●	●
	20.000	20.000	131.00	79.00	50.00	●	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51752



High performance drill for using in steels upto 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-IK-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills with internal coolant

Catalog no. 51753



High performance drill for using in steels upto 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

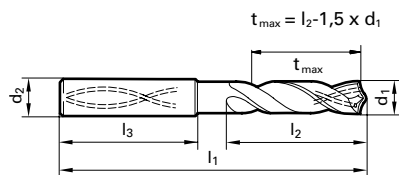
Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-IK-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

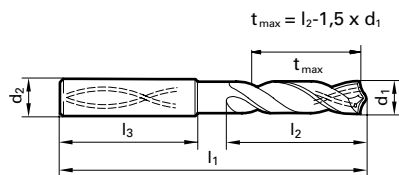
web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HE

SuperV-drills with internal coolant



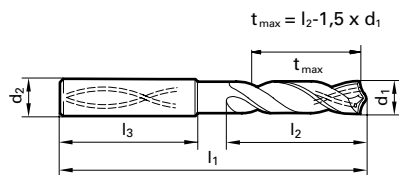
Catalog no.						51752	51753
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
1/8	3.000	6.000	62.00	20.00	36.00	●	●
	3.100	6.000	62.00	20.00	36.00	●	●
	3.170	6.000	62.00	20.00	36.00	●	●
	3.200	6.000	62.00	20.00	36.00	●	●
	3.250	6.000	62.00	20.00	36.00	●	●
	3.300	6.000	62.00	20.00	36.00	●	●
9/64	3.400	6.000	62.00	20.00	36.00	●	●
	3.500	6.000	62.00	20.00	36.00	●	●
	3.570	6.000	62.00	20.00	36.00	●	●
	3.600	6.000	62.00	20.00	36.00	●	●
	3.700	6.000	62.00	20.00	36.00	●	●
	3.800	6.000	66.00	24.00	36.00	●	●
5/32	3.900	6.000	66.00	24.00	36.00	●	●
	3.970	6.000	66.00	24.00	36.00	●	●
	4.000	6.000	66.00	24.00	36.00	●	●
	4.100	6.000	66.00	24.00	36.00	●	●
	4.200	6.000	66.00	24.00	36.00	●	●
	4.300	6.000	66.00	24.00	36.00	●	●
11/64	4.370	6.000	66.00	24.00	36.00	●	●
	4.400	6.000	66.00	24.00	36.00	●	●
	4.500	6.000	66.00	24.00	36.00	●	●
	4.600	6.000	66.00	24.00	36.00	●	●
	4.650	6.000	66.00	24.00	36.00	●	●
	4.700	6.000	66.00	24.00	36.00	●	●
3/16	4.760	6.000	66.00	28.00	36.00	●	●
	4.800	6.000	66.00	28.00	36.00	●	●
	4.900	6.000	66.00	28.00	36.00	●	●
	5.000	6.000	66.00	28.00	36.00	●	●
	5.100	6.000	66.00	28.00	36.00	●	●
	5.160	6.000	66.00	28.00	36.00	●	●
13/64	5.200	6.000	66.00	28.00	36.00	●	●
	5.300	6.000	66.00	28.00	36.00	●	●
	5.400	6.000	66.00	28.00	36.00	●	●
	5.500	6.000	66.00	28.00	36.00	●	●
	5.550	6.000	66.00	28.00	36.00	●	●
	5.560	6.000	66.00	28.00	36.00	●	●
7/32	5.600	6.000	66.00	28.00	36.00	●	●
	5.700	6.000	66.00	28.00	36.00	●	●
	5.800	6.000	66.00	28.00	36.00	●	●
	5.900	6.000	66.00	28.00	36.00	●	●
	5.950	6.000	66.00	28.00	36.00	●	●
	6.000	6.000	66.00	28.00	36.00	●	●
15/64	6.100	8.000	79.00	34.00	36.00	●	●
	6.200	8.000	79.00	34.00	36.00	●	●
	6.300	8.000	79.00	34.00	36.00	●	●
	6.350	8.000	79.00	34.00	36.00	●	●
	6.400	8.000	79.00	34.00	36.00	●	●
	6.500	8.000	79.00	34.00	36.00	●	●
1/4	6.600	8.000	79.00	34.00	36.00	●	●
	6.700	8.000	79.00	34.00	36.00	●	●
	6.750	8.000	79.00	34.00	36.00	●	●
	6.800	8.000	79.00	34.00	36.00	●	●
	6.900	8.000	79.00	34.00	36.00	●	●
	7.000	8.000	79.00	34.00	36.00	●	●
17/64	7.100	8.000	79.00	41.00	36.00	●	●
	7.140	8.000	79.00	41.00	36.00	●	●
	7.200	8.000	79.00	41.00	36.00	●	●
	7.100	8.000	79.00	41.00	36.00	●	●
	7.140	8.000	79.00	41.00	36.00	●	●
	7.200	8.000	79.00	41.00	36.00	●	●

SuperV-drills with internal coolant



Catalog no.						51752	51753
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
19/64	7.300	8.000	79.00	41.00	36.00	●	●
	7.400	8.000	79.00	41.00	36.00	●	●
	7.500	8.000	79.00	41.00	36.00	●	●
	7.540	8.000	79.00	41.00	36.00	●	●
	7.600	8.000	79.00	41.00	36.00	●	●
5/16	7.700	8.000	79.00	41.00	36.00	●	●
	7.800	8.000	79.00	41.00	36.00	●	●
	7.900	8.000	79.00	41.00	36.00	●	●
	7.940	8.000	79.00	41.00	36.00	●	●
	8.000	8.000	79.00	41.00	36.00	●	●
21/64	8.100	10.000	89.00	47.00	40.00	●	●
	8.200	10.000	89.00	47.00	40.00	●	●
	8.300	10.000	89.00	47.00	40.00	●	●
	8.330	10.000	89.00	47.00	40.00	●	●
	8.400	10.000	89.00	47.00	40.00	●	●
11/32	8.500	10.000	89.00	47.00	40.00	●	●
	8.600	10.000	89.00	47.00	40.00	●	●
	8.700	10.000	89.00	47.00	40.00	●	●
	8.730	10.000	89.00	47.00	40.00	●	●
	8.800	10.000	89.00	47.00	40.00	●	●
23/64	8.900	10.000	89.00	47.00	40.00	●	●
	9.000	10.000	89.00	47.00	40.00	●	●
	9.100	10.000	89.00	47.00	40.00	●	●
	9.130	10.000	89.00	47.00	40.00	●	●
	9.200	10.000	89.00	47.00	40.00	●	●
3/8	9.250	10.000	89.00	47.00	40.00	●	●
	9.300	10.000	89.00	47.00	40.00	●	●
	9.400	10.000	89.00	47.00	40.00	●	●
	9.500	10.000	89.00	47.00	40.00	●	●
	9.520	10.000	89.00	47.00	40.00	●	●
25/64	9.600	10.000	89.00	47.00	40.00	●	●
	9.700	10.000	89.00	47.00	40.00	●	●
	9.800	10.000	89.00	47.00	40.00	●	●
	9.900	10.000	89.00	47.00	40.00	●	●
	9.920	10.000	89.00	47.00	40.00	●	●
13/32	10.000	10.000	89.00	47.00	40.00	●	●
	10.100	12.000	102.00	55.00	45.00	●	●
	10.200	12.000	102.00	55.00	45.00	●	●
	10.300	12.000	102.00	55.00	45.00	●	●
	10.320	12.000	102.00	55.00	45.00	●	●
7/16	10.400	12.000	102.00	55.00	45.00	●	●
	10.500	12.000	102.00	55.00	45.00	●	●
	10.600	12.000	102.00	55.00	45.00	●	●
	10.700	12.000	102.00	55.00	45.00	●	●
	10.800	12.000	102.00	55.00	45.00	●	●
	10.900	12.000	102.00	55.00	45.00	●	●
	11.000	12.000	102.00	55.00	45.00	●	●
	11.100	12.000	102.00	55.00	45.00	●	●
	11.110	12.000	102.00	55.00	45.00	●	●
	11.200	12.000	102.00	55.00	45.00	●	●
	11.300	12.000	102.00	55.00	45.00	●	●
	11.400	12.000	102.00	55.00	45.00	●	●
	11.500	12.000	102.00	55.00	45.00	●	●
	11.600	12.000	102.00	55.00	45.00	●	●
	11.700	12.000	102.00	55.00	45.00	●	●
	11.800	12.000	102.00	55.00	45.00	●	●
	11.900	12.000	102.00	55.00	45.00	●	●
						●	●

SuperV-drills with internal coolant



Catalog no.						51752	51753
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
15/32	11.910	12.000	102.00	55.00	45.00	●	●
	12.000	12.000	102.00	55.00	45.00	●	●
	12.200	14.000	107.00	60.00	45.00	●	●
1/2	12.500	14.000	107.00	60.00	45.00	●	●
	12.700	14.000	107.00	60.00	45.00	●	●
	12.800	14.000	107.00	60.00	45.00	●	●
	13.000	14.000	107.00	60.00	45.00	●	●
	13.300	14.000	107.00	60.00	45.00	●	●
	13.500	14.000	107.00	60.00	45.00	●	●
	13.700	14.000	107.00	60.00	45.00	●	●
	14.000	14.000	107.00	60.00	45.00	●	●
	14.200	16.000	115.00	65.00	48.00	●	●
9/16	14.290	16.000	115.00	65.00	48.00	●	●
	14.300	16.000	115.00	65.00	48.00	●	●
	14.500	16.000	115.00	65.00	48.00	●	●
	14.700	16.000	115.00	65.00	48.00	●	●
	15.000	16.000	115.00	65.00	48.00	●	●
	15.200	16.000	115.00	65.00	48.00	●	●
	15.300	16.000	115.00	65.00	48.00	●	●
	15.500	16.000	115.00	65.00	48.00	●	●
	15.700	16.000	115.00	65.00	48.00	●	●
	16.000	16.000	115.00	65.00	48.00	●	●
	16.300	18.000	123.00	73.00	48.00	●	●
	16.500	18.000	123.00	73.00	48.00	●	●
	16.900	18.000	123.00	73.00	48.00	●	●
	17.000	18.000	123.00	73.00	48.00	●	●
	17.300	18.000	123.00	73.00	48.00	●	●
	17.500	18.000	123.00	73.00	48.00	●	●
	18.000	18.000	123.00	73.00	48.00	●	●
	18.500	20.000	131.00	79.00	50.00	●	●
	18.900	20.000	131.00	79.00	50.00	●	●
	19.000	20.000	131.00	79.00	50.00	●	●
	19.050	20.000	131.00	79.00	50.00	●	●
3/4	19.300	20.000	131.00	79.00	50.00	●	●
	19.500	20.000	131.00	79.00	50.00	●	●
	20.000	20.000	131.00	79.00	50.00	●	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51770



High-performance drill for machining of acid- and heat-resistant as well as stainless steels, Ti and Ti-alloys. The special geometry and the AlTiN-nano-coating offer a maximum process-reliability and long tool life.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-VA
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills with internal coolant

Catalog no. 51771



High-performance drill for machining of acid- and heat-resistant as well as stainless steels, Ti and Ti-alloys. The special geometry and the AlTiN-nano-coating offer a maximum process-reliability and long tool life.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

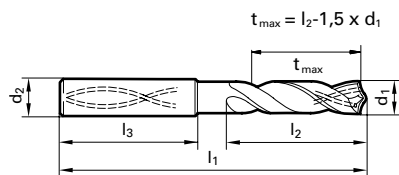
Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 K 3xD

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-VA
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

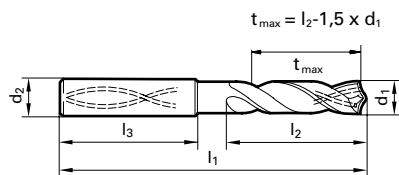
web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HE

SuperV-drills with internal coolant



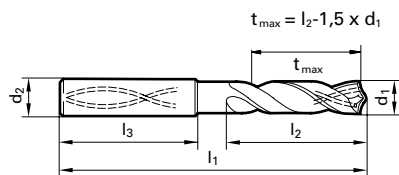
Catalog no.						51770	51771
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
1/8	3.000	6.000	62.00	20.00	36.00	●	●
	3.100	6.000	62.00	20.00	36.00	●	●
	3.170	6.000	62.00	20.00	36.00	●	●
	3.200	6.000	62.00	20.00	36.00	●	●
	3.250	6.000	62.00	20.00	36.00	●	●
9/64	3.300	6.000	62.00	20.00	36.00	●	●
	3.400	6.000	62.00	20.00	36.00	●	●
	3.500	6.000	62.00	20.00	36.00	●	●
	3.570	6.000	62.00	20.00	36.00	●	●
	3.600	6.000	62.00	20.00	36.00	●	●
5/32	3.700	6.000	62.00	20.00	36.00	●	●
	3.800	6.000	66.00	24.00	36.00	●	●
	3.900	6.000	66.00	24.00	36.00	●	●
	3.970	6.000	66.00	24.00	36.00	●	●
	4.000	6.000	66.00	24.00	36.00	●	●
11/64	4.100	6.000	66.00	24.00	36.00	●	●
	4.200	6.000	66.00	24.00	36.00	●	●
	4.300	6.000	66.00	24.00	36.00	●	●
	4.370	6.000	66.00	24.00	36.00	●	●
	4.400	6.000	66.00	24.00	36.00	●	●
3/16	4.500	6.000	66.00	24.00	36.00	●	●
	4.600	6.000	66.00	24.00	36.00	●	●
	4.650	6.000	66.00	24.00	36.00	●	●
	4.700	6.000	66.00	24.00	36.00	●	●
	4.760	6.000	66.00	28.00	36.00	●	●
13/64	4.800	6.000	66.00	28.00	36.00	●	●
	4.900	6.000	66.00	28.00	36.00	●	●
	5.000	6.000	66.00	28.00	36.00	●	●
	5.100	6.000	66.00	28.00	36.00	●	●
	5.160	6.000	66.00	28.00	36.00	●	●
7/32	5.200	6.000	66.00	28.00	36.00	●	●
	5.300	6.000	66.00	28.00	36.00	●	●
	5.400	6.000	66.00	28.00	36.00	●	●
	5.500	6.000	66.00	28.00	36.00	●	●
	5.550	6.000	66.00	28.00	36.00	●	●
15/64	5.560	6.000	66.00	28.00	36.00	●	●
	5.600	6.000	66.00	28.00	36.00	●	●
	5.700	6.000	66.00	28.00	36.00	●	●
	5.800	6.000	66.00	28.00	36.00	●	●
	5.900	6.000	66.00	28.00	36.00	●	●
1/4	5.950	6.000	66.00	28.00	36.00	●	●
	6.000	6.000	66.00	28.00	36.00	●	●
	6.100	8.000	79.00	34.00	36.00	●	●
	6.200	8.000	79.00	34.00	36.00	●	●
	6.300	8.000	79.00	34.00	36.00	●	●
17/64	6.350	8.000	79.00	34.00	36.00	●	●
	6.400	8.000	79.00	34.00	36.00	●	●
	6.500	8.000	79.00	34.00	36.00	●	●
	6.600	8.000	79.00	34.00	36.00	●	●
	6.700	8.000	79.00	34.00	36.00	●	●
9/32	6.750	8.000	79.00	34.00	36.00	●	●
	6.800	8.000	79.00	34.00	36.00	●	●
	6.900	8.000	79.00	34.00	36.00	●	●
	7.000	8.000	79.00	34.00	36.00	●	●
	7.100	8.000	79.00	41.00	36.00	●	●
9/32	7.140	8.000	79.00	41.00	36.00	●	●
	7.200	8.000	79.00	41.00	36.00	●	●

SuperV-drills with internal coolant



Catalog no.						51770	51771
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
19/64	7.300	8.000	79.00	41.00	36.00	●	●
	7.400	8.000	79.00	41.00	36.00	●	●
	7.500	8.000	79.00	41.00	36.00	●	●
	7.540	8.000	79.00	41.00	36.00	●	●
	7.600	8.000	79.00	41.00	36.00	●	●
5/16	7.700	8.000	79.00	41.00	36.00	●	●
	7.800	8.000	79.00	41.00	36.00	●	●
	7.900	8.000	79.00	41.00	36.00	●	●
	7.940	8.000	79.00	41.00	36.00	●	●
	8.000	8.000	79.00	41.00	36.00	●	●
21/64	8.100	10.000	89.00	47.00	40.00	●	●
	8.200	10.000	89.00	47.00	40.00	●	●
	8.300	10.000	89.00	47.00	40.00	●	●
	8.330	10.000	89.00	47.00	40.00	●	●
	8.400	10.000	89.00	47.00	40.00	●	●
11/32	8.500	10.000	89.00	47.00	40.00	●	●
	8.600	10.000	89.00	47.00	40.00	●	●
	8.700	10.000	89.00	47.00	40.00	●	●
	8.730	10.000	89.00	47.00	40.00	●	●
	8.800	10.000	89.00	47.00	40.00	●	●
23/64	8.900	10.000	89.00	47.00	40.00	●	●
	9.000	10.000	89.00	47.00	40.00	●	●
	9.100	10.000	89.00	47.00	40.00	●	●
	9.130	10.000	89.00	47.00	40.00	●	●
	9.200	10.000	89.00	47.00	40.00	●	●
3/8	9.250	10.000	89.00	47.00	40.00	●	●
	9.300	10.000	89.00	47.00	40.00	●	●
	9.400	10.000	89.00	47.00	40.00	●	●
	9.500	10.000	89.00	47.00	40.00	●	●
	9.520	10.000	89.00	47.00	40.00	●	●
25/64	9.600	10.000	89.00	47.00	40.00	●	●
	9.700	10.000	89.00	47.00	40.00	●	●
	9.800	10.000	89.00	47.00	40.00	●	●
	9.900	10.000	89.00	47.00	40.00	●	●
	9.920	10.000	89.00	47.00	40.00	●	●
13/32	10.000	10.000	89.00	47.00	40.00	●	●
	10.100	12.000	102.00	55.00	45.00	●	●
	10.200	12.000	102.00	55.00	45.00	●	●
	10.300	12.000	102.00	55.00	45.00	●	●
	10.320	12.000	102.00	55.00	45.00	●	●
7/16	10.400	12.000	102.00	55.00	45.00	●	●
	10.500	12.000	102.00	55.00	45.00	●	●
	10.600	12.000	102.00	55.00	45.00	●	●
	10.700	12.000	102.00	55.00	45.00	●	●
	10.800	12.000	102.00	55.00	45.00	●	●
	10.900	12.000	102.00	55.00	45.00	●	●
	11.000	12.000	102.00	55.00	45.00	●	●
	11.100	12.000	102.00	55.00	45.00	●	●
	11.110	12.000	102.00	55.00	45.00	●	●
	11.200	12.000	102.00	55.00	45.00	●	●
	11.300	12.000	102.00	55.00	45.00	●	●
	11.400	12.000	102.00	55.00	45.00	●	●
	11.500	12.000	102.00	55.00	45.00	●	●
	11.600	12.000	102.00	55.00	45.00	●	●
	11.700	12.000	102.00	55.00	45.00	●	●
	11.800	12.000	102.00	55.00	45.00	●	●
	11.900	12.000	102.00	55.00	45.00	●	●
						●	●

SuperV-drills with internal coolant



Catalog no.						51770	51771
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						3xD	3xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
15/32	11.910	12.000	102.00	55.00	45.00	●	●
	12.000	12.000	102.00	55.00	45.00	●	●
	12.200	14.000	107.00	60.00	45.00	●	●
1/2	12.500	14.000	107.00	60.00	45.00	●	●
	12.700	14.000	107.00	60.00	45.00	●	●
	12.800	14.000	107.00	60.00	45.00	●	●
	13.000	14.000	107.00	60.00	45.00	●	●
	13.300	14.000	107.00	60.00	45.00	●	●
	13.500	14.000	107.00	60.00	45.00	●	●
9/16	13.700	14.000	107.00	60.00	45.00	●	●
	14.000	14.000	107.00	60.00	45.00	●	●
	14.200	16.000	115.00	65.00	48.00	●	●
	14.290	16.000	115.00	65.00	48.00	●	●
	14.300	16.000	115.00	65.00	48.00	●	●
	14.500	16.000	115.00	65.00	48.00	●	●
	14.700	16.000	115.00	65.00	48.00	●	●
	15.000	16.000	115.00	65.00	48.00	●	●
	15.200	16.000	115.00	65.00	48.00	●	●
	15.300	16.000	115.00	65.00	48.00	●	●
	15.500	16.000	115.00	65.00	48.00	●	●
	15.700	16.000	115.00	65.00	48.00	●	●
	16.000	16.000	115.00	65.00	48.00	●	●
	16.300	18.000	123.00	73.00	48.00	●	●
	16.500	18.000	123.00	73.00	48.00	●	●
	16.900	18.000	123.00	73.00	48.00	●	●
	17.000	18.000	123.00	73.00	48.00	●	●
	17.300	18.000	123.00	73.00	48.00	●	●
	17.500	18.000	123.00	73.00	48.00	●	●
	18.000	18.000	123.00	73.00	48.00	●	●
	18.500	20.000	131.00	79.00	50.00	●	●
	18.900	20.000	131.00	79.00	50.00	●	●
	19.000	20.000	131.00	79.00	50.00	●	●
	19.300	20.000	131.00	79.00	50.00	●	●
	19.500	20.000	131.00	79.00	50.00	●	●
	20.000	20.000	131.00	79.00	50.00	●	●

SuperV-drills

SuperV-drills with internal coolant

DIN 6538 K 3xD

Catalog no. 61823



High-performance drill for drilling into unalloyed, low- and high alloyed steels (with a tensile strength of up to 900 N/mm²), grey cast iron, spheroidal graphite iron, brass, bronze, plastics and graphite, for drilling depths up to 3 x D.

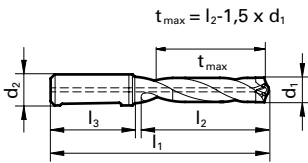
Advantages: Vibrations and shocks that may occur during use are absorbed by the HSS body material holding the brazed carbide tip. Withstands distortion caused by less rigid machines. Produces short chips, including soft, long chipping steels, thanks to a specially designed cutting point geometry. The optimised carbide grade and point geometry makes the use of highest speed and feed rates possible, high alignment accuracy with small diameter tolerance and excellent surface finish.

Preconditions for use: powerful machines.

Tool material	Carbide
Surface	TiN
Type	SuperV90-U
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	9.50
Tolerance on Ø	h7

Web thinning: SuperV
 Helix angle: normal
 Web thickness: greater than standard
 Web taper: none
 Flute form: smaller than standard
 Shank: HE

SuperV-drills with internal coolant



Catalog no. 61823

Tool material Carbide

Carbide grade P

Discount group 128

Surface TiN

Type SuperV90-U

Drilling depth 3xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	9.500	16.000	103.00	51.00	48.00	○
	10.000	16.000	103.00	51.00	48.00	○
	10.500	16.000	103.00	51.00	48.00	○
	11.500	16.000	103.00	51.00	48.00	○
	11.800	16.000	103.00	51.00	48.00	○
	12.000	16.000	103.00	51.00	48.00	○
	12.200	16.000	111.00	59.00	48.00	○
	13.800	16.000	111.00	59.00	48.00	○
	14.200	20.000	122.00	68.00	50.00	○
	15.000	20.000	122.00	68.00	50.00	○
	15.300	20.000	122.00	68.00	50.00	○
	15.500	20.000	122.00	68.00	50.00	○
	17.500	20.000	130.00	76.00	50.00	○
	18.100	25.000	144.00	84.00	56.00	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 71995



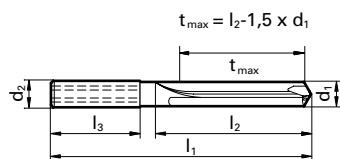
Straight-fluted drill for the machining of short chipping materials like cast iron, grey cast iron, heat-treatable grey cast iron, spheroidal graphite iron and malleable cast iron, al-alloys with high Si-content. For the production of holes with high alignment accuracy (minimal deviation from straightness).

Advantages: Extremely good self centring qualities, small diameter tolerances, excellent surface finish, high cutting rates, high productivity.

Preconditions for use: powerful machines. No play in spindle bearings. Accurately aligned tool holders. Max. concentricity error of clamped tools: 0.02 mm. We recommend the use of hydraulic chucks.

Stock std.	4xD
Tool material	Solid Carbide
Surface	bright
Type	SuperV95-GG
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	m7
Web thinning: GG special	
Helix angle: straight	
Web thickness: greater than standard	
Web taper: none	
Flute form: special	
Shank: HA	

SuperV-drills with internal coolant



Catalog no.

71995

Tool material

Solid Carbide

Carbide grade

K

Discount group

121

Surface

bright

Type

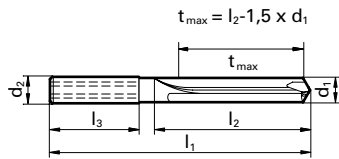
SuperV95-GG

Drilling depth

4xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
	3.000	6.000	66.00	24.00	36.00	○
	3.100	6.000	66.00	24.00	36.00	○
	3.200	6.000	66.00	24.00	36.00	○
	3.300	6.000	66.00	24.00	36.00	○
	3.400	6.000	66.00	24.00	36.00	○
	3.500	6.000	66.00	24.00	36.00	○
	3.600	6.000	66.00	24.00	36.00	○
	3.700	6.000	66.00	24.00	36.00	○
	3.800	6.000	74.00	30.00	36.00	○
	3.900	6.000	74.00	30.00	36.00	○
	4.000	6.000	74.00	30.00	36.00	○
	4.100	6.000	74.00	30.00	36.00	○
	4.200	6.000	74.00	30.00	36.00	○
	4.300	6.000	74.00	30.00	36.00	○
	4.400	6.000	74.00	30.00	36.00	○
	4.500	6.000	74.00	30.00	36.00	○
	4.600	6.000	74.00	30.00	36.00	○
	4.700	6.000	74.00	30.00	36.00	○
	4.800	6.000	74.00	36.00	36.00	○
	4.900	6.000	74.00	36.00	36.00	○
	5.000	6.000	74.00	36.00	36.00	○
13/64	5.100	6.000	74.00	36.00	36.00	○
	5.160	6.000	74.00	36.00	36.00	○
	5.200	6.000	74.00	36.00	36.00	○
	5.300	6.000	74.00	36.00	36.00	○
	5.400	6.000	74.00	36.00	36.00	○
	5.500	6.000	74.00	36.00	36.00	○
7/32	5.560	6.000	74.00	36.00	36.00	○
	5.600	6.000	74.00	36.00	36.00	○
	5.700	6.000	74.00	36.00	36.00	○
	5.800	6.000	74.00	36.00	36.00	○
	5.900	6.000	74.00	36.00	36.00	○
15/64	5.950	6.000	74.00	36.00	36.00	○
	6.000	6.000	74.00	36.00	36.00	○
	6.100	8.000	91.00	53.00	36.00	○
	6.200	8.000	91.00	53.00	36.00	○
	6.300	8.000	91.00	53.00	36.00	○
1/4	6.350	8.000	91.00	53.00	36.00	○
	6.400	8.000	91.00	53.00	36.00	○
	6.500	8.000	91.00	53.00	36.00	○
	6.600	8.000	91.00	53.00	36.00	○
	6.700	8.000	91.00	53.00	36.00	○
17/64	6.750	8.000	91.00	53.00	36.00	○
	6.800	8.000	91.00	53.00	36.00	○
	6.900	8.000	91.00	53.00	36.00	○
	7.000	8.000	91.00	53.00	36.00	○
	7.100	8.000	91.00	53.00	36.00	○
9/32	7.140	8.000	91.00	53.00	36.00	○
	7.200	8.000	91.00	53.00	36.00	○
	7.300	8.000	91.00	53.00	36.00	○
	7.400	8.000	91.00	53.00	36.00	○
	7.500	8.000	91.00	53.00	36.00	○
19/64	7.540	8.000	91.00	53.00	36.00	○
	7.600	8.000	91.00	53.00	36.00	○
	7.700	8.000	91.00	53.00	36.00	○
	7.800	8.000	91.00	53.00	36.00	○
	7.900	8.000	91.00	53.00	36.00	○

SuperV-drills with internal coolant



Catalog no.

71995

Tool material

Solid Carbide

Carbide grade

K

Discount group

121

Surface

bright

Type

SuperV95-GG

Drilling depth

4xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
5/16	7.940	8.000	91.00	53.00	36.00	○
	8.000	8.000	91.00	53.00	36.00	○
	8.100	10.000	103.00	61.00	40.00	○
21/64	8.200	10.000	103.00	61.00	40.00	○
	8.300	10.000	103.00	61.00	40.00	○
	8.330	10.000	103.00	61.00	40.00	○
	8.400	10.000	103.00	61.00	40.00	○
	8.500	10.000	103.00	61.00	40.00	○
	8.600	10.000	103.00	61.00	40.00	○
11/32	8.700	10.000	103.00	61.00	40.00	○
	8.730	10.000	103.00	61.00	40.00	○
	8.800	10.000	103.00	61.00	40.00	○
	8.900	10.000	103.00	61.00	40.00	○
	9.000	10.000	103.00	61.00	40.00	○
	9.100	10.000	103.00	61.00	40.00	○
23/64	9.130	10.000	103.00	61.00	40.00	○
	9.200	10.000	103.00	61.00	40.00	○
	9.300	10.000	103.00	61.00	40.00	○
	9.400	10.000	103.00	61.00	40.00	○
	9.500	10.000	103.00	61.00	40.00	○
	9.520	10.000	103.00	61.00	40.00	○
3/8	9.600	10.000	103.00	61.00	40.00	○
	9.700	10.000	103.00	61.00	40.00	○
	9.800	10.000	103.00	61.00	40.00	○
	9.900	10.000	103.00	61.00	40.00	○
	9.920	10.000	103.00	61.00	40.00	○
	10.000	10.000	103.00	61.00	40.00	○
	10.200	12.000	118.00	71.00	45.00	○
	10.500	12.000	118.00	71.00	45.00	○
	10.720	12.000	118.00	71.00	45.00	○
27/64	11.000	12.000	118.00	71.00	45.00	○
	11.110	12.000	118.00	71.00	45.00	○
	11.200	12.000	118.00	71.00	45.00	○
	11.500	12.000	118.00	71.00	45.00	○
	11.510	12.000	118.00	71.00	45.00	○
	11.910	12.000	118.00	71.00	45.00	○
15/32	12.000	12.000	118.00	71.00	45.00	○
	12.300	14.000	124.00	74.00	45.00	○
	12.500	14.000	124.00	74.00	45.00	○
31/64	12.700	14.000	124.00	74.00	45.00	○
	13.000	14.000	124.00	74.00	45.00	○
	13.500	14.000	124.00	74.00	45.00	○
	14.000	14.000	124.00	74.00	45.00	○
	14.500	16.000	133.00	83.00	48.00	○
	15.000	16.000	133.00	83.00	48.00	○
	15.500	16.000	133.00	83.00	48.00	○
	16.000	16.000	133.00	83.00	48.00	○
	16.500	18.000	143.00	93.00	48.00	○
	17.000	18.000	143.00	93.00	48.00	○
	17.500	18.000	143.00	93.00	48.00	○
	18.000	18.000	143.00	93.00	48.00	○
	18.500	20.000	153.00	101.00	50.00	○
	19.000	20.000	153.00	101.00	50.00	○
	19.500	20.000	153.00	101.00	50.00	○
	20.000	20.000	153.00	101.00	50.00	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 61880



High performance drill for machining of materials with a high tensile strength upto 1400 N/mm². The high rigidity and wear-resistance enables this tool for drilling of hard, abrasive or hardened as well as short- and long-chipping materials. (high alloyed steels, acid- and heat-resistant and stainless steels, Inconel, Hastelloy, Monel but also cast iron, brass, bronze, aluminium and magnesium as well as their alloys. Ti- and Ti-alloys, sintered powder metals. high-alloyed steels

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiN
Type	SuperV-IK-F
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	4.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant

Catalog no. 51880



High performance drill for machining of materials with a high tensile strength upto 1400 N/mm². The high rigidity and wear-resistance enables this tool for drilling of hard, abrasive or hardened as well as short- and long-chipping materials. (high alloyed steels, acid- and heat-resistant and stainless steels, Inconel, Hastelloy, Monel but also cast iron, brass, bronze, aluminium and magnesium as well as their alloys. Ti- and Ti-alloys, sintered powder metals. high-alloyed steels

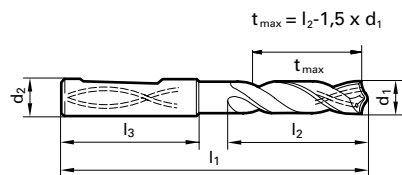
Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

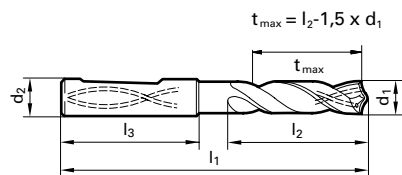
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-F
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	5.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant



Catalog no.						61880	51880
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiN	TiAlN nano
Type						SuperV-IK-F	SuperV-IK-F
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	4.000	6.000	74.00	36.00	36.00	○	
	4.100	6.000	74.00	36.00	36.00	○	
	4.200	6.000	74.00	36.00	36.00	○	
	4.300	6.000	74.00	36.00	36.00	○	
	4.500	6.000	74.00	36.00	36.00	○	
	4.600	6.000	74.00	36.00	36.00	○	
	4.700	6.000	74.00	36.00	36.00	○	
	4.900	6.000	82.00	44.00	36.00	○	
	5.000	6.000	82.00	44.00	36.00	○	○
	5.100	6.000	82.00	44.00	36.00	○	
	5.200	6.000	82.00	44.00	36.00	○	
	5.400	6.000	82.00	44.00	36.00	○	
	5.500	6.000	82.00	44.00	36.00	○	○
	5.700	6.000	82.00	44.00	36.00	○	
	5.800	6.000	82.00	44.00	36.00	○	
	5.900	6.000	82.00	44.00	36.00	○	
	6.000	6.000	82.00	44.00	36.00	○	○
	6.100	8.000	91.00	53.00	36.00	○	
	6.200	8.000	91.00	53.00	36.00	○	
	6.300	8.000	91.00	53.00	36.00	○	
	6.500	8.000	91.00	53.00	36.00	○	○
	6.700	8.000	91.00	53.00	36.00	○	
	6.800	8.000	91.00	53.00	36.00	○	○
	6.900	8.000	91.00	53.00	36.00	○	
	7.000	8.000	91.00	53.00	36.00	○	○
	7.100	8.000	91.00	53.00	36.00	○	
	7.200	8.000	91.00	53.00	36.00	○	
	7.400	8.000	91.00	53.00	36.00	○	
	7.500	8.000	91.00	53.00	36.00	○	○
	7.600	8.000	91.00	53.00	36.00	○	
	7.700	8.000	91.00	53.00	36.00	○	
	7.800	8.000	91.00	53.00	36.00	○	
	7.900	8.000	91.00	53.00	36.00	○	
	8.000	8.000	91.00	53.00	36.00	○	○
	8.100	10.000	103.00	61.00	40.00	○	
	8.200	10.000	103.00	61.00	40.00	○	
	8.300	10.000	103.00	61.00	40.00	○	
	8.500	10.000	103.00	61.00	40.00	○	○
	8.700	10.000	103.00	61.00	40.00	○	
	8.800	10.000	103.00	61.00	40.00	○	
	9.000	10.000	103.00	61.00	40.00	○	○
	9.100	10.000	103.00	61.00	40.00	○	
	9.200	10.000	103.00	61.00	40.00	○	
	9.300	10.000	103.00	61.00	40.00	○	
	9.400	10.000	103.00	61.00	40.00	○	
	9.500	10.000	103.00	61.00	40.00	○	○
	9.700	10.000	103.00	61.00	40.00	○	
	9.800	10.000	103.00	61.00	40.00	○	
	9.900	10.000	103.00	61.00	40.00	○	
	10.000	10.000	103.00	61.00	40.00	○	○
	10.200	12.000	118.00	71.00	45.00	○	○
	10.500	12.000	118.00	71.00	45.00	○	○
	10.700	12.000	118.00	71.00	45.00	○	
	11.000	12.000	118.00	71.00	45.00	○	○
	11.100	12.000	118.00	71.00	45.00	○	
	11.200	12.000	118.00	71.00	45.00	○	
	11.400	12.000	118.00	71.00	45.00	○	

SuperV-drills with internal coolant



Catalog no.						61880	51880
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiN	TiAlN nano
Type						SuperV-IK-F	SuperV-IK-F
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	11.500	12.000	118.00	71.00	45.00	○	○
	11.700	12.000	118.00	71.00	45.00	○	
	11.800	12.000	118.00	71.00	45.00	○	
	12.000	12.000	118.00	71.00	45.00	○	○
	12.100	14.000	124.00	77.00	45.00	○	
	12.200	14.000	124.00	77.00	45.00	○	
	12.500	14.000	124.00	77.00	45.00	○	○
	12.900	14.000	124.00	77.00	45.00	○	
	13.000	14.000	124.00	77.00	45.00	○	○
	13.200	14.000	124.00	77.00	45.00	○	
	13.500	14.000	124.00	77.00	45.00	○	○
	13.800	14.000	124.00	77.00	45.00	○	
	14.000	14.000	124.00	77.00	45.00	○	○
	14.100	16.000	133.00	83.00	48.00	○	
	14.200	16.000	133.00	83.00	48.00	○	
	14.500	16.000	133.00	83.00	48.00	○	○
	15.000	16.000	133.00	83.00	48.00	○	○
	15.500	16.000	133.00	83.00	48.00	○	
	15.800	16.000	133.00	83.00	48.00	○	
	16.000	16.000	133.00	83.00	48.00	○	○
	16.500	18.000	143.00	93.00	48.00	○	
	16.700	18.000	143.00	93.00	48.00	○	
	17.000	18.000	143.00	93.00	48.00	○	
	17.500	18.000	143.00	93.00	48.00	○	
	18.000	18.000	143.00	93.00	48.00	○	○
	18.500	20.000	153.00	101.00	50.00	○	
	19.000	20.000	153.00	101.00	50.00	○	
	20.000	20.000	153.00	101.00	50.00	○	
	21.000	25.000	165.00	105.00	56.00	○	
	22.000	25.000	165.00	105.00	56.00	○	
	24.000	25.000	180.00	117.00	56.00	○	
	24.500	25.000	180.00	117.00	56.00	○	
63/64	25.000	25.000	180.00	117.00	56.00	○	

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51781



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills with internal coolant

Catalog no. 51881



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys. Multi-purpose application (TiAlN nano-coating) in small batch production, where one tool is used for drilling several different materials.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant

Catalog no. 51760



High-performance drill with radius point. For working materials such as GJV and ADI as well as cast iron.

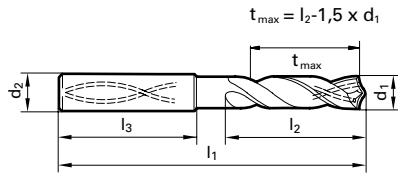
Advantages:

- highest performance and economic efficiency thanks to the radius point
- unique tuning of face outline and flute-profile for highest stability, concentricity and process-safety

DIN 6537 L 5xD

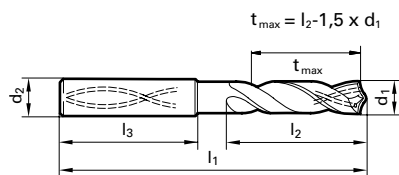
Tool material	Solid Carbide
Surface	TiAlN
Type	SuperV-GR
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
web thinning: SuperV helix angle: normal web thickness: normal web taper: normal flute form: special shank: HA	

SuperV-drills with internal coolant



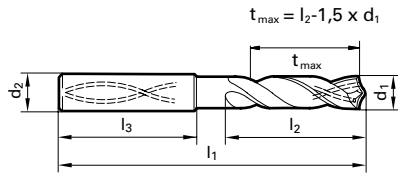
Catalog no.						51781	51881	51760
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	165
Surface						TiAlN nano	TiAlN nano	TiAlN
Type						SuperV-IK-U	SuperV-IK-U	SuperV-GR
Drilling depth						5xD	5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
	3.000	6.000	66.00	28.00	36.00	●	●	○
	3.100	6.000	66.00	28.00	36.00	●	●	○
	3.200	6.000	66.00	28.00	36.00	●	●	○
	3.300	6.000	66.00	28.00	36.00	●	●	○
	3.400	6.000	66.00	28.00	36.00	●	●	○
	3.500	6.000	66.00	28.00	36.00	●	●	○
	3.600	6.000	66.00	28.00	36.00	●	●	○
	3.700	6.000	66.00	28.00	36.00	●	●	○
	3.800	6.000	74.00	36.00	36.00	●	●	○
	3.900	6.000	74.00	36.00	36.00	●	●	○
	4.000	6.000	74.00	36.00	36.00	●	●	○
	4.100	6.000	74.00	36.00	36.00	●	●	○
	4.200	6.000	74.00	36.00	36.00	●	●	○
	4.300	6.000	74.00	36.00	36.00	●	●	○
11/64	4.370	6.000	74.00	36.00	36.00	●	●	○
	4.400	6.000	74.00	36.00	36.00	●	●	○
	4.500	6.000	74.00	36.00	36.00	●	●	○
	4.600	6.000	74.00	36.00	36.00	●	●	○
	4.650	6.000	74.00	36.00	36.00	●	●	○
	4.700	6.000	74.00	36.00	36.00	●	●	○
3/16	4.760	6.000	82.00	44.00	36.00	●	●	○
	4.800	6.000	82.00	44.00	36.00	●	●	○
	4.900	6.000	82.00	44.00	36.00	●	●	○
	5.000	6.000	82.00	44.00	36.00	●	●	○
	5.100	6.000	82.00	44.00	36.00	●	●	○
13/64	5.160	6.000	82.00	44.00	36.00	●	●	○
	5.200	6.000	82.00	44.00	36.00	●	●	○
	5.300	6.000	82.00	44.00	36.00	●	●	○
	5.400	6.000	82.00	44.00	36.00	●	●	○
	5.500	6.000	82.00	44.00	36.00	●	●	○
	5.550	6.000	82.00	44.00	36.00	●	●	○
7/32	5.560	6.000	82.00	44.00	36.00	●	●	○
	5.600	6.000	82.00	44.00	36.00	●	●	○
	5.700	6.000	82.00	44.00	36.00	●	●	○
	5.800	6.000	82.00	44.00	36.00	●	●	○
	5.900	6.000	82.00	44.00	36.00	●	●	○
15/64	5.950	6.000	82.00	44.00	36.00	●	●	○
	6.000	6.000	82.00	44.00	36.00	●	●	○
	6.100	8.000	91.00	53.00	36.00	●	●	○
	6.200	8.000	91.00	53.00	36.00	●	●	○
	6.300	8.000	91.00	53.00	36.00	●	●	○
1/4	6.350	8.000	91.00	53.00	36.00	●	●	○
	6.400	8.000	91.00	53.00	36.00	●	●	○
	6.500	8.000	91.00	53.00	36.00	●	●	○
	6.600	8.000	91.00	53.00	36.00	●	●	○
17/64	6.700	8.000	91.00	53.00	36.00	●	●	○
	6.750	8.000	91.00	53.00	36.00	●	●	○
	6.800	8.000	91.00	53.00	36.00	●	●	○
	6.900	8.000	91.00	53.00	36.00	●	●	○
	7.000	8.000	91.00	53.00	36.00	●	●	○
	7.100	8.000	91.00	53.00	36.00	●	●	○
9/32	7.140	8.000	91.00	53.00	36.00	●	●	○
	7.200	8.000	91.00	53.00	36.00	●	●	○
	7.300	8.000	91.00	53.00	36.00	●	●	○
	7.400	8.000	91.00	53.00	36.00	●	●	○
	7.500	8.000	91.00	53.00	36.00	●	●	○
19/64	7.540	8.000	91.00	53.00	36.00	●	●	○

SuperV-drills with internal coolant



						Catalog no.	51781	51881	51760
						Tool material	Solid Carbide		
						Carbide grade	K/P		
						Discount group	121	121	165
						Surface	TiAlN nano	TiAlN nano	TiAlN
						Type	SuperV-IK-U	SuperV-IK-U	SuperV-GR
						Drilling depth	5xD	5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece			
inch	mm	mm	mm	mm	mm				
5/16	7.600	8.000	91.00	53.00	36.00		●	●	○
	7.700	8.000	91.00	53.00	36.00		●	●	○
	7.800	8.000	91.00	53.00	36.00		●	●	○
	7.900	8.000	91.00	53.00	36.00		●	●	○
	7.940	8.000	91.00	53.00	36.00		●	●	○
	8.000	8.000	91.00	53.00	36.00		●	●	○
21/64	8.100	10.000	103.00	61.00	40.00		●	●	○
	8.200	10.000	103.00	61.00	40.00		●	●	○
	8.300	10.000	103.00	61.00	40.00		●	●	○
	8.330	10.000	103.00	61.00	40.00		●	●	○
	8.400	10.000	103.00	61.00	40.00		●	●	○
	8.500	10.000	103.00	61.00	40.00		●	●	○
11/32	8.600	10.000	103.00	61.00	40.00		●	●	○
	8.700	10.000	103.00	61.00	40.00		●	●	○
	8.730	10.000	103.00	61.00	40.00		●	●	○
	8.800	10.000	103.00	61.00	40.00		●	●	○
	8.900	10.000	103.00	61.00	40.00		●	●	○
	9.000	10.000	103.00	61.00	40.00		●	●	○
23/64	9.100	10.000	103.00	61.00	40.00		●	●	○
	9.130	10.000	103.00	61.00	40.00		●	●	○
	9.200	10.000	103.00	61.00	40.00		●	●	○
	9.250	10.000	103.00	61.00	40.00		●	●	○
	9.300	10.000	103.00	61.00	40.00		●	●	○
	9.400	10.000	103.00	61.00	40.00		●	●	○
3/8	9.500	10.000	103.00	61.00	40.00		●	●	○
	9.520	10.000	103.00	61.00	40.00		●	●	○
	9.600	10.000	103.00	61.00	40.00		●	●	○
	9.700	10.000	103.00	61.00	40.00		●	●	○
	9.800	10.000	103.00	61.00	40.00		●	●	○
	9.900	10.000	103.00	61.00	40.00		●	●	○
25/64	9.920	10.000	103.00	61.00	40.00		●	●	○
	10.000	10.000	103.00	61.00	40.00		●	●	○
	10.100	12.000	118.00	71.00	45.00		●	●	○
	10.200	12.000	118.00	71.00	45.00		●	●	○
	10.300	12.000	118.00	71.00	45.00		●	●	○
	10.320	12.000	118.00	71.00	45.00		●	●	○
13/32	10.400	12.000	118.00	71.00	45.00		●	●	○
	10.500	12.000	118.00	71.00	45.00		●	●	○
	10.600	12.000	118.00	71.00	45.00		●	●	○
	10.700	12.000	118.00	71.00	45.00		●	●	○
	10.720	12.000	118.00	71.00	45.00		●	●	○
	10.800	12.000	118.00	71.00	45.00		●	●	○
27/64	10.900	12.000	118.00	71.00	45.00		●	●	○
	11.000	12.000	118.00	71.00	45.00		●	●	○
	11.100	12.000	118.00	71.00	45.00		●	●	○
	11.110	12.000	118.00	71.00	45.00		●	●	○
	11.200	12.000	118.00	71.00	45.00		●	●	○
	11.300	12.000	118.00	71.00	45.00		●	●	○
7/16	11.400	12.000	118.00	71.00	45.00		●	●	○
	11.500	12.000	118.00	71.00	45.00		●	●	○
	11.600	12.000	118.00	71.00	45.00		●	●	○
	11.700	12.000	118.00	71.00	45.00		●	●	○
	11.800	12.000	118.00	71.00	45.00		●	●	○
	11.900	12.000	118.00	71.00	45.00		●	●	○
15/32	11.910	12.000	118.00	71.00	45.00		●	●	○
	12.000	12.000	118.00	71.00	45.00		●	●	○
	12.100	14.000	124.00	77.00	45.00		●	●	○
							●	●	○

SuperV-drills with internal coolant



						Catalog no.	51781	51881	51760
						Tool material	Solid Carbide		
						Carbide grade	K/P		
						Discount group	121	121	165
						Surface	TiAlN nano	TiAlN nano	TiAlN
						Type	SuperV-IK-U	SuperV-IK-U	SuperV-GR
						Drilling depth	5xD	5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece			
inch	mm	mm	mm	mm	mm				
31/64	12.200	14.000	124.00	77.00	45.00		●	●	○
	12.300	14.000	124.00	77.00	45.00		●	●	○
	12.400	14.000	124.00	77.00	45.00			●	○
1/2	12.500	14.000	124.00	77.00	45.00		●	●	○
	12.600	14.000	124.00	77.00	45.00				○
	12.700	14.000	124.00	77.00	45.00		●	●	○
33/64	12.800	14.000	124.00	77.00	45.00				○
	12.900	14.000	124.00	77.00	45.00				○
	13.000	14.000	124.00	77.00	45.00		●	●	○
9/16	13.100	14.000	124.00	77.00	45.00				○
	13.300	14.000	124.00	77.00	45.00				○
	13.400	14.000	124.00	77.00	45.00				○
5/8	13.500	14.000	124.00	77.00	45.00		●	●	○
	13.700	14.000	124.00	77.00	45.00		●	●	○
	13.800	14.000	124.00	77.00	45.00		●	●	○
21/32	13.900	14.000	124.00	77.00	45.00		●	●	○
	14.000	14.000	124.00	77.00	45.00		●	●	○
	14.100	16.000	133.00	83.00	48.00		●	●	○
5/8	14.200	16.000	133.00	83.00	48.00		●	●	○
	14.290	16.000	133.00	83.00	48.00		●	●	○
	14.300	16.000	133.00	83.00	48.00				○
1 1/8	14.400	16.000	133.00	83.00	48.00				○
	14.500	16.000	133.00	83.00	48.00		●	●	○
	14.600	16.000	133.00	83.00	48.00				○
1 1/4	14.700	16.000	133.00	83.00	48.00		●	●	○
	14.900	16.000	133.00	83.00	48.00				○
	15.000	16.000	133.00	83.00	48.00		●	●	○
1 1/2	15.100	16.000	133.00	83.00	48.00				○
	15.200	16.000	133.00	83.00	48.00		●	●	○
	15.300	16.000	133.00	83.00	48.00				○
1 3/8	15.400	16.000	133.00	83.00	48.00				○
	15.500	16.000	133.00	83.00	48.00		●	●	○
	15.600	16.000	133.00	83.00	48.00				○
1 1/2	15.700	16.000	133.00	83.00	48.00		●	●	○
	15.800	16.000	133.00	83.00	48.00		●	●	○
	15.870	16.000	133.00	83.00	48.00				○
1 5/8	15.900	16.000	133.00	83.00	48.00				○
	16.000	16.000	133.00	83.00	48.00		●	●	○
	16.500	18.000	143.00	93.00	48.00		●	●	○
1 3/4	16.670	18.000	143.00	93.00	48.00				○
	17.000	18.000	143.00	93.00	48.00		●	●	○
	17.300	18.000	143.00	93.00	48.00			●	○
1 7/8	17.500	18.000	143.00	93.00	48.00		●	●	○
	18.000	18.000	143.00	93.00	48.00		●	●	○
	18.200	20.000	153.00	101.00	50.00			●	○
2	18.500	20.000	153.00	101.00	50.00		●	●	○
	18.600	20.000	153.00	101.00	50.00			●	○
	19.000	20.000	153.00	101.00	50.00		●	●	○
2 1/8	19.500	20.000	153.00	101.00	50.00		●	●	○
	20.000	20.000	153.00	101.00	50.00		●	●	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51754



High performance drill for using in steels upto 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-IK-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills with internal coolant

Catalog no. 51755



High performance drill for using in steels upto 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

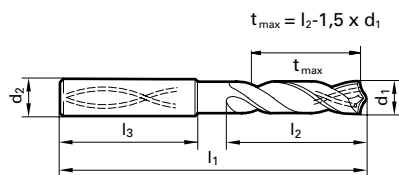
Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-IK-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

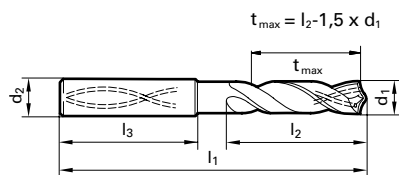
web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HE

SuperV-drills with internal coolant



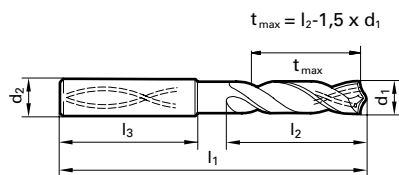
Catalog no.						51754	51755
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
1/8	3.000	6.000	66.00	28.00	36.00	●	●
	3.100	6.000	66.00	28.00	36.00	●	●
	3.170	6.000	66.00	28.00	36.00	●	●
	3.200	6.000	66.00	28.00	36.00	●	●
	3.250	6.000	66.00	28.00	36.00	●	●
9/64	3.300	6.000	66.00	28.00	36.00	●	●
	3.400	6.000	66.00	28.00	36.00	●	●
	3.500	6.000	66.00	28.00	36.00	●	●
	3.570	6.000	66.00	28.00	36.00	●	●
	3.600	6.000	66.00	28.00	36.00	●	●
5/32	3.700	6.000	66.00	28.00	36.00	●	●
	3.800	6.000	74.00	36.00	36.00	●	●
	3.900	6.000	74.00	36.00	36.00	●	●
	3.970	6.000	74.00	36.00	36.00	●	●
	4.000	6.000	74.00	36.00	36.00	●	●
11/64	4.100	6.000	74.00	36.00	36.00	●	●
	4.200	6.000	74.00	36.00	36.00	●	●
	4.300	6.000	74.00	36.00	36.00	●	●
	4.370	6.000	74.00	36.00	36.00	●	●
	4.400	6.000	74.00	36.00	36.00	●	●
3/16	4.500	6.000	74.00	36.00	36.00	●	●
	4.600	6.000	74.00	36.00	36.00	●	●
	4.650	6.000	74.00	36.00	36.00	●	●
	4.700	6.000	74.00	36.00	36.00	●	●
	4.760	6.000	82.00	44.00	36.00	●	●
13/64	4.800	6.000	82.00	44.00	36.00	●	●
	4.900	6.000	82.00	44.00	36.00	●	●
	5.000	6.000	82.00	44.00	36.00	●	●
	5.100	6.000	82.00	44.00	36.00	●	●
	5.160	6.000	82.00	44.00	36.00	●	●
7/32	5.200	6.000	82.00	44.00	36.00	●	●
	5.300	6.000	82.00	44.00	36.00	●	●
	5.400	6.000	82.00	44.00	36.00	●	●
	5.500	6.000	82.00	44.00	36.00	●	●
	5.550	6.000	82.00	44.00	36.00	●	●
15/64	5.560	6.000	82.00	44.00	36.00	●	●
	5.600	6.000	82.00	44.00	36.00	●	●
	5.700	6.000	82.00	44.00	36.00	●	●
	5.800	6.000	82.00	44.00	36.00	●	●
	5.900	6.000	82.00	44.00	36.00	●	●
1/4	5.950	6.000	82.00	44.00	36.00	●	●
	6.000	6.000	82.00	44.00	36.00	●	●
	6.100	8.000	91.00	53.00	36.00	●	●
	6.200	8.000	91.00	53.00	36.00	●	●
	6.300	8.000	91.00	53.00	36.00	●	●
17/64	6.350	8.000	91.00	53.00	36.00	●	●
	6.400	8.000	91.00	53.00	36.00	●	●
	6.500	8.000	91.00	53.00	36.00	●	●
	6.600	8.000	91.00	53.00	36.00	●	●
	6.700	8.000	91.00	53.00	36.00	●	●
9/32	6.750	8.000	91.00	53.00	36.00	●	●
	6.800	8.000	91.00	53.00	36.00	●	●
	6.900	8.000	91.00	53.00	36.00	●	●
	7.000	8.000	91.00	53.00	36.00	●	●
	7.100	8.000	91.00	53.00	36.00	●	●
9/32	7.140	8.000	91.00	53.00	36.00	●	●
	7.200	8.000	91.00	53.00	36.00	●	●

SuperV-drills with internal coolant



Catalog no.						51754	51755
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
19/64	7.300	8.000	91.00	53.00	36.00	●	●
	7.400	8.000	91.00	53.00	36.00	●	●
	7.500	8.000	91.00	53.00	36.00	●	●
	7.540	8.000	91.00	53.00	36.00	●	●
	7.600	8.000	91.00	53.00	36.00	●	●
5/16	7.700	8.000	91.00	53.00	36.00	●	●
	7.800	8.000	91.00	53.00	36.00	●	●
	7.900	8.000	91.00	53.00	36.00	●	●
	7.940	8.000	91.00	53.00	36.00	●	●
	8.000	8.000	91.00	53.00	36.00	●	●
21/64	8.100	10.000	103.00	61.00	40.00	●	●
	8.200	10.000	103.00	61.00	40.00	●	●
	8.300	10.000	103.00	61.00	40.00	●	●
	8.330	10.000	103.00	61.00	40.00	●	●
	8.400	10.000	103.00	61.00	40.00	●	●
11/32	8.500	10.000	103.00	61.00	40.00	●	●
	8.600	10.000	103.00	61.00	40.00	●	●
	8.700	10.000	103.00	61.00	40.00	●	●
	8.730	10.000	103.00	61.00	40.00	●	●
	8.800	10.000	103.00	61.00	40.00	●	●
23/64	8.900	10.000	103.00	61.00	40.00	●	●
	9.000	10.000	103.00	61.00	40.00	●	●
	9.100	10.000	103.00	61.00	40.00	●	●
	9.130	10.000	103.00	61.00	40.00	●	●
	9.200	10.000	103.00	61.00	40.00	●	●
3/8	9.250	10.000	103.00	61.00	40.00	●	●
	9.300	10.000	103.00	61.00	40.00	●	●
	9.400	10.000	103.00	61.00	40.00	●	●
	9.500	10.000	103.00	61.00	40.00	●	●
	9.520	10.000	103.00	61.00	40.00	●	●
25/64	9.600	10.000	103.00	61.00	40.00	●	●
	9.700	10.000	103.00	61.00	40.00	●	●
	9.800	10.000	103.00	61.00	40.00	●	●
	9.900	10.000	103.00	61.00	40.00	●	●
	9.920	10.000	103.00	61.00	40.00	●	●
13/32	10.000	10.000	103.00	61.00	40.00	●	●
	10.100	12.000	118.00	71.00	45.00	●	●
	10.200	12.000	118.00	71.00	45.00	●	●
	10.300	12.000	118.00	71.00	45.00	●	●
	10.320	12.000	118.00	71.00	45.00	●	●
7/16	10.400	12.000	118.00	71.00	45.00	●	●
	10.500	12.000	118.00	71.00	45.00	●	●
	10.600	12.000	118.00	71.00	45.00	●	●
	10.700	12.000	118.00	71.00	45.00	●	●
	10.800	12.000	118.00	71.00	45.00	●	●
	10.900	12.000	118.00	71.00	45.00	●	●
	11.000	12.000	118.00	71.00	45.00	●	●
	11.100	12.000	118.00	71.00	45.00	●	●
	11.110	12.000	118.00	71.00	45.00	●	●
	11.200	12.000	118.00	71.00	45.00	●	●
	11.300	12.000	118.00	71.00	45.00	●	●
	11.400	12.000	118.00	71.00	45.00	●	●
	11.500	12.000	118.00	71.00	45.00	●	●
	11.600	12.000	118.00	71.00	45.00	●	●
	11.700	12.000	118.00	71.00	45.00	●	●
	11.800	12.000	118.00	71.00	45.00	●	●
	11.900	12.000	118.00	71.00	45.00	●	●

SuperV-drills with internal coolant



Catalog no.						51754	51755
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						TiAlSiN	TiAlSiN
Type						SuperV-IK-S	SuperV-IK-S
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
15/32	11.910	12.000	118.00	71.00	45.00	●	●
	12.000	12.000	118.00	71.00	45.00	●	●
	12.200	14.000	124.00	77.00	45.00	●	●
1/2	12.500	14.000	124.00	77.00	45.00	●	●
	12.700	14.000	124.00	77.00	45.00	●	●
	12.800	14.000	124.00	77.00	45.00	●	●
	13.000	14.000	124.00	77.00	45.00	●	●
	13.300	14.000	124.00	77.00	45.00	●	●
	13.500	14.000	124.00	77.00	45.00	●	●
9/16	13.700	14.000	124.00	77.00	45.00	●	●
	14.000	14.000	124.00	77.00	45.00	●	●
	14.200	16.000	133.00	83.00	48.00	●	●
	14.290	16.000	133.00	83.00	48.00	●	●
	14.300	16.000	133.00	83.00	48.00	●	●
	14.500	16.000	133.00	83.00	48.00	●	●
3/8	14.700	16.000	133.00	83.00	48.00	●	●
	15.000	16.000	133.00	83.00	48.00	●	●
	15.200	16.000	133.00	83.00	48.00	●	●
	15.300	16.000	133.00	83.00	48.00	●	●
	15.500	16.000	133.00	83.00	48.00	●	●
	15.700	16.000	133.00	83.00	48.00	●	●
1/2	16.000	16.000	133.00	83.00	48.00	●	●
	16.300	18.000	143.00	93.00	48.00	●	●
	16.500	18.000	143.00	93.00	48.00	●	●
	16.900	18.000	143.00	93.00	48.00	●	●
	17.000	18.000	143.00	93.00	48.00	●	●
	17.300	18.000	143.00	93.00	48.00	●	●
5/8	17.500	18.000	143.00	93.00	48.00	●	●
	18.000	18.000	143.00	93.00	48.00	●	●
	18.500	20.000	153.00	101.00	50.00	●	●
	18.900	20.000	153.00	101.00	50.00	●	●
	19.000	20.000	153.00	101.00	50.00	●	●
	19.050	20.000	153.00	101.00	50.00	●	●
3/4	19.300	20.000	153.00	101.00	50.00	●	●
	19.500	20.000	153.00	101.00	50.00	●	●
	20.000	20.000	153.00	101.00	50.00	●	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51772



High-performance drill for machining of acid- and heat-resistant as well as stainless steels, Ti and Ti-alloys. The special geometry and the AlTiN-nano-coating offer a maximum process-reliability and long tool life.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-VA
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills with internal coolant

Catalog no. 51773



High-performance drill for machining of acid- and heat-resistant as well as stainless steels, Ti and Ti-alloys. The special geometry and the AlTiN-nano-coating offer a maximum process-reliability and long tool life.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

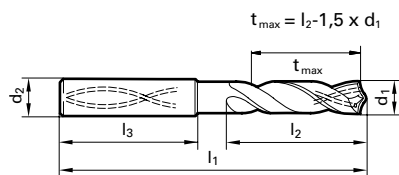
Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-VA
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

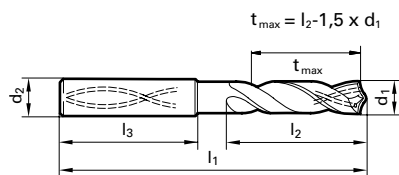
web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HE

SuperV-drills with internal coolant



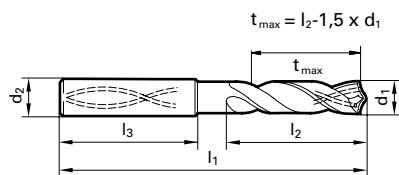
Catalog no.						51772	51773
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
1/8	3.000	6.000	66.00	28.00	36.00	●	●
	3.100	6.000	66.00	28.00	36.00	●	●
	3.170	6.000	66.00	28.00	36.00	●	●
	3.200	6.000	66.00	28.00	36.00	●	●
	3.250	6.000	66.00	28.00	36.00	●	●
9/64	3.300	6.000	66.00	28.00	36.00	●	●
	3.400	6.000	66.00	28.00	36.00	●	●
	3.500	6.000	66.00	28.00	36.00	●	●
	3.570	6.000	66.00	28.00	36.00	●	●
	3.600	6.000	66.00	28.00	36.00	●	●
5/32	3.700	6.000	66.00	28.00	36.00	●	●
	3.800	6.000	74.00	36.00	36.00	●	●
	3.900	6.000	74.00	36.00	36.00	●	●
	3.970	6.000	74.00	36.00	36.00	●	●
	4.000	6.000	74.00	36.00	36.00	●	●
11/64	4.100	6.000	74.00	36.00	36.00	●	●
	4.200	6.000	74.00	36.00	36.00	●	●
	4.300	6.000	74.00	36.00	36.00	●	●
	4.370	6.000	74.00	36.00	36.00	●	●
	4.400	6.000	74.00	36.00	36.00	●	●
3/16	4.500	6.000	74.00	36.00	36.00	●	●
	4.600	6.000	74.00	36.00	36.00	●	●
	4.650	6.000	74.00	36.00	36.00	●	●
	4.700	6.000	74.00	36.00	36.00	●	●
	4.760	6.000	82.00	44.00	36.00	●	●
13/64	4.800	6.000	82.00	44.00	36.00	●	●
	4.900	6.000	82.00	44.00	36.00	●	●
	5.000	6.000	82.00	44.00	36.00	●	●
	5.100	6.000	82.00	44.00	36.00	●	●
	5.160	6.000	82.00	44.00	36.00	●	●
7/32	5.200	6.000	82.00	44.00	36.00	●	●
	5.300	6.000	82.00	44.00	36.00	●	●
	5.400	6.000	82.00	44.00	36.00	●	●
	5.500	6.000	82.00	44.00	36.00	●	●
	5.550	6.000	82.00	44.00	36.00	●	●
15/64	5.560	6.000	82.00	44.00	36.00	●	●
	5.600	6.000	82.00	44.00	36.00	●	●
	5.700	6.000	82.00	44.00	36.00	●	●
	5.800	6.000	82.00	44.00	36.00	●	●
	5.900	6.000	82.00	44.00	36.00	●	●
1/4	5.950	6.000	82.00	44.00	36.00	●	●
	6.000	6.000	82.00	44.00	36.00	●	●
	6.100	8.000	91.00	53.00	36.00	●	●
	6.200	8.000	91.00	53.00	36.00	●	●
	6.300	8.000	91.00	53.00	36.00	●	●
17/64	6.350	8.000	91.00	53.00	36.00	●	●
	6.400	8.000	91.00	53.00	36.00	●	●
	6.500	8.000	91.00	53.00	36.00	●	●
	6.600	8.000	91.00	53.00	36.00	●	●
	6.700	8.000	91.00	53.00	36.00	●	●
9/32	6.750	8.000	91.00	53.00	36.00	●	●
	6.800	8.000	91.00	53.00	36.00	●	●
	6.900	8.000	91.00	53.00	36.00	●	●
	7.000	8.000	91.00	53.00	36.00	●	●
	7.100	8.000	91.00	53.00	36.00	●	●
9/32	7.140	8.000	91.00	53.00	36.00	●	●
	7.200	8.000	91.00	53.00	36.00	●	●

SuperV-drills with internal coolant



Catalog no.						51772	51773
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
19/64	7.300	8.000	91.00	53.00	36.00	●	●
	7.400	8.000	91.00	53.00	36.00	●	●
	7.500	8.000	91.00	53.00	36.00	●	●
	7.540	8.000	91.00	53.00	36.00	●	●
	7.600	8.000	91.00	53.00	36.00	●	●
5/16	7.700	8.000	91.00	53.00	36.00	●	●
	7.800	8.000	91.00	53.00	36.00	●	●
	7.900	8.000	91.00	53.00	36.00	●	●
	7.940	8.000	91.00	53.00	36.00	●	●
	8.000	8.000	91.00	53.00	36.00	●	●
21/64	8.100	10.000	103.00	61.00	40.00	●	●
	8.200	10.000	103.00	61.00	40.00	●	●
	8.300	10.000	103.00	61.00	40.00	●	●
	8.330	10.000	103.00	61.00	40.00	●	●
	8.400	10.000	103.00	61.00	40.00	●	●
11/32	8.500	10.000	103.00	61.00	40.00	●	●
	8.600	10.000	103.00	61.00	40.00	●	●
	8.700	10.000	103.00	61.00	40.00	●	●
	8.730	10.000	103.00	61.00	40.00	●	●
	8.800	10.000	103.00	61.00	40.00	●	●
23/64	8.900	10.000	103.00	61.00	40.00	●	●
	9.000	10.000	103.00	61.00	40.00	●	●
	9.100	10.000	103.00	61.00	40.00	●	●
	9.130	10.000	103.00	61.00	40.00	●	●
	9.200	10.000	103.00	61.00	40.00	●	●
3/8	9.250	10.000	103.00	61.00	40.00	●	●
	9.300	10.000	103.00	61.00	40.00	●	●
	9.400	10.000	103.00	61.00	40.00	●	●
	9.500	10.000	103.00	61.00	40.00	●	●
	9.520	10.000	103.00	61.00	40.00	●	●
25/64	9.600	10.000	103.00	61.00	40.00	●	●
	9.700	10.000	103.00	61.00	40.00	●	●
	9.800	10.000	103.00	61.00	40.00	●	●
	9.900	10.000	103.00	61.00	40.00	●	●
	9.920	10.000	103.00	61.00	40.00	●	●
13/32	10.000	10.000	103.00	61.00	40.00	●	●
	10.100	12.000	118.00	71.00	45.00	●	●
	10.200	12.000	118.00	71.00	45.00	●	●
	10.300	12.000	118.00	71.00	45.00	●	●
	10.320	12.000	118.00	71.00	45.00	●	●
7/16	10.400	12.000	118.00	71.00	45.00	●	●
	10.500	12.000	118.00	71.00	45.00	●	●
	10.600	12.000	118.00	71.00	45.00	●	●
	10.700	12.000	118.00	71.00	45.00	●	●
	10.800	12.000	118.00	71.00	45.00	●	●
	10.900	12.000	118.00	71.00	45.00	●	●
	11.000	12.000	118.00	71.00	45.00	●	●
	11.100	12.000	118.00	71.00	45.00	●	●
	11.110	12.000	118.00	71.00	45.00	●	●
	11.200	12.000	118.00	71.00	45.00	●	●
	11.300	12.000	118.00	71.00	45.00	●	●
	11.400	12.000	118.00	71.00	45.00	●	●
	11.500	12.000	118.00	71.00	45.00	●	●
	11.600	12.000	118.00	71.00	45.00	●	●
	11.700	12.000	118.00	71.00	45.00	●	●
	11.800	12.000	118.00	71.00	45.00	●	●
	11.900	12.000	118.00	71.00	45.00	●	●

SuperV-drills with internal coolant



Catalog no.						51772	51773
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	121
Surface						AlTiN nano	AlTiN nano
Type						SuperV-VA	SuperV-VA
Drilling depth						5xD	5xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
15/32	11.910	12.000	118.00	71.00	45.00	●	●
	12.000	12.000	118.00	71.00	45.00	●	●
	12.200	14.000	124.00	77.00	45.00	●	●
1/2	12.290	14.000	124.00	77.00	45.00		●
	12.500	14.000	124.00	77.00	45.00	●	●
	12.700	14.000	124.00	77.00	45.00	●	●
	12.800	14.000	124.00	77.00	45.00	●	●
	13.000	14.000	124.00	77.00	45.00	●	●
	13.300	14.000	124.00	77.00	45.00	●	●
	13.500	14.000	124.00	77.00	45.00	●	●
	13.700	14.000	124.00	77.00	45.00	●	●
	14.000	14.000	124.00	77.00	45.00	●	●
9/16	14.200	16.000	133.00	83.00	48.00	●	●
	14.290	16.000	133.00	83.00	48.00	●	●
	14.300	16.000	133.00	83.00	48.00	●	●
	14.500	16.000	133.00	83.00	48.00	●	●
	14.700	16.000	133.00	83.00	48.00	●	●
	15.000	16.000	133.00	83.00	48.00	●	●
	15.200	16.000	133.00	83.00	48.00	●	●
	15.300	16.000	133.00	83.00	48.00	●	●
	15.500	16.000	133.00	83.00	48.00	●	●
	15.700	16.000	133.00	83.00	48.00	●	●
	16.000	16.000	133.00	83.00	48.00	●	●
	16.300	18.000	143.00	93.00	48.00	●	●
	16.500	18.000	143.00	93.00	48.00	●	●
	16.900	18.000	143.00	93.00	48.00	●	●
	17.000	18.000	143.00	93.00	48.00	●	●
	17.300	18.000	143.00	93.00	48.00	●	●
	17.500	18.000	143.00	93.00	48.00	●	●
	18.000	18.000	143.00	93.00	48.00	●	●
	18.500	20.000	153.00	101.00	50.00	●	●
	18.900	20.000	153.00	101.00	50.00	●	●
	19.000	20.000	153.00	101.00	50.00	●	●
3/4	19.050	20.000	153.00	101.00	50.00	●	●
	19.300	20.000	153.00	101.00	50.00	●	●
	19.500	20.000	153.00	101.00	50.00	●	●
	20.000	20.000	153.00	101.00	50.00	●	●

SuperV-drills

SuperV-drills with internal coolant

DIN 6538 M 5xD

Catalog no. 61824



High-performance drill for drilling into unalloyed, low- and high alloyed steels (with a tensile strength of up to 900 N/mm²), grey cast iron, spheroidal graphite iron, brass, bronze, plastics and graphite, for drilling depths up to 5 x D.

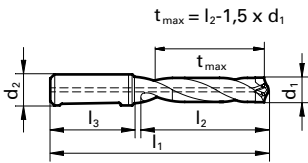
Advantages: Vibrations and shocks that may occur during use are absorbed by the HSS body material holding the brazed carbide tip. Withstands distortion caused by less rigid machines. Produces short chips, including soft, long chipping steels, thanks to a specially designed cutting point geometry. The optimised carbide grade and point geometry makes the use of highest speed and feed rates possible, high alignment accuracy with small diameter tolerance and excellent surface finish.

Preconditions for use: powerful machines.

Tool material	Carbide
Surface	TiN
Type	SuperV90-U
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	10.00
Tolerance on Ø	h7

Web thinning: SuperV
Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: smaller than standard
Shank: HE

SuperV-drills with internal coolant



Catalog no.	61824
Tool material	Carbide
Carbide grade	P
Discount group	128
Surface	TiN
Type	SuperV90-U
Drilling depth	5xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	10.000	16.000	127.00	75.00	48.00	○
	11.000	16.000	127.00	75.00	48.00	○
	11.200	16.000	127.00	75.00	48.00	○
	12.500	16.000	139.00	87.00	48.00	○
	13.400	16.000	139.00	87.00	48.00	○
	13.500	16.000	139.00	87.00	48.00	○
	15.000	20.000	154.00	100.00	50.00	○
	15.500	20.000	154.00	100.00	50.00	○
	17.000	20.000	166.00	112.00	50.00	○
	18.000	20.000	166.00	112.00	50.00	○
	20.000	25.000	184.00	124.00	56.00	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 61889



High-performance drill for drilling into long and short-chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm² including carbon steels, cast iron and high-alloyed AlSi-alloys.

Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm. Chatterfree, mechanical feeds.

Stock std. 7xD

Tool material	Solid Carbide
Surface	TiN
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	5.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills with internal coolant

Catalog no. 51789



Solid carbide performance drill for deep drilling into steel, cast and non-ferrous metals. advantages: Good self centering characteristics through special web thinning. Even in tough and longchipping materials good chip flow through modified flute geometry and wide, open flutes.

4 guiding leads for high concentricity, good surface quality and optimal guidance of the drill on exiting the bore.

Preconditions for use: Use with performance machines. no spindle play. Alignment accurate tool holders. Max. concentricity error of clamped tool 0,02 mm. Chatterfree, defined feeds.

Stock std. 7xD

Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills with internal coolant

Catalog no. 51889



Solid carbide performance drill for deep drilling into steel, cast and non-ferrous metals. advantages: Good self centering characteristics through special web thinning. Even in tough and longchipping materials good chip flow through modified flute geometry and wide, open flutes.

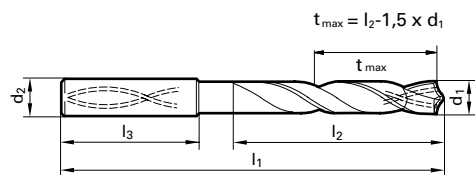
4 guiding leads for high concentricity, good surface quality and optimal guidance of the drill on exiting the bore.

Preconditions for use: Use with performance machines. no spindle play. Alignment accurate tool holders. Max. concentricity error of clamped tool 0,02 mm. Chatterfree, defined feeds.

Stock std. 7xD

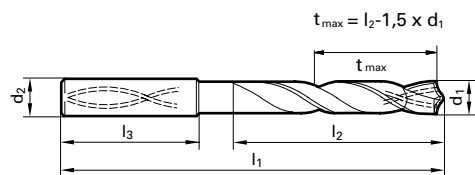
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-IK-U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HE	

SuperV-drills with internal coolant



Catalog no.						61889	51789	51889
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	121
Surface						TiN	TiAlN nano	TiAlN nano
Type						SuperV-IK-U	SuperV-IK-U	SuperV-IK-U
Drilling depth						7xD	7xD	7xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
1/8	3.000	6.000	70.00	30.00	36.00		●	●
	3.100	6.000	70.00	30.00	36.00		●	●
	3.170	6.000	70.00	30.00	36.00		●	●
	3.200	6.000	70.00	30.00	36.00		●	●
	3.250	6.000	70.00	30.00	36.00		●	●
	3.300	6.000	70.00	30.00	36.00		●	●
9/64	3.400	6.000	75.00	35.50	36.00		●	●
	3.500	6.000	75.00	35.50	36.00		●	●
	3.570	6.000	75.00	35.50	36.00		●	●
	3.600	6.000	75.00	35.50	36.00		●	●
	3.700	6.000	75.00	35.50	36.00		●	●
	3.800	6.000	75.00	37.50	36.00		●	●
5/32	3.900	6.000	75.00	37.50	36.00		●	●
	3.970	6.000	75.00	37.50	36.00		●	●
	4.000	6.000	75.00	37.50	36.00		●	●
	4.100	6.000	75.00	37.50	36.00		●	●
	4.200	6.000	75.00	37.50	36.00		●	●
	4.300	6.000	85.00	45.00	36.00		●	●
	4.400	6.000	85.00	45.00	36.00		●	●
	4.500	6.000	85.00	45.00	36.00		●	●
	4.600	6.000	85.00	45.00	36.00		●	●
	4.700	6.000	85.00	45.00	36.00		●	●
	4.800	6.000	90.00	50.00	36.00		●	●
	4.900	6.000	90.00	50.00	36.00		●	●
	5.000	6.000	90.00	50.00	36.00	○	●	●
	5.100	6.000	90.00	50.00	36.00		●	●
	5.200	6.000	90.00	50.00	36.00		●	●
	5.300	6.000	90.00	50.00	36.00		●	●
	5.400	6.000	97.00	57.00	36.00		●	●
	5.500	6.000	97.00	57.00	36.00		●	●
	5.700	6.000	97.00	57.00	36.00		●	●
	5.800	6.000	97.00	57.00	36.00		●	●
	5.900	6.000	97.00	57.00	36.00		●	●
	6.000	6.000	97.00	57.00	36.00	○	●	●
	6.200	8.000	106.00	66.00	36.00		●	●
	6.300	8.000	106.00	66.00	36.00		●	●
	6.500	8.000	106.00	66.00	36.00	○	●	●
	6.600	8.000	106.00	66.00	36.00		●	●
	6.700	8.000	106.00	66.00	36.00		●	●
	6.800	8.000	106.00	66.00	36.00	○	●	●
	6.900	8.000	116.00	76.00	36.00		●	●
	7.000	8.000	116.00	76.00	36.00	○	●	●
	7.100	8.000	116.00	76.00	36.00		●	●
	7.200	8.000	116.00	76.00	36.00		●	●
	7.500	8.000	116.00	76.00	36.00	○	●	●
	7.600	8.000	116.00	76.00	36.00		●	●
	7.700	8.000	116.00	76.00	36.00		●	●
	7.800	8.000	116.00	76.00	36.00		●	●
	8.000	8.000	116.00	76.00	36.00	○	●	●
	8.100	10.000	131.00	87.00	40.00		●	●
	8.200	10.000	131.00	87.00	40.00		●	●
	8.400	10.000	131.00	87.00	40.00		●	●
	8.500	10.000	131.00	87.00	40.00	○	●	●
	8.600	10.000	131.00	87.00	40.00		●	●
	8.700	10.000	131.00	87.00	40.00		●	●
	8.800	10.000	131.00	87.00	40.00		●	●
	9.000	10.000	131.00	87.00	40.00	○	●	●

SuperV-drills with internal coolant



Catalog no.						61889	51789	51889
Tool material						Solid Carbide		
Carbide grade						K/P		
Discount group						121	121	121
Surface						TiN	TiAlN nano	TiAlN nano
Type						SuperV-IK-U	SuperV-IK-U	SuperV-IK-U
Drilling depth						7xD	7xD	7xD
d1	d1	d2	l1	l2	l3	price per piece		
inch	mm	mm	mm	mm	mm			
	9.100	10.000	139.00	95.00	40.00		●	●
	9.200	10.000	139.00	95.00	40.00		●	●
	9.300	10.000	139.00	95.00	40.00		●	●
	9.400	10.000	139.00	95.00	40.00		●	●
	9.500	10.000	139.00	95.00	40.00	○	●	●
	9.700	10.000	139.00	95.00	40.00		●	●
	9.800	10.000	139.00	95.00	40.00		●	●
	9.900	10.000	139.00	95.00	40.00		●	●
	10.000	10.000	139.00	95.00	40.00	○	●	●
	10.200	12.000	155.00	106.00	45.00	○	●	●
	10.300	12.000	155.00	106.00	45.00		●	●
	10.500	12.000	155.00	106.00	45.00	○	●	●
	10.800	12.000	155.00	106.00	45.00		●	●
	11.000	12.000	155.00	106.00	45.00	○	●	●
	11.200	12.000	163.00	114.00	45.00		●	●
	11.500	12.000	163.00	114.00	45.00		●	●
	11.800	12.000	163.00	114.00	45.00		●	●
	12.000	12.000	163.00	114.00	45.00	○	●	●
	12.100	14.000	182.00	133.00	45.00		●	●
	12.200	14.000	182.00	133.00	45.00		●	●
	12.500	14.000	182.00	133.00	45.00		●	●
1/2	12.700	14.000	182.00	133.00	45.00		●	●
	13.000	14.000	182.00	133.00	45.00	○	●	●
	13.500	14.000	182.00	133.00	45.00	○	●	●
	14.000	14.000	182.00	133.00	45.00	○	●	●
	14.100	16.000	204.00	152.00	48.00		●	●
	14.200	16.000	204.00	152.00	48.00		●	●
	14.500	16.000	204.00	152.00	48.00		●	●
	15.000	16.000	204.00	152.00	48.00	○	●	●
	15.500	16.000	204.00	152.00	48.00		●	●
	16.000	16.000	204.00	152.00	48.00	○	●	●
	16.500	18.000	223.00	171.00	48.00		●	●
	17.000	18.000	223.00	171.00	48.00	○	●	●
	17.500	18.000	223.00	171.00	48.00		●	●
	18.000	18.000	223.00	171.00	48.00	○	●	●
	18.500	20.000	244.00	190.00	50.00		●	●
	19.000	20.000	244.00	190.00	50.00	○	●	●
	19.500	20.000	244.00	190.00	50.00		●	●
	20.000	20.000	244.00	190.00	50.00	○	●	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51756



High performance drill for using in steels upto 1600 N/mm², hardened steels from 40-48 HRC as well as special alloys such as Inconel, Hastelloy, Monel and Hardox500. The special flute geometry and the TiAlSiN-coating allow maximal process-reliability and long tool-life in such materials. Advantages: Highest speed and feed rates possible (see application recommendations). High alignment accuracy with small diameter tolerance and excellent surface finish. Excellent self centring qualities as well as producing short chips.

Pre-conditions for use: powerful machines. No play in spindlebearings. Accurately aligned toolholders. Max. concentricity error of clamped tools: 0.02 mm.

Stock std. 7xD

Tool material	Solid Carbide
Surface	TiAlSiN
Type	SuperV-IK-S
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	3.00
Tolerance on Ø	m7

web thinning: SuperV
helix angle: normal
web thickness: greater than standard
web taper: none
flute form: special
shank: HA

SuperV-drills with internal coolant

Catalog no. 51761



High-performance drill with radius point. For workingmaterials such as GJV and ADI as well as cast iron.

Advantages:

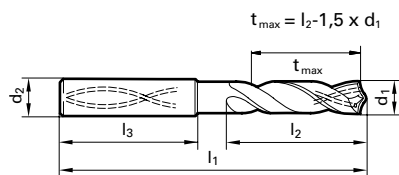
- highest performance and economic efficiency thanks to the radius point
- unique tuning of face outline and flute-profile for highest stability, concentricity and process-safety

Stock std. 7xD

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperV-GR
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	
Web thinned ≥Ø	4.00
Tolerance on Ø	m7

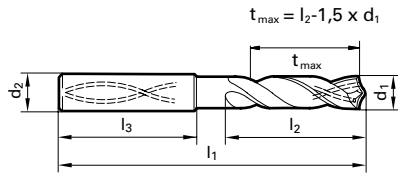
web thinning: SuperV
helix angle: normal
web thickness: normal
web taper: normal
flute form: special
shank: HA

SuperV-drills with internal coolant



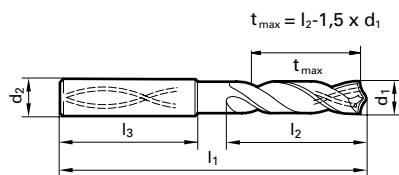
Catalog no.						51756	51761
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	165
Surface						TiAlSiN	TiAlN
Type						SuperV-IK-S	SuperV-GR
Drilling depth						7xD	7xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	3.000	6.000	70.00	30.00	36.00	●	
	3.250	6.000	70.00	30.00	36.00	●	
	3.300	6.000	70.00	30.00	36.00	●	
	3.400	6.000	75.00	35.50	36.00	●	
	3.500	6.000	75.00	35.50	36.00	●	
	3.700	6.000	75.00	35.50	36.00	●	
	4.000	6.000	75.00	37.50	36.00	●	○
	4.100	6.000	75.00	37.50	36.00		○
	4.200	6.000	75.00	37.50	36.00	●	○
	4.300	6.000	85.00	45.00	36.00	●	○
	4.400	6.000	85.00	45.00	36.00		○
	4.500	6.000	85.00	45.00	36.00	●	○
	4.600	6.000	85.00	45.00	36.00		○
	4.650	6.000	85.00	45.00	36.00	●	
	4.700	6.000	85.00	45.00	36.00		○
	4.800	6.000	90.00	50.00	36.00		○
	4.900	6.000	90.00	50.00	36.00		○
	5.000	6.000	90.00	50.00	36.00	●	○
	5.100	6.000	90.00	50.00	36.00	●	○
	5.200	6.000	90.00	50.00	36.00	●	○
	5.300	6.000	90.00	50.00	36.00		○
	5.400	6.000	97.00	57.00	36.00		○
	5.500	6.000	97.00	57.00	36.00	●	○
	5.550	6.000	97.00	57.00	36.00	●	
	5.600	6.000	97.00	57.00	36.00		○
	5.700	6.000	97.00	57.00	36.00		○
	5.800	6.000	97.00	57.00	36.00		○
	5.900	6.000	97.00	57.00	36.00		○
	6.000	6.000	97.00	57.00	36.00	●	○
	6.100	8.000	106.00	66.00	36.00		○
	6.200	8.000	106.00	66.00	36.00		○
	6.300	8.000	106.00	66.00	36.00		○
	6.400	8.000	106.00	66.00	36.00		○
	6.500	8.000	106.00	66.00	36.00	●	○
	6.600	8.000	106.00	66.00	36.00		○
	6.700	8.000	106.00	66.00	36.00		○
17/64	6.750	8.000	106.00	66.00	36.00	●	
	6.800	8.000	106.00	66.00	36.00	●	○
	6.900	8.000	116.00	76.00	36.00	●	○
	7.000	8.000	116.00	76.00	36.00	●	○
	7.100	8.000	116.00	76.00	36.00		○
	7.200	8.000	116.00	76.00	36.00		○
	7.300	8.000	116.00	76.00	36.00		○
	7.400	8.000	116.00	76.00	36.00	●	○
	7.500	8.000	116.00	76.00	36.00	●	○
	7.600	8.000	116.00	76.00	36.00		○
	7.700	8.000	116.00	76.00	36.00		○
	7.800	8.000	116.00	76.00	36.00	●	○
	7.900	8.000	116.00	76.00	36.00		○
	8.000	8.000	116.00	76.00	36.00	●	○
	8.100	10.000	131.00	87.00	40.00		○
	8.200	10.000	131.00	87.00	40.00		○
	8.300	10.000	131.00	87.00	40.00		○
	8.400	10.000	131.00	87.00	40.00		○
	8.500	10.000	131.00	87.00	40.00	●	○
	8.600	10.000	131.00	87.00	40.00	●	○
	8.700	10.000	131.00	87.00	40.00		○

SuperV-drills with internal coolant



Catalog no.						51756	51761
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	165
Surface						TiAlSiN	TiAlN
Type						SuperV-IK-S	SuperV-GR
Drilling depth						7xD	7xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	8.800	10.000	131.00	87.00	40.00	●	○
	8.900	10.000	131.00	87.00	40.00		○
	9.000	10.000	131.00	87.00	40.00	●	○
	9.100	10.000	139.00	95.00	40.00		○
	9.200	10.000	139.00	95.00	40.00		○
	9.250	10.000	139.00	95.00	40.00	●	
	9.300	10.000	139.00	95.00	40.00		○
	9.400	10.000	139.00	95.00	40.00	●	○
	9.500	10.000	139.00	95.00	40.00	●	○
	9.600	10.000	139.00	95.00	40.00		○
	9.700	10.000	139.00	95.00	40.00		○
	9.800	10.000	139.00	95.00	40.00		○
	9.900	10.000	139.00	95.00	40.00		○
	10.000	10.000	139.00	95.00	40.00	●	○
	10.100	12.000	155.00	106.00	45.00		○
	10.200	12.000	155.00	106.00	45.00	●	○
	10.300	12.000	155.00	106.00	45.00		○
	10.400	12.000	155.00	106.00	45.00	●	○
	10.500	12.000	155.00	106.00	45.00	●	○
	10.600	12.000	155.00	106.00	45.00		○
	10.700	12.000	155.00	106.00	45.00		○
	10.800	12.000	155.00	106.00	45.00	●	○
	10.900	12.000	155.00	106.00	45.00		○
	11.000	12.000	155.00	106.00	45.00	●	○
	11.100	12.000	163.00	114.00	45.00		○
	11.200	12.000	163.00	114.00	45.00		○
	11.300	12.000	163.00	114.00	45.00	●	○
	11.400	12.000	163.00	114.00	45.00	●	○
	11.500	12.000	163.00	114.00	45.00	●	○
	11.600	12.000	163.00	114.00	45.00		○
	11.700	12.000	163.00	114.00	45.00		○
	11.800	12.000	163.00	114.00	45.00		○
	11.900	12.000	163.00	114.00	45.00		○
	12.000	12.000	163.00	114.00	45.00	●	○
	12.100	14.000	182.00	133.00	45.00		○
	12.200	14.000	182.00	133.00	45.00		○
31/64	12.300	14.000	182.00	133.00	45.00		○
	12.400	14.000	182.00	133.00	45.00		○
	12.500	14.000	182.00	133.00	45.00	●	○
	12.600	14.000	182.00	133.00	45.00		○
1/2	12.700	14.000	182.00	133.00	45.00		○
	12.800	14.000	182.00	133.00	45.00		○
	12.900	14.000	182.00	133.00	45.00		○
33/64	13.000	14.000	182.00	133.00	45.00	●	○
	13.100	14.000	182.00	133.00	45.00	●	○
	13.300	14.000	182.00	133.00	45.00		○
	13.400	14.000	182.00	133.00	45.00		○
	13.500	14.000	182.00	133.00	45.00	●	○
	13.700	14.000	182.00	133.00	45.00		○
	13.800	14.000	182.00	133.00	45.00		○
	13.900	14.000	182.00	133.00	45.00		○
	14.000	14.000	182.00	133.00	45.00	●	○
	14.100	16.000	204.00	152.00	48.00		○
	14.200	16.000	204.00	152.00	48.00		○
	14.300	16.000	204.00	152.00	48.00		○
	14.400	16.000	204.00	152.00	48.00		○
	14.500	16.000	204.00	152.00	48.00	●	○

SuperV-drills with internal coolant



Catalog no.						51756	51761
Tool material						Solid Carbide	
Carbide grade						K/P	
Discount group						121	165
Surface						TiAlSiN	TiAlN
Type						SuperV-IK-S	SuperV-GR
Drilling depth						7xD	7xD
d1	d1	d2	l1	l2	l3	price per piece	
inch	mm	mm	mm	mm	mm		
	14.600	16.000	204.00	152.00	48.00		○
	14.700	16.000	204.00	152.00	48.00		○
	14.900	16.000	204.00	152.00	48.00		○
	15.000	16.000	204.00	152.00	48.00	●	○
	15.100	16.000	204.00	152.00	48.00	●	○
	15.200	16.000	204.00	152.00	48.00		○
	15.300	16.000	204.00	152.00	48.00		○
	15.400	16.000	204.00	152.00	48.00		○
	15.500	16.000	204.00	152.00	48.00	●	○
	15.600	16.000	204.00	152.00	48.00		○
	15.700	16.000	204.00	152.00	48.00		○
	15.800	16.000	204.00	152.00	48.00		○
	15.900	16.000	204.00	152.00	48.00		○
	16.000	16.000	204.00	152.00	48.00	●	○
	16.500	18.000	223.00	171.00	48.00		○
	17.000	18.000	223.00	171.00	48.00		○
	17.500	18.000	223.00	171.00	48.00		○
	18.000	18.000	223.00	171.00	48.00		○
	18.500	20.000	244.00	190.00	50.00		○
	19.000	20.000	244.00	190.00	50.00		○
	19.500	20.000	244.00	190.00	50.00		○
	20.000	20.000	244.00	190.00	50.00		○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 61825



High-performance drill for drilling into unalloyed, low- and high alloyed steels (with a tensile strength of up to 900 N/mm²), grey cast iron, spheroidal graphite iron, brass, bronze, plastics and graphite, for drilling depths up to 7 x D.

Advantages: Vibrations and shocks that may occur during use are absorbed by the HSS body material holding the brazed carbide tip. Withstands distortion caused by less rigid machines. Produces short chips, including soft, long chipping steels, thanks to a specially designed cutting point geometry. The optimised carbide grade and point geometry makes the use of highest speed and feed rates possible, high alignment accuracy with small diameter tolerance and excellent surface finish.

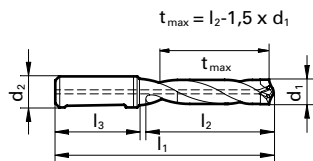
Preconditions for use: powerful machines.

DIN 6538 L 7xD

Tool material	Carbide
Surface	TiN
Type	SuperV90-U
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	9.60
Tolerance on Ø	h7

Web thinning: SuperV
Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: smaller than standard
Shank: HE

SuperV-drills with internal coolant



Catalog no.	61825
Tool material	Carbide
Carbide grade	P
Discount group	128
Surface	TiN
Type	SuperV90-U
Drilling depth	7xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	9.600	16.000	151.00	99.00	48.00	○
	10.000	16.000	151.00	99.00	48.00	○
	10.600	16.000	151.00	99.00	50.00	○
	11.000	16.000	151.00	99.00	48.00	○
	11.500	16.000	151.00	99.00	48.00	○
	13.000	16.000	167.00	115.00	48.00	○
	13.500	16.000	167.00	115.00	48.00	○
	14.000	16.000	167.00	115.00	48.00	○
	16.000	20.000	186.00	132.00	50.00	○
	17.000	20.000	202.00	148.00	50.00	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 71994

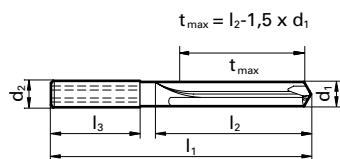


Straight-fluted drill for the machining of short chipping materials like cast iron, grey cast iron, heat-treatable grey cast iron, spheroidal graphite iron and malleable cast iron, al-alloys with high Si-content. For the production of holes with high alignment accuracy (minimal deviation from straightness). Advantages: Extremely good self centring qualities, small diameter tolerances, excellent surface finish, high cutting rates, high productivity. Preconditions for use: powerful machines. No play in spindle bearings. Accurately aligned tool holders. Max. concentricity error of clamped tools: 0.02 mm.

Stock std. 7xD

Tool material	Solid Carbide
Surface	bright
Type	SuperV95-GG
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned ≥Ø	3.00
Tolerance on Ø	m7
Web thinning: GG special	
Helix angle: straight	
Web thickness: greater than standard	
Web taper: none	
Flute form: special	
Shank: HA	

SuperV-drills with internal coolant



Catalog no.

71994

Tool material

Solid Carbide

Carbide grade

K

Discount group

121

Surface

bright

Type

SuperV95-GG

Drilling depth

7xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
	3.000	6.000	74.00	32.00	36.00	○
	3.100	6.000	74.00	32.00	36.00	○
	3.200	6.000	74.00	32.00	36.00	○
	3.300	6.000	74.00	32.00	36.00	○
	3.400	6.000	74.00	34.00	36.00	○
	3.500	6.000	74.00	34.00	36.00	○
	3.600	6.000	74.00	34.00	36.00	○
	3.700	6.000	74.00	34.00	36.00	○
	3.800	6.000	97.00	45.00	36.00	○
	3.900	6.000	97.00	45.00	36.00	○
	4.000	6.000	97.00	45.00	36.00	○
	4.100	6.000	97.00	45.00	36.00	○
	4.200	6.000	97.00	45.00	36.00	○
	4.300	6.000	97.00	45.00	36.00	○
	4.400	6.000	97.00	45.00	36.00	○
	4.500	6.000	97.00	45.00	36.00	○
	4.700	6.000	97.00	45.00	36.00	○
	4.800	6.000	97.00	57.00	36.00	○
	4.900	6.000	97.00	57.00	36.00	○
	5.000	6.000	97.00	57.00	36.00	○
	5.500	6.000	97.00	57.00	36.00	○
	6.000	6.000	97.00	57.00	36.00	○
	6.500	8.000	116.00	76.00	36.00	○
	6.800	8.000	116.00	76.00	36.00	○
	7.000	8.000	116.00	76.00	36.00	○
	7.500	8.000	116.00	76.00	36.00	○
	7.800	8.000	116.00	76.00	36.00	○
	8.000	8.000	116.00	76.00	36.00	○
	8.500	10.000	139.00	95.00	40.00	○
	9.000	10.000	139.00	95.00	40.00	○
	9.500	10.000	139.00	95.00	40.00	○
	10.000	10.000	139.00	95.00	40.00	○
	10.200	12.000	163.00	114.00	45.00	○
	10.500	12.000	163.00	114.00	45.00	○
	11.000	12.000	163.00	114.00	45.00	○
	11.500	12.000	163.00	114.00	45.00	○
31/64	12.000	12.000	163.00	114.00	45.00	○
	12.300	14.000	182.00	133.00	45.00	○
	12.500	14.000	182.00	133.00	45.00	○
1/2	12.700	14.000	182.00	133.00	45.00	○
	13.000	14.000	182.00	133.00	45.00	○
	13.500	14.000	182.00	133.00	45.00	○
	14.000	14.000	182.00	133.00	45.00	○
	14.500	16.000	204.00	152.00	48.00	○
	15.000	16.000	204.00	152.00	48.00	○
	15.500	16.000	204.00	152.00	48.00	○
	16.000	16.000	204.00	152.00	48.00	○
	16.500	18.000	223.00	171.00	48.00	○
	17.000	18.000	223.00	171.00	48.00	○
	17.500	18.000	223.00	171.00	48.00	○
	18.000	18.000	223.00	171.00	48.00	○
	18.500	20.000	244.00	190.00	50.00	○
	19.000	20.000	244.00	190.00	50.00	○
	19.500	20.000	244.00	190.00	50.00	○
	20.000	20.000	244.00	190.00	50.00	○

SuperV-drills

SuperV-drills with internal coolant

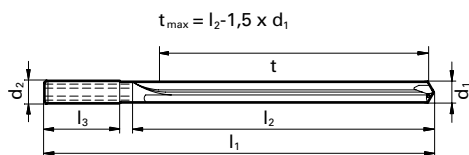
Catalog no. 71996



Straight-fluted drill for the machining of short chipping materials like cast iron, grey cast iron, heat-treatable grey cast iron, spheroidal graphite iron and malleable cast iron, al-alloys with high Si-content. For the production of holes with high alignment accuracy (minimal deviation from straightness). Advantages: Extremely good self centring qualities, small diameter tolerances, excellent surface finish, high cutting rates, high productivity. Preconditions for use: powerful machines. No play in spindle bearings. Accurately aligned tool holders. Max. concentricity error of clamped tools: 0.02 mm.

Stock std.	10xD
Tool material	Solid Carbide
Surface	bright
Type	SuperV95-GG
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	4.00
Tolerance on \emptyset	m7
Web thinning: GG special Helix angle: straight Web thickness: greater than standard Web taper: none Flute form: special Shank: HA	

SuperV-drills with internal coolant



Catalog no.

71996

Tool material

Solid Carbide

Carbide grade

K

Discount group

121

Surface

bright

Type

SuperV95-GG

Drilling depth

10xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	3.000	6.000	91.00	42.00	36.00	●
	3.300	6.000	91.00	42.00	36.00	●
	3.500	6.000	91.00	48.00	36.00	●
	3.800	6.000	121.00	77.00	36.00	●
	4.000	6.000	121.00	77.00	36.00	●
	4.200	6.000	121.00	77.00	36.00	●
	4.500	6.000	121.00	77.00	36.00	●
	4.700	6.000	121.00	77.00	36.00	●
	4.800	6.000	121.00	82.00	36.00	●
	5.000	6.000	121.00	82.00	36.00	●
	5.500	6.000	121.00	82.00	36.00	●
	6.000	6.000	121.00	82.00	36.00	●
1/4	6.350	8.000	146.00	106.00	36.00	●
	6.500	8.000	146.00	106.00	36.00	●
	6.800	8.000	146.00	106.00	36.00	●
	7.000	8.000	146.00	106.00	36.00	●
	7.500	8.000	146.00	106.00	36.00	●
	7.800	8.000	146.00	106.00	36.00	●
	8.000	8.000	146.00	106.00	36.00	●
	8.500	10.000	175.00	130.00	40.00	●
	9.000	10.000	175.00	130.00	40.00	●
	9.500	10.000	175.00	130.00	40.00	●
	10.000	10.000	175.00	130.00	40.00	●
	10.200	12.000	209.00	159.00	45.00	●
	10.500	12.000	209.00	159.00	45.00	●
	11.000	12.000	209.00	159.00	45.00	●
	11.500	12.000	209.00	159.00	45.00	●
	12.000	12.000	209.00	159.00	45.00	●
1/2	12.500	14.000	233.00	183.00	45.00	●
	12.700	14.000	233.00	183.00	45.00	●
	13.000	14.000	233.00	183.00	45.00	●
	13.500	14.000	233.00	183.00	45.00	●
	14.000	14.000	233.00	183.00	45.00	●
	14.500	16.000	260.00	207.00	48.00	●
	15.000	16.000	260.00	207.00	48.00	●
	15.500	16.000	260.00	207.00	48.00	●
	16.000	16.000	260.00	207.00	48.00	●
	17.000	18.000	284.00	231.00	48.00	○
	17.500	18.000	284.00	231.00	48.00	○
	18.000	18.000	284.00	231.00	48.00	○
	19.000	20.000	308.00	255.00	50.00	○
	19.500	20.000	308.00	255.00	50.00	○
	20.000	20.000	308.00	255.00	50.00	○

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51893



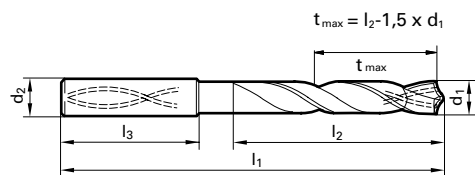
Solid carbide performance drill for deep drilling into steel, cast and non-ferrous metals.

Advantages: Good self centering characteristics due to special web thinning. Even in tough and long-chipping materials good chip flow through modified flute geometry and wide, open flutes. 4 guiding lands for high concentricity, good surface quality and optimal guidance of the drill on exiting the bore.

Preconditions for use: Use with performance machines. No spindle play. Alignment accurate tool holders. Max. concentricity error of clamped tool 0,02 mm. Chatterfree, defined feeds.

Stock std.	12xD
Tool material	Solid Carbide
Surface	TiAlN nano - tip coated
Type	<i>SuperV-IK-U</i>
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	4.00
Tolerance on Ø	m7
Web thinning: SuperV Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: normal Shank: HA	

SuperV-drills with internal coolant



Catalog no.

51893

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

121

Surface

TiAlN nano - tip coated

Type

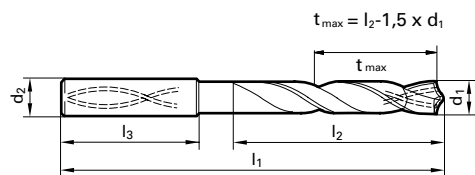
SuperV-IK-U

Drilling depth

12xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	3.000	6.000	90.00	50.00	36.00	●
	3.100	6.000	90.00	50.00	36.00	●
	3.200	6.000	90.00	50.00	36.00	●
	3.300	6.000	90.00	50.00	36.00	●
	3.400	6.000	90.00	50.00	36.00	●
	3.500	6.000	90.00	50.00	36.00	●
	3.600	6.000	90.00	50.00	36.00	●
	3.700	6.000	90.00	50.00	36.00	●
	3.800	6.000	102.00	64.00	36.00	●
	3.900	6.000	102.00	64.00	36.00	●
	4.000	6.000	102.00	64.00	36.00	●
	4.100	6.000	102.00	64.00	36.00	●
	4.200	6.000	102.00	64.00	36.00	●
	4.300	6.000	102.00	64.00	36.00	●
	4.400	6.000	102.00	64.00	36.00	●
	4.500	6.000	102.00	64.00	36.00	●
	4.600	6.000	102.00	64.00	36.00	●
	4.700	6.000	102.00	64.00	36.00	●
	4.800	6.000	116.00	78.00	36.00	●
	4.900	6.000	116.00	78.00	36.00	●
	5.000	6.000	116.00	78.00	36.00	●
	5.100	6.000	116.00	78.00	36.00	●
	5.200	6.000	116.00	78.00	36.00	●
	5.300	6.000	116.00	78.00	36.00	●
	5.400	6.000	116.00	78.00	36.00	●
	5.500	6.000	116.00	78.00	36.00	●
	5.600	6.000	116.00	78.00	36.00	●
	5.700	6.000	116.00	78.00	36.00	●
	5.800	6.000	116.00	78.00	36.00	●
	5.900	6.000	116.00	78.00	36.00	●
	6.000	6.000	116.00	78.00	36.00	●
	6.100	8.000	146.00	108.00	36.00	●
	6.200	8.000	146.00	108.00	36.00	●
	6.300	8.000	146.00	108.00	36.00	●
	6.400	8.000	146.00	108.00	36.00	●
	6.500	8.000	146.00	108.00	36.00	●
	6.600	8.000	146.00	108.00	36.00	●
	6.700	8.000	146.00	108.00	36.00	●
	6.800	8.000	146.00	108.00	36.00	●
	6.900	8.000	146.00	108.00	36.00	●
	7.000	8.000	146.00	108.00	36.00	●
	7.100	8.000	146.00	108.00	36.00	●
	7.200	8.000	146.00	108.00	36.00	●
	7.300	8.000	146.00	108.00	36.00	●
	7.400	8.000	146.00	108.00	36.00	●
	7.500	8.000	146.00	108.00	36.00	●
	7.600	8.000	146.00	108.00	36.00	●
	7.700	8.000	146.00	108.00	36.00	●
	7.800	8.000	146.00	108.00	36.00	●
	7.900	8.000	146.00	108.00	36.00	●
	8.000	8.000	146.00	108.00	36.00	●
	8.100	10.000	162.00	120.00	40.00	●
	8.200	10.000	162.00	120.00	40.00	●
	8.300	10.000	162.00	120.00	40.00	●
	8.400	10.000	162.00	120.00	40.00	●
	8.500	10.000	162.00	120.00	40.00	●
	8.600	10.000	162.00	120.00	40.00	●

SuperV-drills with internal coolant



Catalog no.

51893

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

121

Surface

TiAlN nano - tip coated

Type

SuperV-IK-U

Drilling depth

12xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
	8.700	10.000	162.00	120.00	40.00	●
	8.800	10.000	162.00	120.00	40.00	●
	8.900	10.000	162.00	120.00	40.00	●
	9.000	10.000	162.00	120.00	40.00	●
	9.100	10.000	162.00	120.00	40.00	●
	9.200	10.000	162.00	120.00	40.00	●
	9.300	10.000	162.00	120.00	40.00	●
	9.400	10.000	162.00	120.00	40.00	●
	9.500	10.000	162.00	120.00	40.00	●
	9.600	10.000	162.00	120.00	40.00	●
	9.700	10.000	162.00	120.00	40.00	●
	9.800	10.000	162.00	120.00	40.00	●
	9.900	10.000	162.00	120.00	40.00	●
	10.000	10.000	162.00	120.00	40.00	●
	10.200	12.000	204.00	156.00	45.00	●
	10.500	12.000	204.00	156.00	45.00	●
	11.000	12.000	204.00	156.00	45.00	●
	11.500	12.000	204.00	156.00	45.00	●
	12.000	12.000	204.00	156.00	45.00	●
1/2	12.500	14.000	230.00	182.00	45.00	●
	12.700	14.000	230.00	182.00	45.00	●
	13.000	14.000	230.00	182.00	45.00	●
	13.500	14.000	230.00	182.00	45.00	●
	14.000	14.000	230.00	182.00	45.00	●
	14.500	16.000	260.00	208.00	48.00	●
	15.000	16.000	260.00	208.00	48.00	●
	15.500	16.000	260.00	208.00	48.00	●
	16.000	16.000	260.00	208.00	48.00	●
	16.500	18.000	285.00	234.00	48.00	●
	17.000	18.000	285.00	234.00	48.00	●
	17.500	18.000	285.00	234.00	48.00	●
	18.000	18.000	285.00	234.00	48.00	●
	18.500	20.000	310.00	258.00	50.00	●
	19.000	20.000	310.00	258.00	50.00	●
	19.500	20.000	310.00	258.00	50.00	●
	20.000	20.000	310.00	258.00	50.00	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51783



High-performance drill especially for the efficient drilling of deep holes up to 12xD. They are designed to machine nearly every short and long chipping material, e. g. common structural and case hardened steels, tempering steels, alloyed steels up to a tensile strength of appr. 1200 N/mm², tool steels, carbon steels, cast steels, cast iron, aluminium and aluminium alloys.

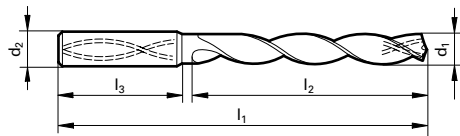
Advantages:

- safe chip break also with long chipping materials.
- the 12xD drill gains an optimum chip break also under difficult conditions! Moreover the internal coolant supply supports safe chip evacuation while drilling tough and long chipping materials
- excellent self centering
- tight hole tolerances, high concentricity
- improved surface qualities
- high drilling performance

Preconditions for use: Use with performance machines. No spindle play. Alignment accurate tool holders. Max. concentricity error of clamped tool 0,02 mm. Chatterfree, defined feeds. We recommend the use of hydraulic chucks.

Stock std.	12 x D
Tool material	Solid carbide
Surface	TiAlN
Type	SuperV70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	4.00
Tolerance	m7
Web thinning: SuperV Helix angle: 40° Web thickness: greater than standard Web taper: none Flute form: optimized V70-profile Shank: HA	

SuperV-drills with internal coolant



Catalog no.	51783
Tool material	Solid carbide
Carbide grade	K / P
Discount group	-
Surface	TiAlN
Type	SuperV70
Drilling depth	12 x D

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	Gross price
	4.000	6.000	102.00	64.00	36.00	on request
	4.200	6.000	102.00	64.00	36.00	on request
	4.300	6.000	102.00	64.00	36.00	on request
	4.500	6.000	102.00	64.00	36.00	on request
	5.000	6.000	116.00	78.00	36.00	on request
	5.500	6.000	116.00	78.00	36.00	on request
	6.000	6.000	116.00	78.00	36.00	on request
	6.500	8.000	146.00	108.00	36.00	on request
	6.800	8.000	146.00	108.00	36.00	on request
	7.000	8.000	146.00	108.00	36.00	on request
	7.500	8.000	146.00	108.00	36.00	on request
	8.000	8.000	146.00	108.00	36.00	on request
	8.500	10.000	162.00	120.00	40.00	on request
	9.000	10.000	162.00	120.00	40.00	on request
	9.500	10.000	162.00	120.00	40.00	on request
	10.000	10.000	162.00	120.00	40.00	on request
	10.200	12.000	204.00	156.00	45.00	on request
	10.500	12.000	204.00	156.00	45.00	on request
	11.000	12.000	204.00	156.00	45.00	on request
	11.500	12.000	204.00	156.00	45.00	on request
	12.000	12.000	204.00	156.00	45.00	on request
	12.500	14.000	230.00	182.00	45.00	on request
	12.700	14.000	230.00	182.00	45.00	on request
	13.000	14.000	230.00	182.00	45.00	on request
	13.500	14.000	230.00	182.00	45.00	on request
	14.000	14.000	230.00	182.00	45.00	on request
	14.500	16.000	260.00	208.00	48.00	on request
	15.000	16.000	260.00	208.00	48.00	on request
	16.000	16.000	260.00	208.00	48.00	on request
	16.500	18.000	285.00	234.00	48.00	on request
	17.000	18.000	285.00	234.00	48.00	on request
	18.000	18.000	285.00	234.00	48.00	on request
	19.000	20.000	310.00	258.00	50.00	on request
	20.000	20.000	310.00	258.00	50.00	on request

SuperV-drills

SuperV-drills with internal coolant

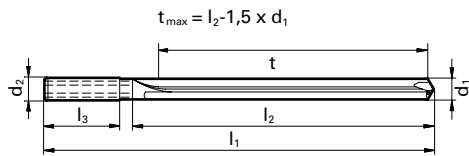
Catalog no. 71997



Straight-fluted drill for the machining of short chipping materials like cast iron, grey cast iron, heat-treatable grey cast iron, spheroidal graphite iron and malleable cast iron, al-alloys with high Si-content. For the production of holes with high alignment accuracy (minimal deviation from straightness). Advantages: Extremely good self centring qualities, small diameter tolerances, excellent surface finish, high cutting rates, high productivity. Preconditions for use: powerful machines. No play in spindle bearings. Accurately aligned tool holders. Max. concentricity error of clamped tools: 0.02 mm.

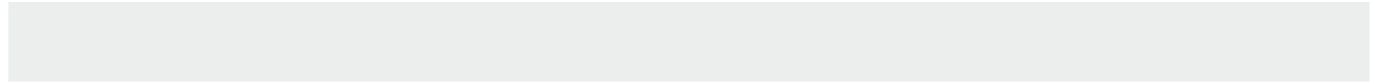
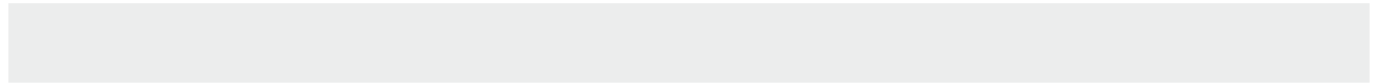
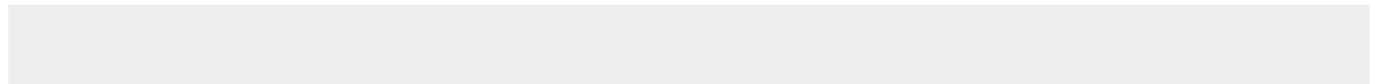
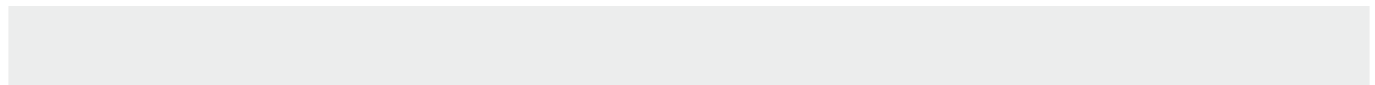
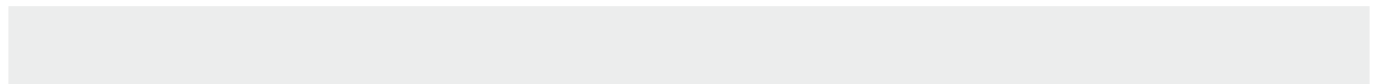
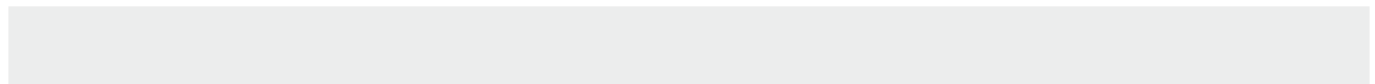
Stock std.	15xD
Tool material	Solid Carbide
Surface	bright
Type	SuperV95-GN
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	5.00
Tolerance on \emptyset	m7
Web thinning: GN special Helix angle: negativ Web thickness: greater than standard Web taper: none Flute form: special Shank: HA	

SuperV-drills with internal coolant



Catalog no.	71997
Tool material	Solid Carbide
Carbide grade	K
Discount group	121
Surface	bright
Type	SuperV95-GN
Drilling depth	15xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
	5.000	6.000	145.00	105.00	36.00	○
	6.000	6.000	145.00	105.00	36.00	○
	8.000	8.000	180.00	137.00	36.00	○
	9.000	10.000	217.00	170.00	40.00	○
	10.000	10.000	217.00	170.00	40.00	○
	11.000	12.000	258.00	205.00	45.00	○
	12.000	12.000	258.00	205.00	45.00	○
	14.000	14.000	290.00	236.00	45.00	○



SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51764



Spiralized deep hole drill for high-efficient manufacturing of holes <15xD in steels and cast iron.

- rigid flutes for highest feeds and speeds
- special flute geometry for optimized chip-flow
- oil holes with maximum cross-section for optimal lubrication supply

Requirements, Recommendations:

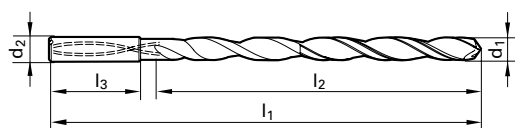
- initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation
- production of a cylindric pilot hole with a minimum depth of 1xD. We recommend our SuperV-drill type U or VA.
- entry in pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- setting of coolant pressure and speed
- continuous drilling to complete hole depth w/o withdrawing
- for through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to breakthrough
- after reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear

Stock std. 15xD

Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-T
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h7

web thinning: SuperV
helix angle: normal
web thickness: special
web taper: special
flute form: special
shank: HA

SuperV-drills with internal coolant



Catalog no.	51764
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	165
Surface	AlTiN - tip coated
Type	SuperV-T
Drilling depth	15xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
1/8	3.000	6.000	95.00	55.00	36.00	●
	3.170	6.000	106.00	67.00	36.00	●
	3.500	6.000	116.00	76.00	36.00	●
9/64	3.570	6.000	116.00	76.00	36.00	●
	3.970	6.000	116.00	76.00	36.00	●
	4.000	6.000	116.00	76.00	36.00	●
11/64	4.370	6.000	133.00	93.00	36.00	●
	4.500	6.000	133.00	93.00	36.00	●
	4.760	6.000	133.00	93.00	36.00	●
13/64	5.000	6.000	133.00	93.00	36.00	●
	5.100	6.000	150.00	110.00	36.00	●
	5.160	6.000	150.00	110.00	36.00	●
7/32	5.410	6.000	150.00	110.00	36.00	●
	5.500	6.000	150.00	110.00	36.00	●
	5.560	6.000	150.00	110.00	36.00	●
15/64	5.950	6.000	150.00	110.00	36.00	●
	6.000	6.000	150.00	110.00	36.00	●
	6.350	8.000	167.00	127.00	36.00	●
17/64	6.500	8.000	167.00	127.00	36.00	●
	6.750	8.000	167.00	127.00	36.00	●
	7.000	8.000	167.00	127.00	36.00	●
9/32	7.140	8.000	183.00	143.00	36.00	●
	7.500	8.000	183.00	143.00	36.00	●
	7.540	8.000	183.00	143.00	36.00	●
19/64	7.940	8.000	183.00	143.00	36.00	●
	8.000	8.000	183.00	143.00	36.00	●
	8.330	10.000	204.00	160.00	40.00	●
11/32	8.500	10.000	204.00	160.00	40.00	●
	8.730	10.000	204.00	160.00	40.00	●
	9.000	10.000	204.00	160.00	40.00	●
23/64	9.130	10.000	221.00	177.00	40.00	●
3/8	9.520	10.000	221.00	177.00	40.00	●
25/64	9.920	10.000	221.00	177.00	40.00	●
13/32	10.000	10.000	221.00	177.00	40.00	●
	10.320	12.000	247.00	198.00	45.00	●
	10.720	12.000	247.00	198.00	45.00	●
7/16	11.000	12.000	247.00	198.00	45.00	●
	11.110	12.000	263.00	214.00	45.00	●
	11.510	12.000	263.00	214.00	45.00	●
15/32	11.910	12.000	263.00	214.00	45.00	●
	12.000	12.000	263.00	214.00	45.00	●
	12.300	14.000	297.00	248.00	45.00	●
1/2	12.700	14.000	297.00	248.00	45.00	●
33/64	13.100	14.000	297.00	248.00	45.00	●
17/32	13.490	14.000	297.00	248.00	45.00	●
35/64	13.890	14.000	297.00	248.00	45.00	●
	14.000	14.000	297.00	248.00	45.00	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51765



Spiralized deep hole drill for high-efficient manufacturing of holes <20xD in steels and cast iron.

- rigid flutes for highest feeds and speeds
- special flute geometry for optimized chip-flow
- oil holes with maximum cross-section for optimal lubrication supply

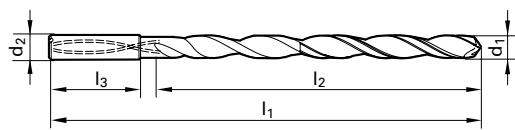
Requirements, Recommendations:

- initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation
- production of a cylindric pilot hole with a minimum depth of 1xD. We recommend our SuperV-drill type U or VA.
- entry in pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- setting of coolant pressure and speed
- continuous drilling to complete hole depth w/o withdrawing
- for through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to breakthrough
- after reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear

Stock std.	20xD
Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-T
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h7

web thinning: SuperV
helix angle: normal
web thickness: special
web taper: special
flute form: special
shank: HA

SuperV-drills with internal coolant



Catalog no.	51765
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	165
Surface	AlTiN - tip coated
Type	SuperV-T
Drilling depth	20xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
	3.000	6.000	110.00	70.00	36.00	●
	3.500	6.000	136.00	96.00	36.00	●
5/32	3.970	6.000	136.00	96.00	36.00	●
	4.000	6.000	136.00	96.00	36.00	●
	4.500	6.000	158.00	118.00	36.00	●
3/16	4.760	6.000	158.00	118.00	36.00	●
	5.000	6.000	158.00	118.00	36.00	●
	5.500	6.000	180.00	140.00	36.00	●
7/32	5.560	6.000	180.00	140.00	36.00	●
	6.000	6.000	180.00	140.00	36.00	●
	6.350	8.000	202.00	162.00	36.00	●
1/4	6.500	8.000	202.00	162.00	36.00	●
	7.000	8.000	202.00	162.00	36.00	●
	7.140	8.000	223.00	183.00	36.00	●
9/32	7.500	8.000	223.00	183.00	36.00	●
	8.000	8.000	223.00	183.00	36.00	●
	8.500	10.000	249.00	205.00	40.00	●
	9.000	10.000	249.00	205.00	40.00	●
	10.000	10.000	271.00	227.00	40.00	●
	12.000	12.000	323.00	274.00	45.00	●
	14.000	14.000	367.00	318.00	45.00	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51766



Spiralized deep hole drill for high-efficient manufacturing of holes <25xD in steels and cast iron.

- rigid flutes for highest feeds and speeds
- special flute geometry for optimized chip-flow
- oil holes with maximum cross-section for optimal lubrication supply

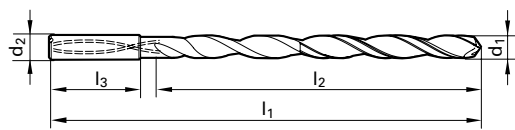
Requirements, Recommendations:

- initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation
- production of a cylindric pilot hole with a minimum depth of 1xD. We recommend our SuperV-drill type U or VA.
- entry in pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- setting of coolant pressure and speed
- continuous drilling to complete hole depth w/o withdrawing
- for through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to breakthrough
- after reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear

Stock std.	25xD
Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-T
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h7

web thinning: SuperV
helix angle: normal
web thickness: special
web taper: special
flute form: special
shank: HA

SuperV-drills with internal coolant



Catalog no.	51766
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	165
Surface	AlTiN - tip coated
Type	SuperV-T
Drilling depth	25xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
5/32	3.000	6.000	125.00	85.00	36.00	●
	3.500	6.000	156.00	116.00	36.00	●
	3.970	6.000	156.00	116.00	36.00	●
3/16	4.000	6.000	156.00	116.00	36.00	●
	4.500	6.000	183.00	143.00	36.00	●
	4.760	6.000	183.00	143.00	36.00	●
7/32	5.000	6.000	183.00	143.00	36.00	●
	5.500	6.000	210.00	170.00	36.00	●
	5.560	6.000	210.00	170.00	36.00	●
1/4	6.000	6.000	210.00	170.00	36.00	●
	6.350	8.000	237.00	197.00	36.00	●
	6.500	8.000	237.00	197.00	36.00	●
9/32	7.000	8.000	237.00	197.00	36.00	●
	7.140	8.000	263.00	223.00	36.00	●
	7.500	8.000	263.00	223.00	36.00	●
	8.000	8.000	263.00	223.00	36.00	●
	8.500	10.000	294.00	250.00	40.00	●
	9.000	10.000	294.00	250.00	40.00	●
	10.000	10.000	321.00	277.00	40.00	●
	12.000	12.000	386.00	337.00	45.00	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51767



Spiralized deep hole drill for high-efficient manufacturing of holes <30xD in steels and cast iron.

- rigid flutes for highest feeds and speeds
- special flute geometry for optimized chip-flow
- oil holes with maximum cross-section for optimal lubrication supply

Requirements, Recommendations:

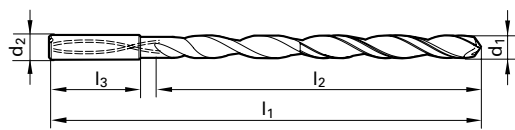
- initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation
- production of a cylindric pilot hole with a minimum depth of 1xD. We recommend our SuperV-drill type U or VA.
- entry in pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- setting of coolant pressure and speed
- continuous drilling to complete hole depth w/o withdrawing
- for through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to breakthrough
- after reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear

Stock std. 30xD

Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-T
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h7

web thinning: SuperV
helix angle: normal
web thickness: special
web taper: special
flute form: special
shank: HA

SuperV-drills with internal coolant



Catalog no.	51767
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	165
Surface	AlTiN - tip coated
Type	SuperV-T
Drilling depth	30xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
5/32	3.000	6.000	140.00	100.00	36.00	●
	3.500	6.000	176.00	136.00	36.00	●
	3.970	6.000	176.00	136.00	36.00	●
3/16	4.000	6.000	176.00	136.00	36.00	●
	4.500	6.000	208.00	168.00	36.00	●
	4.760	6.000	208.00	168.00	36.00	●
7/32	5.000	6.000	208.00	168.00	36.00	●
	5.500	6.000	240.00	200.00	36.00	●
	5.560	6.000	240.00	200.00	36.00	●
1/4	6.000	6.000	240.00	200.00	36.00	●
	6.350	8.000	272.00	232.00	36.00	●
	6.500	8.000	272.00	232.00	36.00	●
9/32	7.000	8.000	272.00	232.00	36.00	●
	7.140	8.000	303.00	263.00	36.00	●
	7.500	8.000	303.00	263.00	36.00	●
	8.000	8.000	303.00	263.00	36.00	●
	8.500	10.000	339.00	295.00	40.00	●
	9.000	10.000	339.00	295.00	40.00	●
	10.000	10.000	371.00	327.00	40.00	●

SuperV-drills

SuperV-drills with internal coolant

Catalog no. 51768



Spiralized deep hole drill for high-efficient manufacturing of holes <40xD in steels and cast iron.

- rigid flutes for highest feeds and speeds
- special flute geometry for optimized chip-flow
- oil holes with maximum cross-section for optimal lubrication supply

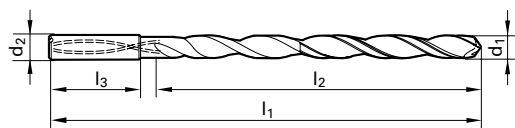
Requirements, Recommendations:

- initial milling of surface. The surface must be machined at right angles to the entry angle of the drilling operation
- production of a cylindric pilot hole with a minimum depth of 1xD. We recommend our SuperV-drill type U or VA.
- entry in pilot hole at a speed of approx. 300 rev./min and with a feed rate of approx. 500 mm/min.
- setting of coolant pressure and speed
- continuous drilling to complete hole depth w/o withdrawing
- for through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to breakthrough
- after reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear

Stock std.	40xD
Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-T
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h7

web thinning: SuperV
helix angle: normal
web thickness: special
web taper: special
flute form: special
shank: HA

SuperV-drills with internal coolant



Catalog no.	51768
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	165
Surface	AlTiN - tip coated
Type	SuperV-T
Drilling depth	40xD

d1	d1	d2	l1	l2	l3	price per piece
inch	mm	mm	mm	mm	mm	
1/8	3.000	6.000	170.00	130.00	36.00	●
	3.170	6.000	193.00	153.00	36.00	●
	3.500	6.000	193.00	153.00	36.00	●
5/32	3.970	6.000	216.00	176.00	36.00	●
	4.000	6.000	216.00	176.00	36.00	●
	4.500	6.000	238.00	198.00	36.00	●
3/16	4.760	6.000	258.00	218.00	36.00	●
	5.000	6.000	258.00	218.00	36.00	●
	5.500	6.000	280.00	240.00	36.00	●
7/32	5.560	6.000	300.00	260.00	36.00	●
	6.000	6.000	300.00	260.00	36.00	●
	6.350	8.000	322.00	282.00	36.00	●
1/4	6.500	8.000	322.00	282.00	36.00	●
	7.000	8.000	342.00	302.00	36.00	●
	7.140	8.000	363.00	323.00	36.00	●
9/32	7.500	8.000	363.00	323.00	36.00	●
	8.000	8.000	383.00	343.00	36.00	●

SuperV-drills

SuperV drills, 3-fluted

Catalog no. 71862



A tool for heavy duty drilling from the solid, giving precise centering and accurate hole form. Precision in size and surface finish correspond to those achieved with core drills. Centring or spotting is not normally required. Suitable for drilling grey cast iron, long-chipping al-alloys.

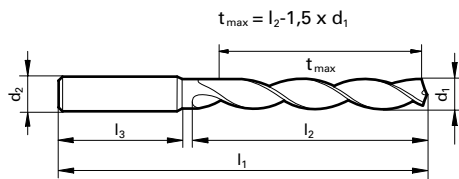
Advantages: The 3-fluted SuperV83-GAL allows high feeds and optimal centring in cast iron and aluminium. The flutes combined with a compact geometry and our carbide grade DK 460 UF (K/P) offer a maximum process stability. Even otherwise difficult applications are possible, i.e. angled drilling or interrupted cut.

DIN 6537 L 5xD

Tool material	Solid Carbide
Surface	bright
Type	SuperV83-GAL
Cutting direction	right-hand
Point grinding	Spiro-point grind
Point angle °	130
Web thinned ≥Ø	5.00
Tolerance on Ø	m7

Web thinning: SuperV
Helix angle: 28°
Web thickness: smaller than normal
Web taper: none
Flute form: wider than standard
Shank: HA

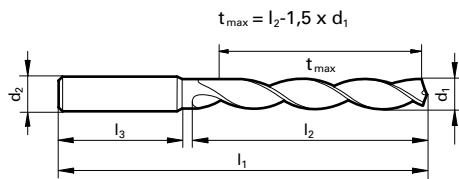
SuperV drills, 3-fluted



Catalog no.	71862
Tool material	Solid Carbide
Carbide grade	K
Discount group	109
Surface	bright
Type	SuperV83-GAL
Drilling depth	5xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
3.000	6.000	66.00	28.00	36.00	●
3.100	6.000	66.00	28.00	36.00	●
3.200	6.000	66.00	28.00	36.00	●
3.300	6.000	66.00	28.00	36.00	●
3.500	6.000	66.00	28.00	36.00	●
3.700	6.000	66.00	28.00	36.00	●
3.800	6.000	74.00	36.00	36.00	●
4.000	6.000	74.00	36.00	36.00	●
4.100	6.000	74.00	36.00	36.00	●
4.200	6.000	74.00	36.00	36.00	●
4.500	6.000	74.00	36.00	36.00	●
4.800	6.000	82.00	44.00	36.00	●
5.000	6.000	82.00	44.00	36.00	●
5.100	6.000	82.00	44.00	36.00	●
5.200	6.000	82.00	44.00	36.00	●
5.300	6.000	82.00	44.00	36.00	●
5.500	6.000	82.00	44.00	36.00	●
5.800	6.000	82.00	44.00	36.00	●
6.000	6.000	82.00	44.00	36.00	●
6.100	8.000	91.00	53.00	36.00	●
6.200	8.000	91.00	53.00	36.00	●
6.400	8.000	91.00	53.00	36.00	●
6.500	8.000	91.00	53.00	36.00	●
6.700	8.000	91.00	53.00	36.00	●
6.800	8.000	91.00	53.00	36.00	●
6.900	8.000	91.00	53.00	36.00	○
7.000	8.000	91.00	53.00	36.00	●
7.100	8.000	91.00	53.00	36.00	○
7.400	8.000	91.00	53.00	36.00	●
7.500	8.000	91.00	53.00	36.00	●
7.800	8.000	91.00	53.00	36.00	●
8.000	8.000	91.00	53.00	36.00	●
8.100	10.000	103.00	61.00	40.00	○
8.200	10.000	103.00	61.00	40.00	●
8.400	10.000	103.00	61.00	40.00	●
8.500	10.000	103.00	61.00	40.00	●
8.600	10.000	103.00	61.00	40.00	●
8.700	10.000	103.00	61.00	40.00	●
8.800	10.000	103.00	61.00	40.00	●
9.000	10.000	103.00	61.00	40.00	●
9.100	10.000	103.00	61.00	40.00	○
9.500	10.000	103.00	61.00	40.00	●
9.800	10.000	103.00	61.00	40.00	●
10.000	10.000	103.00	61.00	40.00	●
10.100	12.000	118.00	71.00	45.00	○
10.200	12.000	118.00	71.00	45.00	●
10.500	12.000	118.00	71.00	45.00	●
11.000	12.000	118.00	71.00	45.00	●
11.200	12.000	118.00	71.00	45.00	●
11.500	12.000	118.00	71.00	45.00	●
11.800	12.000	118.00	71.00	45.00	●
12.000	12.000	118.00	71.00	45.00	●
12.100	14.000	124.00	77.00	45.00	○
12.500	14.000	124.00	77.00	45.00	●
13.000	14.000	124.00	77.00	45.00	●
13.500	14.000	124.00	77.00	45.00	●
14.000	14.000	124.00	77.00	45.00	●

SuperV drills, 3-fluted



Catalog no.	71862
Tool material	Solid Carbide
Carbide grade	K
Discount group	109
Surface	bright
Type	SuperV83-GAL
Drilling depth	5xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
14.100	16.000	133.00	83.00	48.00	○
14.500	16.000	133.00	83.00	48.00	●
15.000	16.000	133.00	83.00	48.00	●
15.500	16.000	133.00	83.00	48.00	●
16.000	16.000	133.00	83.00	48.00	●
16.500	18.000	143.00	93.00	48.00	●
17.000	18.000	143.00	93.00	48.00	●
17.500	18.000	143.00	93.00	48.00	●
18.000	18.000	143.00	93.00	48.00	●
18.500	20.000	153.00	101.00	50.00	●
19.000	20.000	153.00	101.00	50.00	●
19.500	20.000	153.00	101.00	50.00	●
20.000	20.000	153.00	101.00	50.00	●

SuperV-drills

SuperV-NX solid carbide high-performance microdrills

Catalog no. 71998

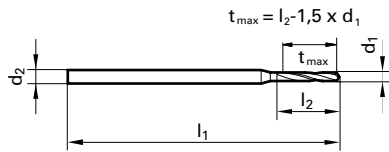


High-performance micro precision drill. For drilling into long and short chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm², including carbon steels, stainless materials, cast iron and high-alloyed AlSi-alloys. Four facet point, 140° point angle with honed cutting edges for higher performance and breaking the swarf.

Stock std. 4xD

Tool material	Solid Carbide
Surface	AlTiN+
Type	SuperV-NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	0.50
Tolerance on Ø	m7
Helix angle: normal Web tickness: normal Web taper: normal Flute form: special	

SuperV-NX solid carbide high-performance microdrills



Catalog no.	71998
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	164
Surface	AlTiN+
Type	SuperV-NX
Drilling depth	4xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	price per piece
	0.500	3.000	47.00	3.00	●
	0.550	3.000	47.00	3.30	●
	0.600	3.000	47.00	3.60	●
	0.650	3.000	47.00	3.90	●
	0.700	3.000	47.00	4.20	●
	0.750	3.000	47.00	4.50	●
	0.800	3.000	47.00	4.80	●
	0.850	3.000	47.00	5.10	●
	0.900	3.000	47.00	5.40	●
	0.950	3.000	47.00	5.70	●
	1.000	3.000	47.00	6.00	●
	1.050	3.000	47.00	6.30	●
	1.100	3.000	47.00	6.60	●
	1.150	3.000	47.00	6.90	●
	1.200	3.000	47.00	7.20	●
	1.250	3.000	47.00	7.50	●
	1.300	3.000	47.00	7.80	●
	1.350	3.000	47.00	8.10	●
	1.400	3.000	47.00	8.40	●
	1.450	3.000	47.00	8.70	●
	1.500	3.000	47.00	9.00	●
1/16	1.550	3.000	47.00	9.30	●
	1.590	3.000	47.00	9.60	●
	1.600	3.000	47.00	9.60	●
	1.650	3.000	47.00	9.90	●
	1.700	3.000	47.00	10.20	●
	1.750	3.000	47.00	10.50	●
	1.800	3.000	52.00	10.80	●
	1.850	3.000	52.00	11.10	●
	1.900	3.000	52.00	11.40	●
5/64	1.950	3.000	52.00	11.70	●
	1.980	4.000	59.00	12.00	●
	2.000	4.000	59.00	12.00	●
	2.050	4.000	59.00	12.30	●
	2.100	4.000	59.00	12.60	●
	2.150	4.000	59.00	12.90	●
	2.200	4.000	59.00	13.20	●
	2.250	4.000	59.00	13.50	●
	2.300	4.000	59.00	13.80	●
3/32	2.350	4.000	59.00	14.10	●
	2.380	4.000	59.00	14.40	●
	2.400	4.000	59.00	14.40	●
	2.450	4.000	59.00	14.70	●
	2.500	4.000	59.00	15.00	●
	2.550	4.000	59.00	15.30	●
	2.600	4.000	59.00	15.60	●
	2.650	4.000	59.00	15.90	●
	2.700	4.000	59.00	16.20	●
7/64	2.750	4.000	59.00	16.50	●
	2.780	4.000	59.00	16.80	●
	2.800	4.000	59.00	16.80	●
	2.850	4.000	59.00	17.10	●
	2.900	4.000	59.00	17.40	●
	2.950	4.000	59.00	17.70	●
	3.000	4.000	59.00	18.00	●

SuperV-drills

SuperV-NX solid carbide high-performance microdrills

Catalog no. 71999

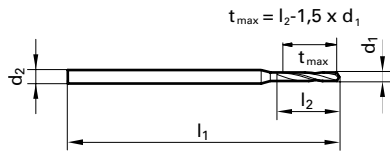


High-performance micro precision drill. For drilling into long and short chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm², including carbon steels, stainless materials, cast iron and high-alloyed AlSi-alloys. Four facet point, 140° point angle with honed cutting edges for higher performance and breaking the swarf.

Stock std. 7xD

Tool material	Solid Carbide
Surface	AlTiN+
Type	SuperV-NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	0.50
Tolerance on Ø	m7
Helix angle: normal	
Web tickness: normal	
Web taper: normal	
Flute form: special	

SuperV-NX solid carbide high-performance microdrills



Catalog no.	71999
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	164
Surface	AlTiN+
Type	SuperV-NX
Drilling depth	7xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	price per piece
	0.500	3.000	47.00	4.00	●
	0.550	3.000	47.00	4.40	●
	0.600	3.000	47.00	4.80	●
	0.650	3.000	47.00	5.20	●
	0.700	3.000	47.00	5.60	●
	0.750	3.000	47.00	6.00	●
	0.800	3.000	47.00	6.40	●
	0.850	3.000	47.00	6.80	●
	0.900	3.000	47.00	7.20	●
	0.950	3.000	47.00	7.60	●
	1.000	3.000	47.00	8.00	●
	1.050	3.000	47.00	8.40	●
	1.100	3.000	47.00	8.80	●
	1.150	3.000	47.00	9.20	●
	1.200	3.000	52.00	10.80	●
	1.250	3.000	52.00	11.30	●
	1.300	3.000	52.00	11.70	●
	1.350	3.000	52.00	12.20	●
	1.400	3.000	52.00	12.60	●
	1.450	3.000	52.00	13.10	●
	1.500	3.000	52.00	13.50	●
1/16	1.550	3.000	52.00	14.00	●
	1.590	3.000	52.00	14.40	●
	1.600	3.000	52.00	14.40	●
	1.650	3.000	52.00	14.90	●
	1.700	3.000	52.00	15.30	●
	1.750	3.000	52.00	15.80	●
	1.800	3.000	52.00	16.20	●
	1.850	3.000	52.00	16.70	●
	1.900	3.000	52.00	17.10	●
5/64	1.950	3.000	52.00	17.60	●
	1.980	4.000	63.00	18.00	●
	2.000	4.000	63.00	18.00	●
	2.050	4.000	63.00	18.50	●
	2.100	4.000	63.00	18.90	●
	2.150	4.000	63.00	19.40	●
	2.200	4.000	63.00	19.80	●
	2.250	4.000	63.00	20.30	●
	2.300	4.000	63.00	20.70	●
3/32	2.350	4.000	63.00	21.20	●
	2.380	4.000	63.00	21.60	●
	2.400	4.000	63.00	21.60	●
	2.450	4.000	63.00	22.10	●
	2.500	4.000	63.00	22.50	●
	2.550	4.000	63.00	23.00	●
	2.600	4.000	67.00	23.40	●
	2.650	4.000	67.00	23.90	●
	2.700	4.000	67.00	24.30	●
7/64	2.750	4.000	67.00	24.80	●
	2.780	4.000	67.00	25.20	●
	2.800	4.000	67.00	25.20	●
	2.850	4.000	67.00	25.70	●
	2.900	4.000	67.00	26.10	●
	2.950	4.000	67.00	26.60	●
	3.000	4.000	67.00	27.00	●

SuperV-drills

SuperV-NX solid carbide high-performance microdrills

Catalog no. 51998

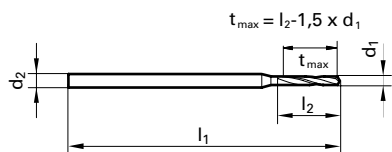


High-performance micro precision drill. For drilling into long and short chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm², including carbon steels, stainless materials, cast iron and high-alloyed AlSi-alloys. Four facet point, 135° point angle with honed cutting edges for higher performance and breaking the swarf.

Stock std. 8xD

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperV-IK-NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	135
Web thinned ≥Ø	1.40
Tolerance on Ø	h7
Helix angle: normal	
Web tickness: normal	
Web taper: normal	
Flute form: special	

SuperV-NX solid carbide high-performance microdrills



Catalog no.	51998
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	164
Surface	AlTiN
Type	SuperV-IK-NX
Drilling depth	8xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	price per piece
	1.400	4.000	52.00	15.00	●
	1.450	4.000	52.00	16.00	●
	1.500	4.000	52.00	17.00	●
1/16	1.550	4.000	52.00	17.00	●
	1.590	4.000	52.00	18.00	●
	1.600	4.000	52.00	18.00	●
	1.650	4.000	52.00	18.00	●
	1.700	4.000	56.00	19.00	●
	1.750	4.000	56.00	19.00	●
	1.800	4.000	56.00	20.00	●
	1.850	4.000	56.00	20.00	●
	1.900	4.000	56.00	21.00	●
5/64	1.950	4.000	56.00	21.00	●
	1.980	4.000	56.00	22.00	●
	2.000	4.000	56.00	22.00	●
	2.050	4.000	56.00	23.00	●
	2.100	4.000	62.00	23.00	●
	2.150	4.000	62.00	24.00	●
	2.200	4.000	62.00	24.00	●
	2.250	4.000	62.00	25.00	●
	2.300	4.000	62.00	25.00	●
3/32	2.350	4.000	62.00	26.00	●
	2.380	4.000	62.00	26.00	●
	2.400	4.000	62.00	26.00	●
	2.450	4.000	62.00	27.00	●
	2.500	4.000	62.00	28.00	●
	2.550	4.000	62.00	28.00	●
	2.600	4.000	66.00	29.00	●
	2.650	4.000	66.00	29.00	●
	2.700	4.000	66.00	30.00	●
7/64	2.750	4.000	66.00	30.00	●
	2.780	4.000	66.00	31.00	●
	2.800	4.000	66.00	31.00	●
	2.850	4.000	66.00	31.00	●
	2.900	4.000	66.00	32.00	●
	2.950	4.000	66.00	32.00	●
	3.000	4.000	66.00	33.00	●

SuperV-drills

SuperV-NX solid carbide high-performance microdrills

Catalog no. 51999

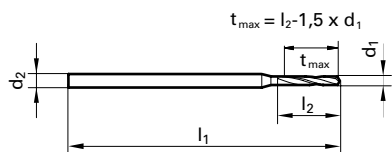


High-performance micro precision drill. For drilling into long and short chipping materials such as structural and case hardened steels, cast steels, heat-treatable steels and alloyed steels with a tensile strength of up to 1200 N/mm², including carbon steels, stainless materials, cast iron and high-alloyed AlSi-alloys. Four facet point, 135° point angle with honed cutting edges for higher performance and breaking the swarf.

Stock std. 15xD

Tool material	Solid Carbide
Surface	AlTiN - tip coated
Type	SuperV-IK-NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	135
Web thinned ≥Ø	1.40
Tolerance on Ø	h7
Helix angle: normal	
Web tickness: normal	
Web taper: normal	
Flute form: special	

SuperV-NX solid carbide high-performance microdrills



Catalog no.	51999
Tool material	Solid Carbide
Carbide grade	K/P
Discount group	164
Surface	AlTiN - tip coated
Type	SuperV-IK-NX
Drilling depth	15xD

d1 inch	d1 mm	d2 mm	l1 mm	l2 mm	price per piece
1/16	1.400	4.000	62.00	25.00	●
	1.500	4.000	62.00	27.00	●
	1.590	4.000	62.00	29.00	●
	1.600	4.000	62.00	29.00	●
	1.700	4.000	70.00	31.00	●
5/64	1.800	4.000	70.00	32.00	●
	1.900	4.000	70.00	34.00	●
	1.980	4.000	70.00	36.00	●
	2.000	4.000	70.00	36.00	●
	2.100	4.000	78.00	38.00	●
3/32	2.200	4.000	78.00	40.00	●
	2.300	4.000	78.00	42.00	●
	2.380	4.000	78.00	44.00	●
	2.400	4.000	78.00	44.00	●
	2.500	4.000	78.00	45.00	●
7/64	2.600	4.000	87.00	47.00	●
	2.700	4.000	87.00	48.00	●
	2.780	4.000	87.00	50.00	●
	2.800	4.000	87.00	50.00	●
	2.900	4.000	87.00	52.00	●
	3.000	4.000	87.00	54.00	●

SuperV Drilling system

Tool holders SuperV-AP mini

Catalog no. 77007



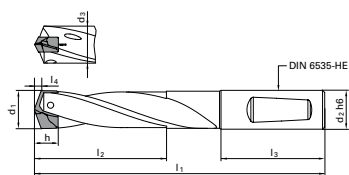
Interchangeable insert holder for highest stability and precision. With internal coolant and wide flutes for optimal chip evacuation. Tough and precise clamping due to the reinforced shank acc. DIN 6535 H. The simple and quick change of the insert enables an easy adaption to different applications. The stabile insert-seat is wear-resistant and allows frequent insert changings. Improved guidance of the tool inside the hole secures a better surface finish.

This type (1.5xD) is the pilot tool for drilling depth >5xD.

Stock std. 1,5xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP mini</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	

Tool holders SuperV-AP mini



Catalog no. 77007
Discount group 140
Cooling axial
Type SuperV-AP mini
Drilling depth 1,5xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 max mm	l3 mm	Code no.	price per piece
110	11,00-11,49	12.000	10.700	84.00	19.30	45.00	11.000	●
115	11,50-11,99	12.000	11.200	85.00	20.10	45.00	11.500	●
120	12,00-12,49	12.000	11.700	87.00	21.00	45.00	12.000	●
125	12,50-12,99	14.000	12.200	89.00	21.90	45.00	12.500	●
130	13,00-13,49	14.000	12.700	90.00	22.60	45.00	13.000	●
135	13,50-13,99	14.000	13.200	92.00	23.60	45.00	13.500	●
140	14,00-14,49	14.000	13.700	93.00	24.50	45.00	14.000	●
145	14,50-14,99	16.000	14.200	98.00	25.30	48.00	14.500	●
150	15,00-15,49	16.000	14.700	100.00	26.10	48.00	15.000	●
155	15,50-15,99	16.000	15.200	101.00	27.00	48.00	15.500	●
160	16,00-16,49	16.000	15.700	102.00	27.80	48.00	16.000	●
165	16,50-16,99	18.000	16.200	105.00	28.70	48.00	16.500	●
170	17,00-17,49	18.000	16.700	106.00	29.60	48.00	17.000	●
175	17,50-17,99	18.000	17.200	107.00	30.40	48.00	17.500	●
180	18,00-18,49	18.000	17.700	109.00	31.20	48.00	18.000	●
185	18,50-18,99	20.000	18.200	113.00	32.10	50.00	18.500	●
190	19,00-19,49	20.000	18.700	114.00	32.90	50.00	19.000	●
195	19,50-19,99	20.000	19.200	116.00	33.70	50.00	19.500	●
200	20,00-20,49	20.000	19.700	117.00	34.60	50.00	20.000	●
205	20,50-20,99	25.000	20.200	128.00	35.50	56.00	20.500	●
210	21,00-21,49	25.000	20.700	129.00	36.40	56.00	21.000	●
215	21,50-21,99	25.000	21.200	130.00	37.20	56.00	21.500	●
220	22,00-22,49	25.000	21.700	131.00	38.00	56.00	22.000	●
225	22,50-22,99	25.000	22.200	134.00	38.90	56.00	22.500	●
230	23,00-23,49	25.000	22.700	135.00	39.80	56.00	23.000	●
235	23,50-23,99	25.000	23.200	137.00	40.60	56.00	23.500	●
240	24,00-24,49	25.000	23.700	138.00	41.50	56.00	24.000	●
245	24,50-24,99	25.000	24.200	140.00	42.30	56.00	24.500	●
250	25,00-25,49	25.000	24.700	142.00	43.20	56.00	25.000	●
255	25,50-25,99	32.000	25.200	148.00	44.00	60.00	25.500	●
260	26,00-26,49	32.000	25.700	151.00	44.30	60.00	26.000	●
265	26,50-26,99	32.000	26.200	153.00	45.10	60.00	26.500	●
270	27,00-27,49	32.000	26.700	155.00	46.00	60.00	27.000	●
275	27,50-27,99	32.000	27.200	156.00	46.00	60.00	27.500	●
280	28,00-28,49	32.000	27.700	157.00	47.70	60.00	28.000	●
285	28,50-28,99	32.000	28.200	159.00	48.50	60.00	28.500	●
290	29,00-29,49	32.000	28.700	161.00	49.40	60.00	29.000	●
295	29,50-29,99	32.000	29.200	162.00	50.20	60.00	29.500	●
300	30,00-30,49	32.000	29.700	164.00	50.90	60.00	30.000	●
305	30,50-30,99	32.000	30.200	166.00	51.70	60.00	30.500	●
310	31,00-31,49	32.000	30.700	167.00	52.60	60.00	31.000	●
315	31,50-31,99	32.000	31.200	168.00	53.40	60.00	31.500	●
320	32,00-32,99	32.000	31.700	172.00	55.10	60.00	32.000	●
330	33,00-33,99	32.000	32.700	175.00	56.80	60.00	33.000	●
340	34,00-34,99	32.000	33.700	178.00	58.50	60.00	34.000	●
350	35,00-35,99	32.000	34.700	181.00	60.20	60.00	35.000	●
360	36,00-36,99	32.000	35.700	184.00	61.80	60.00	36.000	●
370	37,00-37,99	32.000	36.700	188.00	63.50	60.00	37.000	●
380	38,00-38,99	32.000	37.700	191.00	65.20	60.00	38.000	●
390	39,00-40,00	32.000	38.700	194.00	66.90	60.00	39.000	●

SuperV Drilling system

Tool holders SuperV-AP mini

Catalog no. 77000



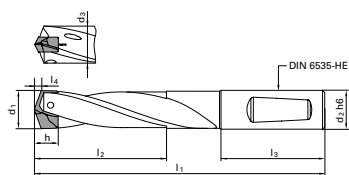
Interchangeable insert holder for highest stability and precision. With internal coolant and wide flutes for optimal chip evacuation. Tough and precise clamping due to the reinforced shank acc. DIN 6535 HE.

The simple and quick change of the insert enables an easy adaption to different applications. The stabile insert-seat is wear-resistant and allows frequent insert changings. Improved guidance of the tool inside the hole secures a better surface finish.

Stock std. 3xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP mini</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	

Tool holders SuperV-AP mini



Catalog no. 77000
Discount group 140
Cooling axial
Type SuperV-AP mini
Drilling depth 3xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 max mm	l3 mm	Code no.	price per piece
110	11,00-11,49	12.000	10.700	101.00	36.60	45.00	11.000	●
115	11,50-11,99	12.000	11.200	103.00	38.10	45.00	11.500	●
120	12,00-12,49	12.000	11.700	106.00	39.70	45.00	12.000	●
125	12,50-12,99	14.000	12.200	108.00	41.30	45.00	12.500	●
130	13,00-13,49	14.000	12.700	110.00	42.90	45.00	13.000	●
135	13,50-13,99	14.000	13.200	113.00	44.60	45.00	13.500	●
140	14,00-14,49	14.000	13.700	115.00	46.20	45.00	14.000	●
145	14,50-14,99	16.000	14.200	120.00	47.80	48.00	14.500	●
150	15,00-15,49	16.000	14.700	123.00	49.30	48.00	15.000	●
155	15,50-15,99	16.000	15.200	125.00	50.90	48.00	15.500	●
160	16,00-16,49	16.000	15.700	127.00	52.90	48.00	16.000	●
165	16,50-16,99	18.000	16.200	130.00	54.10	48.00	16.500	●
170	17,00-17,49	18.000	16.700	132.00	55.80	48.00	17.000	●
175	17,50-17,99	18.000	17.200	134.00	57.40	48.00	17.500	●
180	18,00-18,49	18.000	17.700	137.00	58.90	48.00	18.000	●
185	18,50-18,99	20.000	18.200	141.00	60.50	50.00	18.500	●
190	19,00-19,49	20.000	18.700	143.00	62.10	50.00	19.000	●
195	19,50-19,99	20.000	19.200	146.00	63.70	50.00	19.500	●
200	20,00-20,49	20.000	19.700	148.00	65.30	50.00	20.000	●
205	20,50-20,99	25.000	20.200	159.00	67.00	56.00	20.500	●
210	21,00-21,49	25.000	20.700	161.00	68.60	56.00	21.000	●
215	21,50-21,99	25.000	21.200	163.00	70.10	56.00	21.500	●
220	22,00-22,49	25.000	21.700	165.00	71.70	56.00	22.000	●
225	22,50-22,99	25.000	22.200	168.00	73.30	56.00	22.500	●
230	23,00-23,49	25.000	22.700	170.00	74.90	56.00	23.000	●
235	23,50-23,99	25.000	23.200	173.00	76.50	56.00	23.500	●
240	24,00-24,49	25.000	23.700	175.00	78.10	56.00	24.000	●
245	24,50-24,99	25.000	24.200	177.00	79.70	56.00	24.500	●
250	25,00-25,49	25.000	24.700	180.00	81.30	56.00	25.000	●
255	25,50-25,99	32.000	25.200	187.00	82.90	60.00	25.500	●
260	26,00-26,49	32.000	25.700	191.00	84.00	60.00	26.000	●
265	26,50-26,99	32.000	26.200	193.00	86.10	60.00	26.500	●
270	27,00-27,49	32.000	26.700	196.00	87.20	60.00	27.000	●
275	27,50-27,99	32.000	27.200	198.00	88.90	60.00	27.500	●
280	28,00-28,49	32.000	27.700	200.00	90.40	60.00	28.000	●
285	28,50-28,99	32.000	28.200	202.00	92.50	60.00	28.500	●
290	29,00-29,49	32.000	28.700	205.00	94.60	60.00	29.000	●
295	29,50-29,99	32.000	29.200	207.00	95.10	60.00	29.500	●
300	30,00-30,49	32.000	29.700	210.00	96.70	60.00	30.000	●
305	30,50-30,99	32.000	30.200	212.00	98.30	60.00	30.500	●
310	31,00-31,49	32.000	30.700	214.00	99.80	60.00	31.000	●
315	31,50-31,99	32.000	31.200	216.00	101.40	60.00	31.500	●
320	32,00-32,99	32.000	31.700	221.00	104.60	60.00	32.000	●
330	33,00-33,99	32.000	32.700	226.00	107.80	60.00	33.000	●
340	34,00-34,99	32.000	33.700	230.00	111.00	60.00	34.000	●
350	35,00-35,99	32.000	34.700	235.00	114.20	60.00	35.000	●
360	36,00-36,99	32.000	35.700	240.00	117.30	60.00	36.000	●
370	37,00-37,99	32.000	36.700	245.00	120.50	60.00	37.000	●
380	38,00-38,99	32.000	37.700	249.00	123.70	60.00	38.000	●
390	39,00-39,99	32.000	38.700	254.00	126.90	60.00	39.000	●

SuperV Drilling system

Tool holders SuperV-AP mini

Catalog no. 77001



Interchangeable insert holder for highest stability and precision. With internal coolant and wide flutes for optimal chip evacuation. Tough and precise clamping due to the reinforced shank acc. DIN 6535 HE.

The simple and quick change of the insert enables an easy adaption to different applications. The stable insert-seat is wear-resistant and allows frequent insert changings. Improved guidance of the tool inside the hole secures a better surface finish.

Stock std. 5xD

Tool material

Surface nickel-plated

Type *SuperV-AP mini*

Cutting direction right-hand

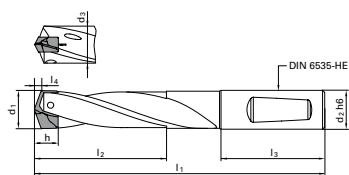
Point grinding

Point angle °

Web thinned $\geq \emptyset$

Tolerance on \emptyset

Tool holders SuperV-AP mini



Catalog no. 77001
Discount group 140
Cooling axial
Type SuperV-AP mini
Drilling depth 5xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 max mm	l3 mm	Code no.	price per piece
110	11,00-11,49	12.000	10.700	124.00	59.60	45.00	11.000	●
115	11,50-11,99	12.000	11.200	127.00	62.10	45.00	11.500	●
120	12,00-12,49	12.000	11.700	131.00	64.70	45.00	12.000	●
125	12,50-12,99	14.000	12.200	134.00	67.30	45.00	12.500	●
130	13,00-13,49	14.000	12.700	137.00	69.90	45.00	13.000	●
135	13,50-13,99	14.000	13.200	141.00	72.60	45.00	13.500	●
140	14,00-14,49	14.000	13.700	144.00	75.20	45.00	14.000	●
145	14,50-14,99	16.000	14.200	150.00	77.80	48.00	14.500	●
150	15,00-15,49	16.000	14.700	154.00	80.30	48.00	15.000	●
155	15,50-15,99	16.000	15.200	157.00	82.90	48.00	15.500	●
160	16,00-16,49	16.000	15.700	160.00	85.90	48.00	16.000	●
165	16,50-16,99	18.000	16.200	164.00	88.10	48.00	16.500	●
170	17,00-17,49	18.000	16.700	167.00	90.80	48.00	17.000	●
175	17,50-17,99	18.000	17.200	170.00	93.40	48.00	17.500	●
180	18,00-18,49	18.000	17.700	174.00	95.90	48.00	18.000	●
185	18,50-18,99	20.000	18.200	179.00	98.50	50.00	18.500	●
190	19,00-19,49	20.000	18.700	182.00	101.10	50.00	19.000	●
195	19,50-19,99	20.000	19.200	186.00	103.70	50.00	19.500	●
200	20,00-20,49	20.000	19.700	189.00	106.30	50.00	20.000	●
205	20,50-20,99	25.000	20.200	201.00	109.00	56.00	20.500	●
210	21,00-21,49	25.000	20.700	204.00	111.60	56.00	21.000	●
215	21,50-21,99	25.000	21.200	207.00	114.10	56.00	21.500	●
220	22,00-22,49	25.000	21.700	210.10	116.70	56.00	22.000	●
225	22,50-22,99	25.000	22.200	214.10	119.30	56.00	22.500	●
230	23,00-23,49	25.000	22.700	217.00	121.90	56.00	23.000	●
235	23,50-23,99	25.000	23.200	221.00	124.50	56.00	23.500	●
240	24,00-24,49	25.000	23.700	224.00	127.10	56.00	24.000	●
245	24,50-24,99	25.000	24.200	227.00	129.70	56.00	24.500	●
250	25,00-25,49	25.000	24.700	231.00	132.30	56.00	25.000	●
255	25,50-25,99	32.000	25.200	239.00	134.90	60.00	25.500	●
260	26,00-26,49	32.000	25.700	244.00	137.00	60.00	26.000	●
265	26,50-26,99	32.000	26.200	247.00	140.00	60.00	26.500	●
270	27,00-27,49	32.000	26.700	251.00	142.20	60.00	27.000	●
275	27,50-27,99	32.000	27.200	254.00	144.80	60.00	27.500	●
280	28,00-28,49	32.000	27.700	257.00	147.40	60.00	28.000	●
285	28,50-28,99	32.000	28.200	260.00	150.40	60.00	28.500	●
290	29,00-29,49	32.000	28.700	264.00	153.50	60.00	29.000	●
300	30,00-30,49	32.000	29.700	271.00	157.60	60.00	30.000	●
305	30,50-30,99	32.000	30.200	274.00	160.20	60.00	30.500	●
310	31,00-31,49	32.000	30.700	277.00	162.80	60.00	31.000	●
315	31,50-31,99	32.000	31.200	280.00	165.40	60.00	31.500	●
320	32,00-32,99	32.000	31.700	287.00	170.60	60.00	32.000	●
330	33,00-33,99	32.000	32.700	294.00	175.80	60.00	33.000	●
340	34,00-34,99	32.000	33.700	300.00	181.00	60.00	34.000	●
350	35,00-35,99	32.000	34.700	307.00	186.20	60.00	35.000	●
360	36,00-36,99	32.000	35.700	314.00	191.30	60.00	36.000	●
370	37,00-37,99	32.000	36.700	321.00	196.50	60.00	37.000	●
380	38,00-38,99	32.000	37.700	327.00	201.70	60.00	38.000	●
390	39,00-39,99	32.000	38.700	334.00	206.90	60.00	39.000	●

SuperV Drilling system

Tool holders SuperV-AP mini

Catalog no. 77003



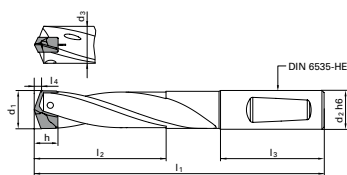
Interchangeable insert holder for highest stability and precision. With internal coolant and wide flutes for optimal chip evacuation. Tough and precise clamping due to the reinforced shank acc. DIN 6535 HE.

The simple and quick change of the insert enables an easy adaption to different applications. The stabile insert-seat is wear-resistant and allows frequent insert changings. Improved guidance of the tool inside the hole secures a better surface finish.

Stock std. 7xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP mini</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	

Tool holders SuperV-AP mini



Catalog no. 77003
Discount group 140
Cooling axial
Type SuperV-AP mini
Drilling depth 7xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 max mm	l3 mm	Code no.	price per piece
110	11,00-11,49	12.000	10.700	147.00	82.60	45.00	11.000	●
115	11,50-11,99	12.000	11.200	151.00	86.10	45.00	11.500	●
120	12,00-12,49	12.000	11.700	156.00	89.70	45.00	12.000	●
125	12,50-12,99	14.000	12.200	160.00	93.30	45.00	12.500	●
130	13,00-13,49	14.000	12.700	164.00	96.90	45.00	13.000	●
135	13,50-13,99	14.000	13.200	169.00	100.60	45.00	13.500	●
140	14,00-14,49	14.000	13.700	173.00	104.20	45.00	14.000	●
145	14,50-14,99	16.000	14.200	180.00	107.80	48.00	14.500	●
150	15,00-15,49	16.000	14.700	185.00	111.30	48.00	15.000	●
155	15,50-15,99	16.000	15.200	189.00	114.90	48.00	15.500	●
160	16,00-16,49	16.000	15.700	193.00	118.90	48.00	16.000	●
165	16,50-16,99	18.000	16.200	198.00	122.10	48.00	16.500	●
170	17,00-17,49	18.000	16.700	202.00	125.80	48.00	17.000	●
175	17,50-17,99	18.000	17.200	206.00	129.40	48.00	17.500	●
180	18,00-18,49	18.000	17.700	211.00	132.90	48.00	18.000	●
185	18,50-18,99	20.000	18.200	217.00	136.50	50.00	18.500	●
190	19,00-19,49	20.000	18.700	221.00	140.10	50.00	19.000	●
195	19,50-19,99	20.000	19.200	226.00	143.70	50.00	19.500	●
200	20,00-20,49	20.000	19.700	230.00	147.30	50.00	20.000	●
205	20,50-20,99	25.000	20.200	243.00	151.00	56.00	20.500	●
210	21,00-21,49	25.000	20.700	247.00	154.60	56.00	21.000	●
215	21,50-21,99	25.000	21.200	251.00	158.10	56.00	21.500	●
220	22,00-22,49	25.000	21.700	255.00	161.70	56.00	22.000	●
225	22,50-22,99	25.000	22.200	260.00	165.30	56.00	22.500	●
230	23,00-23,49	25.000	22.700	264.00	168.90	56.00	23.000	●
235	23,50-23,99	25.000	23.200	269.00	172.50	56.00	23.500	●
240	24,00-24,49	25.000	23.700	273.00	176.10	56.00	24.000	●
245	24,50-24,99	25.000	24.200	277.00	179.70	56.00	24.500	●
250	25,00-25,49	25.000	24.700	282.00	183.30	56.00	25.000	●
255	25,50-25,99	32.000	25.200	291.00	186.90	60.00	25.500	●
260	26,00-26,49	32.000	25.700	297.00	190.00	60.00	26.000	●
265	26,50-26,99	32.000	26.200	301.00	194.00	60.00	26.500	●
270	27,00-27,49	32.000	26.700	306.00	197.20	60.00	27.000	●
275	27,50-27,99	32.000	27.200	310.00	200.80	60.00	27.500	●
280	28,00-28,49	32.000	27.700	314.00	204.40	60.00	28.000	●
285	28,50-28,99	32.000	28.200	318.00	208.40	60.00	28.500	●
290	29,00-29,49	32.000	28.700	323.00	212.50	60.00	29.000	●
295	29,50-29,99	32.000	29.200	327.00	215.10	60.00	29.500	●
300	30,00-30,49	32.000	29.700	332.00	218.60	60.00	30.000	●
305	30,50-30,99	32.000	30.200	336.00	222.20	60.00	30.500	●
310	31,00-31,49	32.000	30.700	340.00	225.80	60.00	31.000	●
315	31,50-31,99	32.000	31.200	344.00	229.40	60.00	31.500	●
330	33,00-33,99	32.000	32.700	362.00	244.60	60.00	33.000	●
360	36,00-36,99	32.000	35.700	387.00	265.80	60.00	36.000	●
390	39,00-39,99	32.000	38.700	413.00	287.40	60.00	39.000	●

SuperV Drilling system

Tool holders SuperV-AP mini

Stock std. 10xD

Catalog no. 77004



Interchangeable insert holder for highest stability and precision. With internal coolant and wide flutes for optimal chip evacuation. Tough and precise clamping due to the reinforced shank acc. DIN 6535 HE.

The simple and quick change of the insert enables an easy adaption to different applications. The stabile insert-seat is wear-resistant and allows frequent insert changings. Improved guidance of the tool inside the hole secures a better surface finish.

Tool material

Surface nickel-plated

Type *SuperV-AP mini*

Cutting direction right-hand

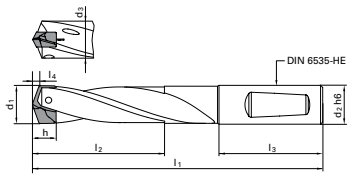
Point grinding

Point angle °

Web thinned $\geq \emptyset$

Tolerance on \emptyset

Tool holders SuperV-AP mini



Catalog no. 77004
Discount group 140
Cooling axial
Type SuperV-AP mini
Drilling depth 10xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 max mm	l3 mm	Code no.	price per piece
110	11,00-11,49	12.000	10.700	182.00	117.10	45.00	11.000	●
115	11,50-11,99	12.000	11.200	187.00	122.10	45.00	11.500	●
120	12,00-12,49	12.000	11.700	194.00	127.20	45.00	12.000	●
125	12,50-12,99	14.000	12.200	199.00	132.30	45.00	12.500	●
130	13,00-13,49	14.000	12.700	205.00	137.50	45.00	13.000	●
135	13,50-13,99	14.000	13.200	211.00	142.50	45.00	13.500	●
140	14,00-14,49	14.000	13.700	217.00	147.70	45.00	14.000	●
145	14,50-14,99	16.000	14.200	225.00	152.80	48.00	14.500	●
150	15,00-15,49	16.000	14.700	232.00	157.80	48.00	15.000	●
155	15,50-15,99	16.000	15.200	237.00	162.90	48.00	15.500	●
160	16,00-16,49	16.000	15.700	243.00	168.00	48.00	16.000	●
165	16,50-16,99	18.000	16.200	249.00	170.00	48.00	16.500	●
170	17,00-17,49	18.000	16.700	255.00	178.30	48.00	17.000	●
175	17,50-17,99	18.000	17.200	260.00	183.50	48.00	17.500	●
180	18,00-18,49	18.000	17.700	267.00	188.40	48.00	18.000	●
185	18,50-18,99	20.000	18.200	274.00	193.50	50.00	18.500	●
190	19,00-19,49	20.000	18.700	280.00	198.70	50.00	19.000	●
195	19,50-19,99	20.000	19.200	286.00	203.70	50.00	19.500	●
200	20,00-20,49	20.000	19.700	292.00	208.90	50.00	20.000	●
205	20,50-20,99	25.000	20.200	306.00	214.00	56.00	20.500	●
210	21,00-21,49	25.000	20.700	312.00	219.10	56.00	21.000	●
215	21,50-21,99	25.000	21.200	317.00	224.20	56.00	21.500	●
220	22,00-22,49	25.000	21.700	323.00	229.30	56.00	22.000	●
225	22,50-22,99	25.000	22.200	329.00	234.40	56.00	22.500	●
230	23,00-23,49	25.000	22.700	335.00	239.50	56.00	23.000	●
235	23,50-23,99	25.000	23.200	341.00	244.60	56.00	23.500	●
240	24,00-24,49	25.000	23.700	347.00	249.70	56.00	24.000	●
245	24,50-24,99	25.000	24.200	352.00	254.80	56.00	24.500	●
250	25,00-25,49	25.000	24.700	359.00	259.90	56.00	25.000	●
255	25,50-25,99	32.000	25.200	369.00	265.00	60.00	25.500	●
260	26,00-26,49	32.000	25.700	377.00	270.00	60.00	26.000	●
265	26,50-26,99	32.000	26.200	382.00	275.00	60.00	26.500	●
270	27,00-27,49	32.000	26.700	388.00	280.10	60.00	27.000	●
275	27,50-27,99	32.000	27.200	394.00	285.20	60.00	27.500	●
280	28,00-28,49	32.000	27.700	400.00	290.30	60.00	28.000	●
285	28,50-28,99	32.000	28.200	405.00	295.40	60.00	28.500	●
290	29,00-29,49	32.000	28.700	412.00	300.50	60.00	29.000	●
295	29,50-29,99	32.000	29.200	418.00	305.60	60.00	29.500	●
300	30,00-30,49	32.000	29.700	424.00	310.60	60.00	30.000	●
305	30,50-30,99	32.000	30.200	429.00	315.70	60.00	30.500	●
310	31,00-31,49	32.000	30.700	435.00	320.80	60.00	31.000	●
315	31,50-31,99	32.000	31.200	441.00	325.90	60.00	31.500	●

SuperV Drilling system

Interchangeable inserts for SuperV-AP mini

Catalog no. 57011



High-performance interchangeable insert for machining cast iron, grey cast iron, malleable cast iron, spheroidal graphite iron. The special cutting geometry and the applied coating results in a high wear-resistance.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperV-AP mini GG
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	
Tolerance on Ø	m7
web thinning: SuperV helix angle: normal	

Interchangeable inserts for SuperV-AP mini

Catalog no. 67011

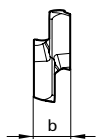
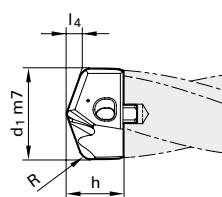


High-performance interchangeable insert for machining short and long chipping materials such as steel, cast steel upto 1200 N/mm² tensile strength. Multi purpose application for a large range of materials. The special cutting geometry and the applied coating results in a high wear-resistance.

Stock std.

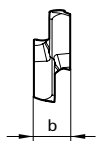
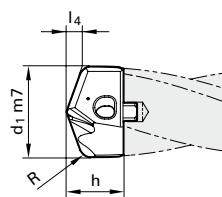
Tool material	Solid Carbide
Surface	TiAlN nano
Type	SuperV-AP mini U
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	140
Web thinned ≥Ø	
Tolerance on Ø	h7
web thinning: SuperV helix angle: normal	

Interchangeable inserts for SuperV-AP mini



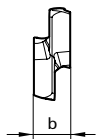
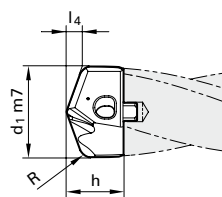
							Catalog no.	57011	67011
							Tool material	Solid Carbide	
							Carbide grade	K/P	
							Discount group	141	141
							Surface	TiAlN	TiAlN nano
							Type	SuperV-AP mini GG	SuperV-AP mini U
holder size	d1 h7	d1 h7	l4	b	h	Code no.	price per piece		
	inch	mm	mm	mm	mm				
110		11.000	2.10	4.500	9.60	11.000	●		●
110		11.200	2.10	4.500	9.60	11.200	●		●
115		11.500	2.10	4.500	9.60	11.500	●		●
115	29/64	11.510	2.10	4.500	9.60	11.510	●		●
115		11.700	2.20	4.500	9.60	11.700	●		●
115		11.800	2.20	4.500	9.60	11.800	●		●
115	15/32	11.910	2.20	4.500	9.60	11.910	●		●
120		12.000	2.20	5.000	9.80	12.000	●		●
120		12.100	2.30	5.000	9.80	12.100	●		●
120		12.200	2.30	5.000	9.80	12.200	●		●
120	31/64	12.300	2.30	5.000	9.80	12.300	●		●
125		12.500	2.30	5.000	9.80	12.500	●		●
125		12.600	2.30	5.000	9.80	12.600	●		●
125	1/2	12.700	2.40	5.000	9.80	12.700	●		●
125		12.800	2.40	5.000	9.80	12.800	●		●
125		12.900	2.40	5.000	9.80	12.900	●		●
130		13.000	2.40	5.500	10.60	13.000	●		●
130	33/64	13.100	2.40	5.500	10.60	13.100	●		●
130	17/32	13.490	2.50	5.500	10.60	13.490	●		●
135		13.500	2.50	5.500	10.60	13.500	●		●
135		13.600	2.50	5.500	10.60	13.600	●		●
135		13.700	2.50	5.500	10.60	13.700	●		●
135		13.800	2.60	5.500	10.60	13.800	●		●
135	35/64	13.890	2.60	5.500	10.60	13.890	●		●
140		14.000	2.60	6.000	12.20	14.000	●		●
140		14.100	2.60	6.000	12.20	14.100	●		●
140	9/16	14.290	2.70	6.000	12.20	14.290	●		●
140		14.400	2.70	6.000	12.20	14.400	●		●
145		14.500	2.70	6.000	12.20	14.500	●		●
145		14.600	2.70	6.000	12.20	14.600	●		●
145	37/64	14.680	2.70	6.000	12.20	14.680	●		●
145		14.700	2.70	6.000	12.20	14.700	●		●
145		14.800	2.70	6.000	12.20	14.800	●		●
150		15.000	2.80	6.000	12.40	15.000	●		●
150	19/32	15.080	2.80	6.000	12.40	15.080	●		●
150		15.100	2.80	6.000	12.40	15.100	●		●
150		15.200	2.80	6.000	12.40	15.200	●		●
150		15.300	2.80	6.000	12.40	15.300	●		●
150	39/64	15.480	2.90	6.000	12.40	15.480	●		●
155		15.500	2.90	6.000	12.40	15.500	●		●
155		15.600	2.90	6.000	12.40	15.600	●		●
155		15.700	2.90	6.000	12.40	15.700	●		●
155		15.800	2.90	6.000	12.40	15.800	●		●
155	5/8	15.870	2.90	6.000	12.40	15.870	●		●
160		16.000	3.00	7.000	13.60	16.000	●		●
160	41/64	16.270	3.00	7.000	13.60	16.270	●		●
165		16.500	3.10	7.000	13.60	16.500	●		●
165	21/32	16.670	3.10	7.000	13.60	16.670	●		●
170		17.000	3.10	7.000	13.60	17.000	●		●
170	43/64	17.070	3.20	7.000	13.60	17.070	●		●
170	11/16	17.460	3.20	7.000	13.60	17.460	●		●
175		17.500	3.20	7.000	13.60	17.500	●		●
175		17.600	3.30	7.000	13.60	17.600	●		●
175	45/64	17.860	3.30	7.000	13.60	17.860	●		●
180		18.000	3.30	8.000	15.70	18.000	●		●
180	23/32	18.260	3.40	8.000	15.70	18.260	●		●
185		18.500	3.40	8.000	15.70	18.500	●		●
185	47/64	18.650	3.40	8.000	15.70	18.650	●		●
190		19.000	3.50	8.000	15.70	19.000	●		●
190	3/4	19.050	3.50	8.000	15.70	19.050	●		●

Interchangeable inserts for SuperV-AP mini



							Catalog no.	57011	67011
							Tool material	Solid Carbide	
							Carbide grade	K/P	
							Discount group	141	141
							Surface	TiAlN	TiAlN nano
							Type	SuperV-AP mini GG	SuperV-AP mini U
holder size	d1 h7	d1 h7	l4	b	h	Code no.	price per piece		
	inch	mm	mm	mm	mm				
190		19.250	3.60	8.000	15.70	19.250	●		●
190	49/64	19.450	3.60	8.000	15.70	19.450	●		●
195		19.500	3.60	8.000	15.70	19.500	●		●
195		19.600	3.60	8.000	15.70	19.600	●		●
195	25/32	19.840	3.70	8.000	15.70	19.840	●		●
200		20.000	3.70	9.000	17.00	20.000	●		●
200	51/64	20.240	3.70	9.000	17.00	20.240	●		●
205		20.500	3.80	9.000	17.00	20.500	●		●
205	13/16	20.640	3.80	9.000	17.00	20.640	●		●
210		21.000	3.90	9.000	17.00	21.000	●		●
210	53/64	21.030	3.90	9.000	17.00	21.030	●		●
210		21.100	3.90	9.000	17.00	21.100	●		●
210	27/32	21.430	3.90	9.000	17.00	21.430	●		●
215		21.500	4.00	9.000	17.00	21.500	●		●
215	55/64	21.830	4.00	9.000	17.00	21.830	●		●
220		22.000	4.10	10.000	18.40	22.000	●		●
220	7/8	22.220	4.10	10.000	18.40	22.220	●		●
225		22.500	4.10	10.000	18.40	22.500	●		●
225	57/64	22.620	4.20	10.000	18.40	22.620	●		●
230		23.000	4.20	10.000	18.40	23.000	●		●
230	29/32	23.020	4.20	10.000	18.40	23.020	●		●
230	59/64	23.420	4.30	10.000	18.40	23.420	●		●
235		23.500	4.30	10.000	18.40	23.500	●		●
235	15/16	23.810	4.40	10.000	18.40	23.810	●		●
240		24.000	4.40	11.000	18.90	24.000	●		●
240		24.100	4.40	11.000	18.90	24.100	●		●
240	61/64	24.210	4.50	11.000	18.90	24.210	●		●
245		24.500	4.50	11.000	18.90	24.500	●		●
245	31/32	24.610	4.50	11.000	18.90	24.610	●		●
250	63/64	25.000	4.60	11.000	18.90	25.000	●		●
250	1	25.400	4.70	11.000	18.90	25.400	●		●
255		25.500	4.70	11.000	18.90	25.500	●		●
255		25.670	4.70	11.000	18.90	25.670	●		●
255		25.700	4.70	11.000	18.90	25.700	●		●
255		25.810	4.70	11.000	18.90	25.810	●		●
260		26.000	4.80	12.000	23.60	26.000	●		●
260	1 1/32	26.190	4.80	12.000	23.60	26.190	●		●
260		26.500	4.90	12.000	23.60	26.500	●		●
260	1 3/64	26.590	4.90	12.000	23.60	26.590	●		●
270		27.000	5.00	12.000	23.60	27.000	●		●
270		27.500	5.10	12.000	23.60	27.500	●		●
270		27.700	5.10	12.000	23.60	27.700	●		●
270	1 3/32	27.780	5.10	12.000	23.60	27.780	●		●
280		28.000	5.10	13.000	24.30	28.000	●		●
280	1 7/64	28.180	5.20	13.000	24.30	28.180	●		●
280		28.500	5.20	13.000	24.30	28.500	●		●
280		28.580	5.30	13.000	24.30	28.580	●		●
290		29.000	5.30	13.000	24.30	29.000	●		●
290	1 5/32	29.370	5.40	13.000	24.30	29.370	●		●
290		29.500	5.40	13.000	24.30	29.500	●		●
290	1 11/64	29.770	5.50	13.000	24.30	29.770	●		●
300		30.000	5.50	14.000	26.40	30.000	●		●
300	1 3/16	30.160	5.50	14.000	26.40	30.160	●		●
300		30.500	5.60	14.000	26.40	30.500	●		●
300	1 7/32	30.960	5.70	14.000	26.40	30.960	●		●
310		31.000	5.70	14.000	26.40	31.000	●		●
310		31.500	5.80	14.000	26.40	31.500	●		●
310	1 1/4	31.750	5.80	14.000	26.40	31.750	●		●
320		32.000	5.90	15.000	27.20	32.000	●		●
320		32.500	6.00	15.000	27.20	32.500	●		●

Interchangeable inserts for SuperV-AP mini



							Catalog no.	57011	67011
							Tool material	Solid Carbide	
							Carbide grade	K/P	
							Discount group	141	141
							Surface	TiAlN	TiAlN nano
							Type	SuperV-AP mini GG	SuperV-AP mini U
holder size	d1 h7	d1 h7	l4	b	h	Code no.	price per piece		
	inch	mm	mm	mm	mm				
320	1 9/32	32.540	6.00	15.000	27.20	32.540	●		●
320	1 19/6	32.940	6.00	15.000	27.20	32.940	●		●
330		33.000	6.10	15.000	27.20	33.000	●		●
330	1 5/16	33.340	6.10	15.000	27.20	33.340	●		●
330		33.500	6.10	15.000	27.20	33.500	●		●
340		34.000	6.20	15.000	27.20	34.000	●		●
340	1 11/3	34.130	6.30	15.000	27.20	34.130	●		●
340		34.500	6.30	15.000	27.20	34.500	●		●
340		34.930	6.40	15.000	27.20	34.930	●		●
350		35.000	6.40	15.000	27.20	35.000	●		●
350		35.500	6.50	15.000	27.20	35.500	●		●
350	1 13/3	35.720	6.60	15.000	27.20	35.720	●		●
360		36.000	6.60	16.000	28.00	36.000	●		●
360		36.500	6.70	16.000	28.00	36.500	●		●
360	1 7/16	36.510	6.70	16.000	28.00	36.510	●		●
370		37.000	6.80	16.000	28.00	37.000	●		●
370	1 15/3	37.310	6.80	16.000	28.00	37.310	●		●
370		37.500	6.90	16.000	28.00	37.500	●		●
380		38.000	7.00	16.000	28.00	38.000	●		●
380	1 1/2	38.100	7.00	16.000	28.00	38.100	●		●
380		38.460	7.00	16.000	28.00	38.460	●		●
380	1 33/6	38.500	7.10	16.000	28.00	38.500	●		●
390		39.000	7.10	16.000	28.00	39.000	●		●
390		39.500	7.20	16.000	28.00	39.500	●		●
400		40.000	7.30	16.000	28.00	40.000	●		●

SuperV Drilling system

Interchangeable inserts for SuperV-AP mini

Catalog no. 67012



High-performance interchangeable insert for machining stainless steel and heat-resistant steels. The special cutting geometry and the applied coating results in a high wear-resistance.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-AP mini VA
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h7
web thinning: SuperV helix angle: normal	

Interchangeable inserts for SuperV-AP mini

Catalog no. 77012

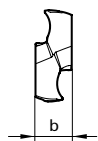
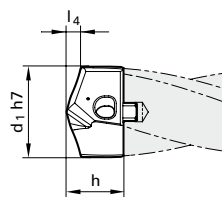


High-performance interchangeable insert for machining aluminium, aluminium alloys and other non-ferrous metals. The special cutting geometry and the applied coating results in a high wear-resistance.

Stock std.

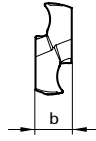
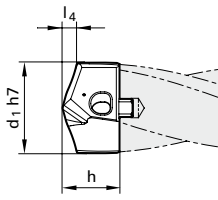
Tool material	Solid Carbide
Surface	bright
Type	SuperV-AP mini AL
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h7
web thinning: SuperV helix angle: normal	

Interchangeable inserts for SuperV-AP mini



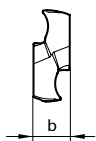
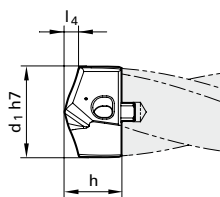
							Catalog no.	67012	77012
							Tool material	Solid Carbide	
							Carbide grade	K/P	K
							Discount group	141	141
							Surface	AlTiN nano	bright
							Type	SuperV-AP mini VA	SuperV-AP mini AL
holder size	d1 h7	d1 h7	l4	b	h	Code no.	price per piece		
	inch	mm	mm	mm	mm				
110		11.000	2.10	4.500	9.60	11.000	●		●
110		11.200	2.10	4.500	9.60	11.200	●		●
115		11.500	2.10	4.500	9.60	11.500	●		●
115	29/64	11.510	2.10	4.500	9.60	11.510	●		●
115		11.700	2.20	4.500	9.60	11.700	●		●
115		11.800	2.20	4.500	9.60	11.800	●		●
115	15/32	11.910	2.20	4.500	9.60	11.910	●		●
120		12.000	2.20	5.000	9.80	12.000	●		●
120		12.100	2.30	5.000	9.80	12.100	●		●
120		12.200	2.30	5.000	9.80	12.200	●		●
120	31/64	12.300	2.30	5.000	9.80	12.300	●		●
125		12.500	2.30	5.000	9.80	12.500	●		●
125		12.600	2.30	5.000	9.80	12.600	●		●
125	1/2	12.700	2.40	5.000	9.80	12.700	●		●
125		12.800	2.40	5.000	9.80	12.800	●		●
125		12.900	2.40	5.000	9.80	12.900	●		●
130		13.000	2.40	5.500	10.60	13.000	●		●
130	33/64	13.100	2.40	5.500	10.60	13.100	●		●
130	17/32	13.490	2.50	5.500	10.60	13.490	●		●
135		13.500	2.50	5.500	10.60	13.500	●		●
135		13.600	2.50	5.500	10.60	13.600	●		●
135		13.700	2.50	5.500	10.60	13.700	●		●
135		13.800	2.60	5.500	10.60	13.800	●		●
135	35/64	13.890	2.60	5.500	10.60	13.890	●		●
140		14.000	2.60	6.000	12.20	14.000	●		●
140		14.100	2.60	6.000	12.20	14.100	●		●
140	9/16	14.290	2.70	6.000	12.20	14.290	●		●
140		14.400	2.70	6.000	12.20	14.400	●		●
145		14.500	2.70	6.000	12.20	14.500	●		●
145		14.600	2.70	6.000	12.20	14.600	●		●
145	37/64	14.680	2.70	6.000	12.20	14.680	●		●
145		14.700	2.70	6.000	12.20	14.700	●		●
145		14.800	2.70	6.000	12.20	14.800	●		●
150		15.000	2.80	6.000	12.40	15.000	●		●
150	19/32	15.080	2.80	6.000	12.40	15.080	●		●
150		15.100	2.80	6.000	12.40	15.100	●		●
150		15.200	2.80	6.000	12.40	15.200	●		●
150		15.300	2.80	6.000	12.40	15.300	●		●
150	39/64	15.480	2.90	6.000	12.40	15.480	●		●
155		15.500	2.90	6.000	12.40	15.500	●		●
155		15.600	2.90	6.000	12.40	15.600	●		●
155		15.700	2.90	6.000	12.40	15.700	●		●
155		15.800	2.90	6.000	12.40	15.800	●		●
155	5/8	15.870	2.90	6.000	12.40	15.870	●		●
160		16.000	3.00	7.000	13.60	16.000	●		●
160	41/64	16.270	3.00	7.000	13.60	16.270	●		●
165		16.500	3.10	7.000	13.60	16.500	●		●
165	21/32	16.670	3.10	7.000	13.60	16.670	●		●
170		17.000	3.10	7.000	13.60	17.000	●		●
170	43/64	17.070	3.20	7.000	13.60	17.070	●		●
170	11/16	17.460	3.20	7.000	13.60	17.460	●		●
175		17.500	3.20	7.000	13.60	17.500	●		●
175		17.600	3.30	7.000	13.60	17.600	●		●
175	45/64	17.860	3.30	7.000	13.60	17.860	●		●
180		18.000	3.30	8.000	15.70	18.000	●		●
180	23/32	18.260	3.40	8.000	15.70	18.260	●		●
185		18.500	3.40	8.000	15.70	18.500	●		●
185	47/64	18.650	3.40	8.000	15.70	18.650	●		●
190		19.000	3.50	8.000	15.70	19.000	●		●
190	3/4	19.050	3.50	8.000	15.70	19.050	●		●

Interchangeable inserts for SuperV-AP mini



							Catalog no.	67012	77012
							Tool material	Solid Carbide	
							Carbide grade	K/P	K
							Discount group	141	141
							Surface	AlTiN nano	bright
							Type	SuperV-AP mini VA	SuperV-AP mini AL
holder size	d1 h7	d1 h7	l4	b	h	Code no.	price per piece		
	inch	mm	mm	mm	mm				
190		19.250	3.60	8.000	15.70	19.250			
190	49/64	19.450	3.60	8.000	15.70	19.450	●		●
195		19.500	3.60	8.000	15.70	19.500	●		●
195		19.600	3.60	8.000	15.70	19.600	●		●
195	25/32	19.840	3.70	8.000	15.70	19.840	●		●
200		20.000	3.70	9.000	17.00	20.000	●		●
200	51/64	20.240	3.70	9.000	17.00	20.240	●		●
205		20.500	3.80	9.000	17.00	20.500	●		●
205	13/16	20.640	3.80	9.000	17.00	20.640	●		●
210		21.000	3.90	9.000	17.00	21.000	●		●
210	53/64	21.030	3.90	9.000	17.00	21.030	●		●
210		21.100	3.90	9.000	17.00	21.100	●		●
210	27/32	21.430	3.90	9.000	17.00	21.430	●		●
215		21.500	4.00	9.000	17.00	21.500	●		●
215	55/64	21.830	4.00	9.000	17.00	21.830	●		●
220		22.000	4.10	10.000	18.40	22.000	●		●
220	7/8	22.220	4.10	10.000	18.40	22.220	●		●
225		22.500	4.10	10.000	18.40	22.500	●		●
225	57/64	22.620	4.20	10.000	18.40	22.620	●		●
230		23.000	4.20	10.000	18.40	23.000	●		●
230	29/32	23.020	4.20	10.000	18.40	23.020	●		●
230	59/64	23.420	4.30	10.000	18.40	23.420	●		●
235		23.500	4.30	10.000	18.40	23.500	●		●
235	15/16	23.810	4.40	10.000	18.40	23.810	●		●
240		24.000	4.40	11.000	18.90	24.000	●		●
240		24.100	4.40	11.000	18.90	24.100	●		●
240	61/64	24.210	4.50	11.000	18.90	24.210	●		●
245		24.500	4.50	11.000	18.90	24.500	●		●
245	31/32	24.610	4.50	11.000	18.90	24.610	●		●
250	63/64	25.000	4.60	11.000	18.90	25.000	●		●
250	1	25.400	4.70	11.000	18.90	25.400	●		●
255		25.500	4.70	11.000	18.90	25.500	●		●
255		25.670	4.70	11.000	18.90	25.670	●		●
255		25.700	4.70	11.000	18.90	25.700	●		●
255		25.810	4.70	11.000	18.90	25.810	●		●
260		26.000	4.80	12.000	23.60	26.000	●		●
260	1 1/32	26.190	4.80	12.000	23.60	26.190	●		●
260		26.500	4.90	12.000	23.60	26.500	●		●
260	1 3/64	26.590	4.90	12.000	23.60	26.590	●		●
270		27.000	5.00	12.000	23.60	27.000	●		●
270		27.500	5.10	12.000	23.60	27.500	●		●
270		27.700	5.10	12.000	23.60	27.700	●		●
270	1 3/32	27.780	5.10	12.000	23.60	27.780	●		●
280		28.000	5.10	13.000	24.30	28.000	●		●
280	1 7/64	28.180	5.20	13.000	24.30	28.180	●		●
280		28.500	5.20	13.000	24.30	28.500	●		●
280		28.580	5.30	13.000	24.30	28.580	●		●
290		29.000	5.30	13.000	24.30	29.000	●		●
290	1 5/32	29.370	5.40	13.000	24.30	29.370	●		●
290		29.500	5.40	13.000	24.30	29.500	●		●
290	1 11/64	29.770	5.50	13.000	24.30	29.770	●		●
300		30.000	5.50	14.000	26.40	30.000	●		●
300	1 3/16	30.160	5.50	14.000	26.40	30.160	●		●
300		30.500	5.60	14.000	26.40	30.500	●		●
300	1 7/32	30.960	5.70	14.000	26.40	30.960	●		●
310		31.000	5.70	14.000	26.40	31.000	●		●
310		31.500	5.80	14.000	26.40	31.500	●		●
310	1 1/4	31.750	5.80	14.000	26.40	31.750	●		●
320		32.000	5.90	15.000	27.20	32.000	●		●
320		32.500	6.00	15.000	27.20	32.500	●		●

Interchangeable inserts for SuperV-AP mini



Catalog no.	67012	77012
Tool material	Solid Carbide	
Carbide grade	K/P	K
Discount group	141	141
Surface	AlTiN nano	bright
Type	SuperV-AP mini VA	SuperV-AP mini AL

holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece	
320	1 9/32	32.540	6.00	15.000	27.20	32.540	●	●
320	1 19/6	32.940	6.00	15.000	27.20	32.940	●	●
330		33.000	6.10	15.000	27.20	33.000	●	●
330	1 5/16	33.340	6.10	15.000	27.20	33.340	●	●
330		33.500	6.10	15.000	27.20	33.500	●	●
340		34.000	6.20	15.000	27.20	34.000	●	●
340	1 11/3	34.130	6.30	15.000	27.20	34.130	●	●
340		34.500	6.30	15.000	27.20	34.500	●	●
340		34.930	6.40	15.000	27.20	34.930	●	●
350		35.000	6.40	15.000	27.20	35.000	●	●
350		35.500	6.50	15.000	27.20	35.500	●	●
350	1 13/3	35.720	6.60	15.000	27.20	35.720	●	●
360		36.000	6.60	16.000	28.00	36.000	●	●
360		36.500	6.70	16.000	28.00	36.500	●	●
360	1 7/16	36.510	6.70	16.000	28.00	36.510	●	●
370		37.000	6.80	16.000	28.00	37.000	●	●
370	1 15/3	37.310	6.80	16.000	28.00	37.310	●	●
370		37.500	6.90	16.000	28.00	37.500	●	●
380		38.000	7.00	16.000	28.00	38.000	●	●
380	1 1/2	38.100	7.00	16.000	28.00	38.100	●	●
380		38.460	7.00	16.000	28.00	38.460	●	●
380	1 33/6	38.500	7.10	16.000	28.00	38.500	●	●
390		39.000	7.10	16.000	28.00	39.000	●	●
390		39.500	7.20	16.000	28.00	39.500	●	●
400		40.000	7.30	16.000	28.00	40.000	●	●

SuperV Drilling system

Interchangeable inserts for SuperV-AP mini

Catalog no. 77011

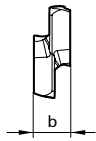
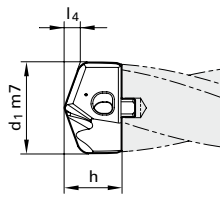


This interchangeable insert is designed for centering and piloting of all materials, using our SuperV-AP mini system especially from 7xD drilling depth or deeper. With AlTiN-nano-coating for higher wear resistance.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperV-AP mini NC
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	145
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	m7
web thinning: SuperV helix angle: normal	

Interchangeable inserts for SuperV-AP mini



Catalog no.

77011

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

141

Surface

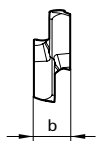
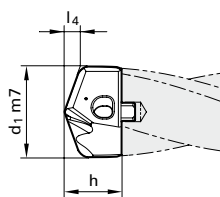
AlTiN nano

Type

SuperV-AP mini NC

holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece
110		11.000	1.80	4.500	9.30	11.000	●
110		11.200	1.80	4.500	9.30	11.200	●
110		11.500	1.90	4.500	9.30	11.500	●
110	29/64	11.510	1.90	4.500	9.30	11.510	●
110		11.700	1.90	4.500	9.30	11.700	●
110		11.800	1.90	4.500	9.30	11.800	●
110	15/32	11.910	1.90	4.500	9.30	11.910	●
120		12.000	1.90	5.000	9.50	12.000	●
120		12.100	2.00	5.000	9.50	12.100	●
120		12.200	2.00	5.000	9.50	12.200	●
120	31/64	12.300	2.00	5.000	9.50	12.300	●
120		12.500	2.00	5.000	9.50	12.500	●
120		12.600	2.00	5.000	9.50	12.600	●
120	1/2	12.700	2.10	5.000	9.50	12.700	●
120		12.800	2.10	5.000	9.50	12.800	●
120		12.900	2.10	5.000	9.50	12.900	●
130		13.000	2.10	5.500	10.30	13.000	●
130	33/64	13.100	2.10	5.500	10.30	13.100	●
130	17/32	13.490	2.20	5.500	10.30	13.490	●
130		13.500	2.20	5.500	10.30	13.500	●
130		13.600	2.20	5.500	10.30	13.600	●
130		13.700	2.20	5.500	10.30	13.700	●
130		13.800	2.20	5.500	10.30	13.800	●
130	35/64	13.890	2.20	5.500	10.30	13.890	●
140		14.000	2.30	6.000	12.00	14.000	●
140		14.100	2.30	6.000	12.00	14.100	●
140	9/16	14.290	2.30	6.000	12.00	14.290	●
140		14.400	2.30	6.000	12.00	14.400	●
140		14.500	2.30	6.000	12.00	14.500	●
140		14.600	2.40	6.000	12.00	14.600	●
140	37/64	14.680	2.40	6.000	12.00	14.680	●
140		14.700	2.40	6.000	12.00	14.700	●
140		14.800	2.40	6.000	12.00	14.800	●
150		15.000	2.40	6.000	12.00	15.000	●
150	19/32	15.080	2.40	6.000	12.00	15.080	●
150		15.100	2.40	6.000	12.00	15.100	●
150		15.200	2.40	6.000	12.00	15.200	●
150		15.300	2.50	6.000	12.00	15.300	●
150	39/64	15.480	2.50	6.000	12.00	15.480	●
150		15.500	2.50	6.000	12.00	15.500	●
150		15.600	2.50	6.000	12.00	15.600	●
150		15.700	2.50	6.000	12.00	15.700	●
150		15.800	2.50	6.000	12.00	15.800	●
150	5/8	15.870	2.60	6.000	12.00	15.870	●
160		16.000	2.60	7.000	13.20	16.000	●
160	41/64	16.270	2.60	7.000	13.20	16.270	●
160		16.500	2.70	7.000	13.20	16.500	●
160	21/32	16.670	2.70	7.000	13.20	16.670	●
170		17.000	2.70	7.000	13.20	17.000	●
170	43/64	17.070	2.70	7.000	13.20	17.070	●
170	11/16	17.460	2.80	7.000	13.20	17.460	●
170		17.500	2.80	7.000	13.20	17.500	●
170		17.600	2.80	7.000	13.20	17.600	●
170	45/64	17.860	2.90	7.000	13.20	17.860	●
180		18.000	2.90	8.000	15.20	18.000	●
180	23/32	18.260	2.90	8.000	15.20	18.260	●
180		18.500	3.00	8.000	15.20	18.500	●
180	47/64	18.650	3.00	8.000	15.20	18.650	●
190		19.000	3.00	8.000	15.20	19.000	●
190	3/4	19.050	3.10	8.000	15.20	19.050	●

Interchangeable inserts for SuperV-AP mini



Catalog no.

77011

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

141

Surface

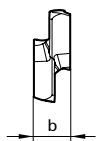
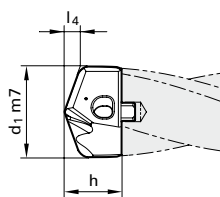
AlTiN nano

Type

SuperV-AP mini NC

holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece
190	49/64	19.450	3.10	8.000	15.20	19.450	●
190		19.500	3.10	8.000	15.20	19.500	●
190		19.600	3.10	8.000	15.20	19.600	●
190	25/32	19.840	3.20	8.000	15.20	19.840	●
200		20.000	3.20	9.000	16.40	20.000	●
200	51/64	20.240	3.20	9.000	16.40	20.240	●
200		20.500	3.30	9.000	16.40	20.500	●
200	13/16	20.640	3.30	9.000	16.40	20.640	●
210		21.000	3.40	9.000	16.40	21.000	●
210	53/64	21.030	3.40	9.000	16.40	21.030	●
210		21.100	3.40	9.000	16.40	21.100	●
210	27/32	21.430	3.40	9.000	16.40	21.430	●
210		21.500	3.40	9.000	16.40	21.500	●
210	55/64	21.830	3.50	9.000	16.40	21.830	●
220		22.000	3.50	10.000	17.90	22.000	●
220	7/8	22.220	3.60	10.000	17.90	22.220	●
220		22.500	3.60	10.000	17.90	22.500	●
220	57/64	22.620	3.60	10.000	17.90	22.620	●
230		23.000	3.70	10.000	17.90	23.000	●
230	29/32	23.020	3.70	10.000	17.90	23.020	●
230	59/64	23.420	3.70	10.000	17.90	23.420	●
230		23.500	3.80	10.000	17.90	23.500	●
230	15/16	23.810	3.80	10.000	17.90	23.810	●
240		24.000	3.80	11.000	18.40	24.000	●
240		24.100	3.80	11.000	18.40	24.100	●
240	61/64	24.210	3.90	11.000	18.40	24.210	●
240		24.500	3.90	11.000	18.40	24.500	●
240	31/32	24.610	3.90	11.000	18.40	24.610	●
250	63/64	25.000	4.00	11.000	18.40	25.000	●
250	1	25.400	4.10	11.000	18.40	25.400	●
250		25.500	4.10	11.000	18.40	25.500	●
250		25.700	4.00	11.000	18.40	25.700	●
260		26.000	4.10	12.000	19.40	26.000	●
260	1 1/32	26.190	4.10	12.000	19.40	26.190	●
260		26.500	4.20	12.000	19.40	26.500	●
260	1 3/64	26.590	4.20	12.000	19.40	26.590	●
270		27.000	4.30	12.000	19.40	27.000	●
270		27.500	4.30	12.000	19.40	27.500	●
270		27.700	4.30	12.000	19.40	27.700	●
270	1 3/32	27.780	4.30	12.000	19.40	27.780	●
280		28.000	4.40	13.000	20.10	28.000	●
280		28.180	4.40	13.000	20.10	28.180	●
280		28.500	4.50	13.000	20.10	28.500	●
280		28.580	4.50	13.000	20.10	28.580	●
290		29.000	4.60	13.000	20.10	29.000	●
290	1 5/32	29.370	4.60	13.000	20.10	29.370	●
290		29.500	4.60	13.000	20.10	29.500	●
300		30.000	4.70	14.000	21.70	30.000	●
300	1 3/16	30.160	4.70	14.000	21.70	30.160	●
300		30.500	4.80	14.000	21.70	30.500	●
300		30.960	4.80	14.000	21.70	30.960	●
310		31.000	4.90	14.000	21.70	31.000	●
310		31.500	4.90	14.000	21.70	31.500	●
310	1 1/4	31.750	4.90	14.000	21.70	31.750	●
320		32.000	5.00	15.000	22.40	32.000	●
320		32.500	5.10	15.000	22.40	32.500	●
320	1 9/32	32.540	5.10	15.000	22.40	32.540	●
330		33.000	5.20	15.000	22.40	33.000	●
330	1 5/16	33.340	5.20	15.000	22.40	33.340	●
330		33.500	5.30	15.000	22.40	33.500	●

Interchangeable inserts for SuperV-AP mini



Catalog no.

77011

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

141

Surface

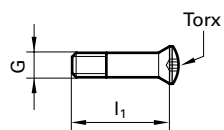
AlTiN nano

Type

SuperV-AP mini NC

holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece
340		34.000	5.40	15.000	22.40	34.000	●
340	1 11/32	34.130	5.40	15.000	22.40	34.130	●
340		34.500	5.40	15.000	22.40	34.500	●
340		34.930	5.40	15.000	22.40	34.930	●
350		35.000	5.50	15.000	22.40	35.000	●
350		35.500	5.60	15.000	22.40	35.500	●
350		35.720	5.60	15.000	22.40	35.720	●
360		36.000	5.70	16.000	23.20	36.000	●
360		36.500	5.70	16.000	23.20	36.500	●
360		36.510	5.70	16.000	23.20	36.510	●
370		37.000	5.80	16.000	23.20	37.000	●
370	1 15/32	37.310	5.80	16.000	23.20	37.310	●
370		37.500	5.90	16.000	23.20	37.500	●
380		38.000	6.00	16.000	23.20	38.000	●
380	1 1/2	38.100	6.00	16.000	23.20	38.100	●
380	1 33/64	38.500	6.10	16.000	23.20	38.500	●
390		39.000	6.20	16.000	23.20	39.000	●
390		39.500	6.20	16.000	23.20	39.500	●
400		40.000	6.20	16.000	23.20	40.000	●

SuperV Drilling system



Catalog no.

77020

Discount group

140

G	l1 mm	Torx	Code no.	price per piece
M 2,2	9.50	T7	2.200	●
M 2,2	10.50	T7	2.201	●
M 2,5	11.40	T8	2.500	●
M 3	12.10	T9	3.000	●
M 3	13.10	T9	3.001	●
M 3,5	14.25	T10	3.500	●
M 4	16.00	T15	4.000	●
M 4,5	18.00	T15	4.500	●
M 5	19.75	T20	5.000	●
M 5	21.75	T20	5.001	●
M 5	23.40	T20	5.003	●
M 6	27.00	T25	6.000	●
M 6	28.50	T25	6.001	●
M 6	32.50	T25	6.002	●

Catalog no.

77022

Discount group

114



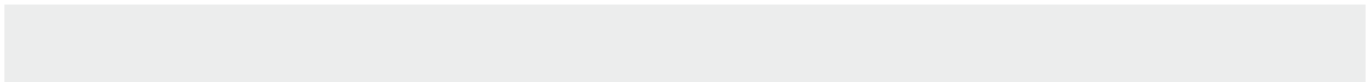
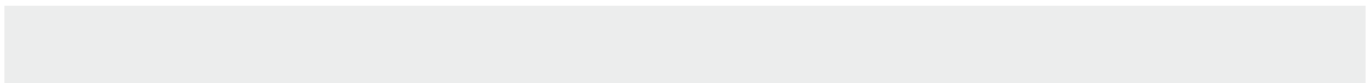
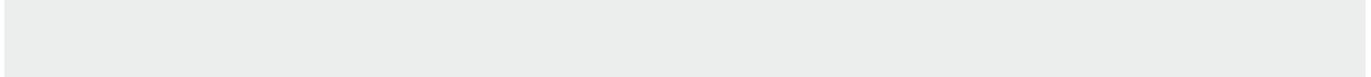
Type	Drive	l1 mm	Torque	Code no.	price per piece
A	1/4	160.00	1...5	5.001	○

SuperV Drilling system

Catalog no. 77021
Discount group 140



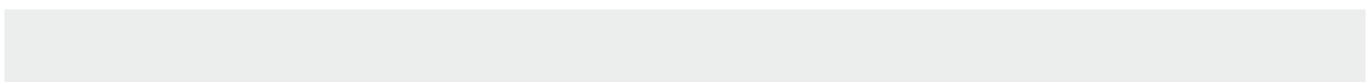
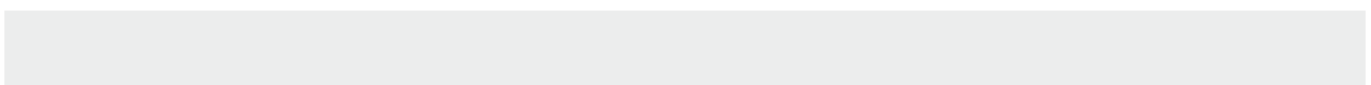
Torx	Drive	l1 mm	Code no.	price per piece
T6	1/4	25.00	6.000	○
T8	1/4	25.00	8.000	○
T10	1/4	25.00	10.000	○



Catalog no. 76021
Discount group 140



Torx	l1 mm	Code no.	price per piece
T7	150.00	7.001	●
T8	150.00	8.001	●
T9	150.00	9.001	●
T10	170.00	10.001	●
T15	190.00	15.001	●
T20	205.00	20.001	●



SuperV Drilling system

Tool holders SuperV-AP maxi

Catalog no. 76000

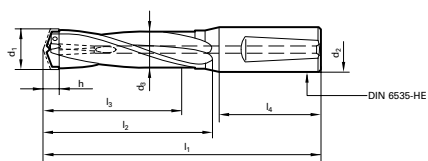
- high grade, high tensile tool steel
- spiralised version with internal coolant
- shank with whistle notch acc. to DIN 6535-HE
- nickel-plated surface



Stock std. 3xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP maxi</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	

Tool holders SuperV-AP maxi



Catalog no. 76000
Discount group 140
Cooling axial
Type SuperV-AP maxi
Drilling depth 3xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 mm	l3 mm	l4 mm	Code no.	price per piece
0.1	16,00-17,00	20.000	15.700	128.40	74.40	53.00	50.00	17.000	○
0.2	17,01-17,99	20.000	16.700	128.40	74.60	53.00	50.00	17.990	○
1.1	18,00-19,00	20.000	17.700	136.70	82.70	53.00	50.00	19.000	○
1.2	19,01-20,00	20.000	18.700	136.70	82.90	58.00	50.00	20.000	○
2.1	20,01-21,00	25.400	19.700	151.60	91.60	58.00	56.00	21.000	○
2.2	22,51-24,00	25.400	20.700	151.60	91.80	63.00	56.00	22.500	○
3.1	22,51-24,00	25.400	22.200	159.40	99.40	63.00	56.00	24.000	○
3.2	24,01-25,50	25.400	23.700	168.40	108.70	68.00	56.00	25.500	○
4.1	25,51-27,50	32.000	25.200	180.00	116.00	68.00	60.00	27.500	○
4.2	27,51-29,50	32.000	27.200	188.00	124.40	68.00	60.00	29.500	○
5.1	29,51-32,00	32.000	29.200	195.60	131.60	75.00	60.00	32.000	○
5.2	32,01-34,50	40.500	31.700	203.60	140.10	75.00	60.00	34.500	○
6.1	34,51-37,50	40.500	34.000	215.10	151.10	75.00	60.00	37.500	○
6.2	37,51-40,50	40.500	37.000	228.10	163.70	120.00	60.00	40.500	○

SuperV Drilling system

Tool holders SuperV-AP maxi

Catalog no. 76001

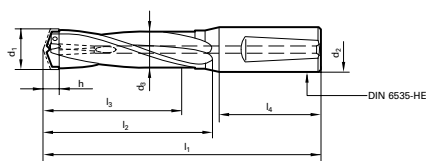
- high grade, high tensile tool steel
- spiralised version with internal coolant
- shank with whistle notch acc. to DIN 6535-HE
- nickel-plated surface



Stock std. 5xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP maxi</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	

Tool holders SuperV-AP maxi



Catalog no. 76001
Discount group 140
Cooling axial
Type SuperV-AP maxi
Drilling depth 5xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 mm	l3 mm	l4 mm	Code no.	price per piece
0.1	16,00-17,00	20.000	15.700	164.40	110.40	90.00	50.00	17.000	○
0.2	17,01-17,99	20.000	16.700	164.40	110.60	90.00	50.00	17.990	○
1.1	18,00-19,00	20.000	17.700	176.70	122.70	100.00	50.00	19.000	○
1.2	19,01-20,00	20.000	18.700	176.70	122.90	100.00	50.00	20.000	○
2.1	20,01-21,00	25.400	19.700	195.60	135.60	110.00	56.00	21.000	○
2.2	22,51-24,00	25.400	20.700	195.60	135.80	110.00	56.00	22.500	○
3.1	22,51-24,00	25.400	22.200	207.40	147.40	120.00	56.00	24.000	○
3.2	24,01-25,50	25.400	23.700	220.40	160.70	130.00	56.00	25.500	○
4.1	25,51-27,50	32.000	25.200	236.00	172.00	140.00	60.00	27.500	○
4.2	27,51-29,50	32.000	27.200	248.00	184.40	150.00	60.00	29.500	○
5.1	29,51-32,00	32.000	29.200	259.60	195.60	160.00	60.00	32.000	○
5.2	32,01-34,50	40.500	31.700	271.60	208.10	170.00	60.00	34.500	○
6.1	34,51-37,50	40.500	34.000	289.10	225.10	190.00	60.00	37.500	○
6.2	37,51-40,50	40.500	37.000	308.10	243.70	200.00	60.00	40.500	○

SuperV Drilling system

Tool holders SuperV-AP maxi

Catalog no. 76003

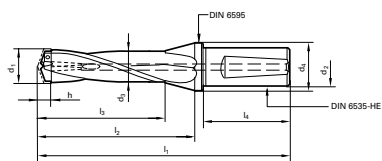
- high grade, high tensile tool steel
- spiralised version with internal coolant
- shank with collar acc. to DIN 6595
- nickel-plated surface



Stock std. 7xD

Tool material	
Surface	nickel-plated
Type	<i>SuperV-AP maxi</i>
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	

Tool holders SuperV-AP maxi



Catalog no. 76003
Discount group 140
Cooling axial
Type SuperV-AP maxi
Drilling depth 7xD

holder size	d1 mm	d2 h6 mm	d3 mm	l1 mm	l2 mm	l3 mm	l4 mm	Code no.	price per piece
0.1	16,00-17,00	25.000	15.700	200.40	146.40	126.00	50.00	17.000	○
0.2	17,01-17,99	25.000	16.700	200.40	146.60	126.00	50.00	17.990	○
1.1	18,00-19,00	25.000	17.700	216.70	162.70	140.00	50.00	19.000	○
1.2	19,01-20,00	25.000	18.700	216.70	162.90	140.00	50.00	20.000	○
2.1	20,01-21,00	31.000	19.700	239.60	179.60	154.00	56.00	21.000	○
2.2	22,51-24,00	31.000	20.700	239.60	179.80	154.00	56.00	22.500	○
3.1	22,51-24,00	31.000	22.200	255.40	195.40	168.00	56.00	24.000	○
3.2	24,01-25,50	31.000	23.700	272.40	212.70	182.00	56.00	25.500	○
4.1	25,51-27,50	38.000	25.200	292.00	228.00	196.00	60.00	27.500	○
4.2	27,51-29,50	38.000	27.200	308.00	244.40	210.00	60.00	29.500	○
5.1	29,51-32,00	38.000	29.200	323.60	259.60	224.00	60.00	32.000	○
5.2	32,01-34,50	38.000	31.700	339.60	276.10	238.00	60.00	34.500	○
6.1	34,51-37,50	38.000	34.000	363.10	299.10	266.00	60.00	37.500	○
6.2	37,51-40,50	40.500	37.000	388.10	323.70	280.00	60.00	40.500	○

SuperV Drilling system

Interchangeable inserts for SuperV-AP maxi

Catalog no. 76012



- STC (micrograin) K
- high toughness and stability against bending breakages
- relieved cone, 140° point angle and SuperV-webthinning result in a self-centering flute-geometry
- tolerance h7

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	<i>SuperV-AP maxi</i>
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h7

Interchangeable inserts for SuperV-AP maxi

Catalog no. 76011

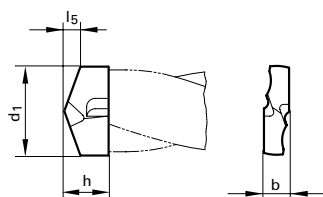


- STC (micrograin) K
- high toughness and stability against bending breakages
- relieved cone, 140° point angle and SuperV-webthinning result in a self-centering flute-geometry
- tolerance h7

Stock std.

Tool material	Solid Carbide
Surface	TiN
Type	<i>SuperV-AP maxi</i>
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h7

Interchangeable inserts for SuperV-AP maxi



							Catalog no.	76012	76011
							Tool material	Solid Carbide	
							Carbide grade	K	K/P
							Discount group	141	141
							Surface	bright	TiN
							Type	SuperV-AP maxi	SuperV-AP maxi
holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece		
0.1		16.000	3.00	4.500	8.00	16.000		○	○
0.1		16.500	3.10	4.500	8.00	16.500		○	○
0.1		17.000	3.10	4.500	8.00	17.000		○	○
0.2		17.500	3.20	4.500	8.00	17.500		○	○
1.1		18.000	3.30	5.000	8.00	18.000		○	○
1.1		18.500	3.40	5.000	8.00	18.500		○	○
1.1		19.000	3.50	5.000	8.00	19.000		○	○
1.2		19.500	3.60	5.000	8.00	19.500		○	○
1.2		20.000	3.70	5.000	8.00	20.000		○	○
2.1		20.500	3.80	5.500	8.80	20.500		○	○
2.1		21.000	3.90	5.500	8.80	21.000		○	○
2.2		21.500	4.00	5.500	8.80	21.500		○	○
2.2		22.000	4.10	5.500	8.80	22.000		○	○
2.2		22.500	4.10	5.500	8.80	22.500		○	○
3.1		23.000	4.20	6.300	10.00	23.000		○	○
3.1		23.500	4.30	6.300	10.00	23.500		○	○
3.1		24.000	4.40	6.300	10.00	24.000		○	○
3.2		24.500	4.50	6.300	10.00	24.500		○	○
3.2		25.000	4.60	6.300	10.00	25.000		○	○
3.2		25.500	4.70	6.300	10.00	25.500		○	○
4.1		26.000	4.80	7.300	11.60	26.000		○	○
4.1		26.500	4.90	7.300	11.60	26.500		○	○
4.1		27.000	5.00	7.300	11.60	27.000		○	○
4.1		27.500	5.10	7.300	11.60	27.500		○	○
4.2		28.000	5.10	7.300	11.60	28.000		○	○
4.2		28.500	5.20	7.300	11.60	28.500		○	○
4.2		29.000	5.30	7.300	11.60	29.000		○	○
4.2		29.500	5.40	7.300	11.60	29.500		○	○
5.1		30.000	5.50	8.500	13.60	30.000		○	○
5.1		30.500	5.60	8.500	13.60	30.500		○	○
5.1		31.000	5.70	8.500	13.60	31.000		○	○
5.1		31.500	5.80	8.500	13.60	31.500		○	○
5.1		32.000	5.90	8.500	13.60	32.000		○	○
5.2		32.500	6.00	8.500	13.60	32.500		○	○
5.2		33.000	6.10	8.500	13.60	33.000		○	○
5.2		33.500	6.10	8.500	13.60	33.500		○	○
5.2		34.000	6.20	8.500	13.60	34.000		○	○
5.2		34.500	6.30	8.500	13.60	34.500		○	○
6.1		35.000	6.40	10.000	16.00	35.000		○	○
6.1		36.000	6.60	10.000	16.00	36.000		○	○
6.1		37.000	6.80	10.000	16.00	37.000		○	○
6.1		37.500	6.90	10.000	16.00	37.500		○	○
6.2		38.000	7.00	10.000	16.00	38.000		○	○
6.2		39.000	7.10	10.000	16.00	39.000		○	○
6.2		40.000	7.30	10.000	16.00	40.000		○	○
6.2		40.500	7.40	10.000	16.00	40.500		○	○

SuperV Drilling system

Interchangeable inserts for SuperV-AP maxi

Catalog no. 56011

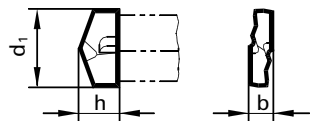


- STC (micrograin) K
- high toughness and stability against bending breakages
- relieved cone, 140° point angle and SuperV-webthinning result in a self-centering flute-geometry
- tolerance h7

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperV-AP maxi
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	140
Web thinned ≥Ø	
Tolerance on Ø	h7

Interchangeable inserts for SuperV-AP maxi



Catalog no.

56011

Tool material

Solid Carbide

Carbide grade

K/P

Discount group

141

Surface

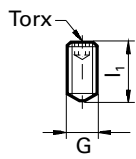
TiAlN

Type

SuperV-AP maxi

holder size	d1 h7 inch	d1 h7 mm	l4 mm	b mm	h mm	Code no.	price per piece
0.1		16.000	3.00	4.500	8.00	16.000	○
0.1		16.500	3.10	4.500	8.00	16.500	○
0.1		17.000	3.10	4.500	8.00	17.000	○
0.2		17.500	3.20	4.500	8.00	17.500	○
1.1		18.000	3.30	5.000	8.00	18.000	○
1.1		18.500	3.40	5.000	8.00	18.500	○
1.1		19.000	3.50	5.000	8.00	19.000	○
1.2		19.500	3.60	5.000	8.00	19.500	○
1.2		20.000	3.70	5.000	8.00	20.000	○
2.1		20.500	3.80	5.500	8.80	20.500	○
2.1		21.000	3.90	5.500	8.80	21.000	○
2.2		21.500	4.00	5.500	8.80	21.500	○
2.2		22.000	4.10	5.500	8.80	22.000	○
2.2		22.500	4.10	5.500	8.80	22.500	○
3.1		23.000	4.20	6.300	10.00	23.000	○
3.1		23.500	4.30	6.300	10.00	23.500	○
3.1		24.000	4.40	6.300	10.00	24.000	○
3.2		24.500	4.50	6.300	10.00	24.500	○
3.2		25.000	4.60	6.300	10.00	25.000	○
3.2		25.500	4.70	6.300	10.00	25.500	○
4.1		26.000	4.80	7.300	11.60	26.000	○
4.1		26.500	4.90	7.300	11.60	26.500	○
4.1		27.000	5.00	7.300	11.60	27.000	○
4.1		27.500	5.10	7.300	11.60	27.500	○
4.2		28.000	5.10	7.300	11.60	28.000	○
4.2		28.500	5.20	7.300	11.60	28.500	○
4.2		29.000	5.30	7.300	11.60	29.000	○
4.2		29.500	5.40	7.300	11.60	29.500	○
5.1		30.000	5.50	8.500	13.60	30.000	○
5.1		30.500	5.60	8.500	13.60	30.500	○
5.1		31.000	5.70	8.500	13.60	31.000	○
5.1		31.500	5.80	8.500	13.60	31.500	○
5.1		32.000	5.90	8.500	13.60	32.000	○
5.2		32.500	6.00	8.500	13.60	32.500	○
5.2		33.000	6.10	8.500	13.60	33.000	○
5.2		33.500	6.10	8.500	13.60	33.500	○
5.2		34.000	6.20	8.500	13.60	34.000	○
5.2		34.500	6.30	8.500	13.60	34.500	○
6.1		35.000	6.40	10.000	16.00	35.000	○
6.1		36.000	6.60	10.000	16.00	36.000	○
6.1		37.000	6.80	10.000	16.00	37.000	○
6.1		37.500	6.90	10.000	16.00	37.500	○
6.2		38.000	7.00	10.000	16.00	38.000	○
6.2		39.000	7.10	10.000	16.00	39.000	○
6.2		40.000	7.30	10.000	16.00	40.000	○
6.2		40.500	7.40	10.000	16.00	40.500	○

SuperV Drilling system



Catalog no.
Discount group

76020
140

G	l1 mm	Torx	Code no.	price per piece
M 3 X0,35	7.00	T6	3.000	○
M 3 X0,35	6.00	T6	3.006	○
M 3,5X0,35	8.00	T7	3.500	○
M 4 X0,5	9.00	T8	4.000	○
M 4,5X0,5	10.00	T8	4.500	○
M 5 X0,5	11.00	T10	5.000	○

Catalog no.
Discount group

77022
114



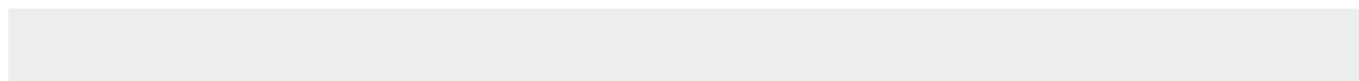
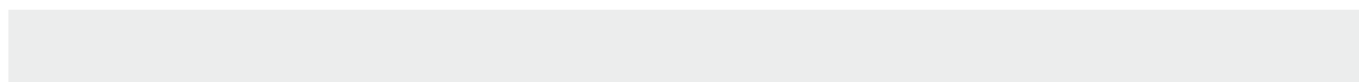
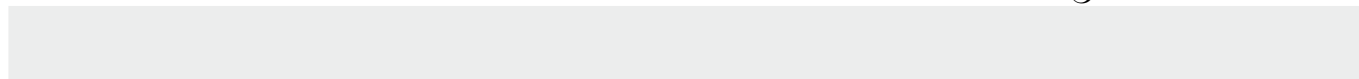
Type	Drive	l1 mm	Torque	Code no.	price per piece
A	1/4	160.00	1...5	5.001	○

SuperV Drilling system

Catalog no. 77021
Discount group 140



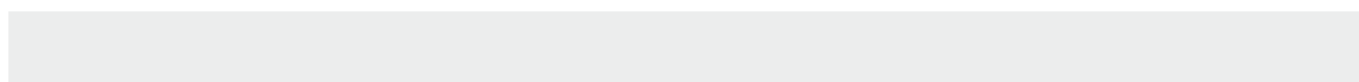
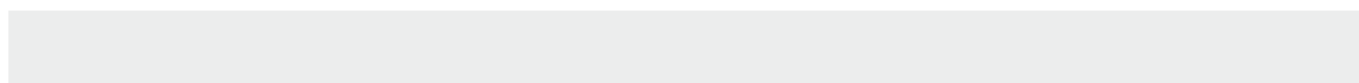
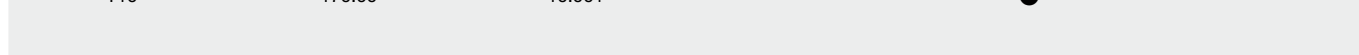
Torx	Drive	l1 mm	Code no.	price per piece
T6	1/4	25.00	6.000	○
T8	1/4	25.00	8.000	○
T10	1/4	25.00	10.000	○



Catalog no. 76021
Discount group 140



Torx	l1 mm	Code no.	price per piece
T6	42.00	6.000	●
T7	150.00	7.001	●
T8	48.00	8.000	●
T10	170.00	10.001	●



Carbide drills

Stub drills

Catalog no. 71184



A very rigid drill for use in automatic and capstan lathes. Especially suitable for the drilling of high tensile steel, cast steel, grey cast iron, CrNi-steels, bronzes, light metals and non-ferrous metals. Ideally suited to the economic machining of abrasive materials (AlSi-alloys), fibre-reinforced plastics and other Duroplastics that are liable to cause severe abrasion on cutting lips and lands.

DIN 6539

Tool material	Solid Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h7
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills

Catalog no. 51184

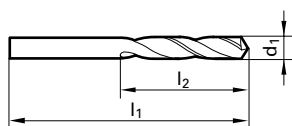


A very rigid drill for use in automatic and capstan lathes. Especially suitable for the drilling of high tensile steel, cast steel, grey cast iron, Crni-steels, bronzes, light metals and non-ferrous metals. Ideally suited to the economic machining of abrasive materials (AlSi-alloys), fibre-reinforced plastics and other duroplastics that are liable to cause severe abrasion on cutting lips and lands. Long tool life thanks to TiAlN nano coating.

DIN 6539

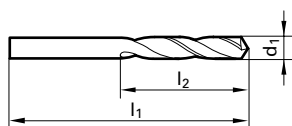
Tool material	Solid Carbide
Surface	TiAlN nano
Type	N
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h7
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills



Catalog no.				71184	51184
Tool material				Solid Carbide	
Discount group				102	102
Cutting direction				right-hand	right-hand
Surface				bright	TiAlN nano
d1	d1	l1	l2	price per piece	
inch	mm	mm	mm		
	1.000	26.00	6.00	●	●
	1.100	28.00	7.00	●	●
	1.200	30.00	8.00	●	●
	1.300	30.00	8.00	●	●
	1.400	32.00	9.00	●	●
	1.500	32.00	9.00	●	●
	1.600	34.00	10.00	●	●
	1.700	34.00	10.00	●	●
	1.800	36.00	11.00	●	●
	1.900	36.00	11.00	●	●
	2.000	38.00	12.00	●	●
	2.100	38.00	12.00	●	●
	2.200	40.00	13.00	●	●
	2.300	40.00	13.00	●	●
3/32	2.380	43.00	14.00	●	●
	2.400	43.00	14.00	●	●
	2.500	43.00	14.00	●	●
	2.600	43.00	14.00	●	●
	2.700	46.00	16.00	●	●
7/64	2.780	46.00	16.00	●	●
	2.800	46.00	16.00	●	●
	2.900	46.00	16.00	●	●
	3.000	46.00	16.00	●	●
	3.100	49.00	18.00	●	●
1/8	3.170	49.00	18.00	●	●
	3.200	49.00	18.00	●	●
	3.300	49.00	18.00	●	●
	3.400	52.00	20.00	●	●
9/64	3.500	52.00	20.00	●	●
	3.570	52.00	20.00	●	●
	3.600	52.00	20.00	●	●
	3.700	52.00	20.00	●	●
	3.800	55.00	22.00	●	●
5/32	3.900	55.00	22.00	●	●
	3.970	55.00	22.00	●	●
	4.000	55.00	22.00	●	●
	4.100	55.00	22.00	●	●
	4.200	55.00	22.00	●	●
	4.300	58.00	24.00	●	●
11/64	4.370	58.00	24.00	●	●
	4.400	58.00	24.00	●	●
	4.500	58.00	24.00	●	●
	4.600	58.00	24.00	●	●
	4.700	58.00	24.00	●	●
3/16	4.760	62.00	26.00	●	●
	4.800	62.00	26.00	●	●
	4.900	62.00	26.00	●	●
	5.000	62.00	26.00	●	●
	5.100	62.00	26.00	●	●
	5.200	62.00	26.00	●	●
	5.300	62.00	26.00	●	●
	5.400	66.00	28.00	●	●
	5.500	66.00	28.00	●	●
	5.600	66.00	28.00	●	●
	5.700	66.00	28.00	●	●
	5.800	66.00	28.00	●	●
	5.900	66.00	28.00	●	●
	6.000	66.00	28.00	●	●
	6.100	70.00	31.00	●	●
	6.200	70.00	31.00	●	●

Stub drills



Catalog no.				71184	51184
Tool material				Solid Carbide	
Discount group				102	102
Cutting direction				right-hand	right-hand
Surface				bright	TiAlN nano
d1	d1	l1	l2	price per piece	
inch	mm	mm	mm		
1/4	6.300	70.00	31.00	●	●
	6.350	70.00	31.00	●	
	6.400	70.00	31.00	●	●
	6.500	70.00	31.00	●	●
	6.600	70.00	31.00	●	●
	6.700	70.00	31.00	●	●
	6.800	74.00	34.00	●	●
9/32	6.900	74.00	34.00	●	●
	7.000	74.00	34.00	●	●
	7.100	74.00	34.00	●	●
	7.140	74.00	34.00	●	
	7.200	74.00	34.00	●	●
	7.300	74.00	34.00	●	●
	7.400	74.00	34.00	●	●
5/16	7.500	74.00	34.00	●	●
	7.600	79.00	37.00	●	●
	7.700	79.00	37.00	●	●
	7.800	79.00	37.00	●	●
	7.900	79.00	37.00	●	●
	7.940	79.00	37.00	●	
	8.000	79.00	37.00	●	●
11/32	8.100	79.00	37.00	●	●
	8.200	79.00	37.00	●	●
	8.300	79.00	37.00	●	●
	8.400	79.00	37.00	●	●
	8.500	79.00	37.00	●	●
	8.600	84.00	40.00	●	●
	8.700	84.00	40.00	●	●
7/16	8.730	84.00	40.00	●	
	8.800	84.00	40.00	●	●
	8.900	84.00	40.00	●	●
	9.000	84.00	40.00	●	●
	9.100	84.00	40.00	●	●
	9.200	84.00	40.00	●	●
	9.300	84.00	40.00	●	●
15/32	9.400	84.00	40.00	●	●
	9.500	84.00	40.00	●	●
	9.600	89.00	43.00	●	●
	9.700	89.00	43.00	●	●
	9.800	89.00	43.00	●	●
	9.900	89.00	43.00	●	●
	10.000	89.00	43.00	●	●
15/16	10.100	89.00	43.00	●	
	10.200	89.00	43.00	●	●
	10.300	89.00	43.00	●	
	10.500	89.00	43.00	●	●
	11.000	95.00	47.00	●	●
	11.110	95.00	47.00	●	
	11.500	95.00	47.00	●	●
15/32	11.910	102.00	51.00	●	●
	12.000	102.00	51.00	●	
	13.000	102.00	51.00	●	
	15.000	111.00	56.00	●	

Carbide drills

Jobber drills

Catalog no. 71290



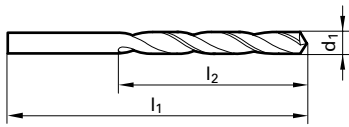
A standard drill for the drilling of high tensile steels, cast steel, grey cast iron, chilled cast iron, austenitic and manganese steel, CrNi-steels, bronzes, light metals and nonferrous metals. Ideally suited to the economic machining of abrasive materials (AlSi-alloys), fiber-reinforced plastics and other Duroplastics liable to cause severe abrasion on cutting lip and lands.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	<i>N</i>
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h7

Helix angle: normal
 Web thickness: normal
 Web taper: normal
 Flute form: normal
 Web thinning: to DIN 1412, form A

Jobber drills



Catalog no.

71290

Tool material

Solid Carbide

Discount group

102

Cutting direction

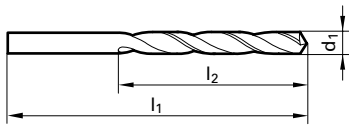
right-hand

Surface

bright

d1 inch	d1 mm	l1 mm	l2 mm	price per piece
	1.000	34.00	12.00	●
	1.100	36.00	14.00	●
	1.200	38.00	16.00	●
	1.300	38.00	16.00	●
	1.400	40.00	18.00	●
	1.500	40.00	18.00	●
	1.600	43.00	20.00	●
	1.700	43.00	20.00	●
	1.800	46.00	22.00	●
	1.900	46.00	22.00	●
	2.000	49.00	24.00	●
	2.100	49.00	24.00	●
	2.200	53.00	27.00	●
	2.300	53.00	27.00	●
3/32	2.380	57.00	30.00	●
	2.400	57.00	30.00	●
	2.500	57.00	30.00	●
	2.600	57.00	30.00	●
	2.700	61.00	33.00	●
7/64	2.780	61.00	33.00	●
	2.800	61.00	33.00	●
	2.900	61.00	33.00	●
	3.000	61.00	33.00	●
	3.100	65.00	36.00	●
1/8	3.170	65.00	36.00	●
	3.200	65.00	36.00	●
	3.300	65.00	36.00	●
	3.400	70.00	39.00	●
9/64	3.500	70.00	39.00	●
	3.570	70.00	39.00	●
	3.600	70.00	39.00	●
	3.700	70.00	39.00	●
	3.800	75.00	43.00	●
5/32	3.900	75.00	43.00	●
	3.970	75.00	43.00	●
	4.000	75.00	43.00	●
	4.100	75.00	43.00	●
	4.200	75.00	43.00	●
	4.300	80.00	47.00	●
11/64	4.370	80.00	47.00	●
	4.400	80.00	47.00	●
	4.500	80.00	47.00	●
	4.600	80.00	47.00	●
	4.700	80.00	47.00	●
3/16	4.760	86.00	52.00	●
	4.800	86.00	52.00	●
	4.900	86.00	52.00	●
	5.000	86.00	52.00	●
	5.100	86.00	52.00	●
13/64	5.160	86.00	52.00	●
	5.200	86.00	52.00	●
	5.300	86.00	52.00	●
	5.400	93.00	57.00	●
	5.500	93.00	57.00	●
7/32	5.560	93.00	57.00	●
	5.600	93.00	57.00	●
	5.700	93.00	57.00	●
	5.800	93.00	57.00	●
	5.900	93.00	57.00	●
15/64	5.950	93.00	57.00	●

Jobber drills



Catalog no.

71290

Tool material

Solid Carbide

Discount group

102

Cutting direction

right-hand

Surface

bright

d1 inch	d1 mm	l1 mm	l2 mm	price per piece
	6.000	93.00	57.00	●
	6.100	101.00	63.00	●
	6.200	101.00	63.00	●
1/4	6.300	101.00	63.00	●
	6.350	101.00	63.00	●
	6.400	101.00	63.00	●
	6.500	101.00	63.00	●
	6.600	101.00	63.00	●
	6.700	101.00	63.00	●
	6.800	109.00	69.00	●
	6.900	109.00	69.00	●
	7.000	109.00	69.00	●
9/32	7.100	109.00	69.00	●
	7.140	109.00	69.00	●
	7.200	109.00	69.00	●
	7.300	109.00	69.00	●
	7.400	109.00	69.00	●
	7.500	109.00	69.00	●
	7.600	117.00	75.00	●
	7.700	117.00	75.00	●
	7.800	117.00	75.00	●
5/16	7.900	117.00	75.00	●
	7.940	117.00	75.00	●
	8.000	117.00	75.00	●
	8.100	117.00	75.00	●
	8.200	117.00	75.00	●
	8.300	117.00	75.00	●
	8.400	117.00	75.00	●
	8.500	117.00	75.00	●
	8.600	125.00	81.00	●
11/32	8.700	125.00	81.00	●
	8.730	125.00	81.00	●
	8.800	125.00	81.00	●
	8.900	125.00	81.00	●
	9.000	125.00	81.00	●
	9.100	125.00	81.00	●
	9.200	125.00	81.00	●
	9.300	125.00	81.00	●
	9.400	125.00	81.00	●
	9.500	125.00	81.00	●
	9.600	133.00	87.00	●
	9.700	133.00	87.00	●
	9.800	133.00	87.00	●
	9.900	133.00	87.00	●
	10.000	133.00	87.00	●
	10.200	133.00	87.00	●
	10.300	133.00	87.00	●
	10.500	133.00	87.00	●
7/16	11.000	142.00	94.00	●
	11.110	142.00	94.00	●
	11.500	142.00	94.00	●
15/32	11.910	151.00	101.00	●
	12.000	151.00	101.00	●

Carbide drills

NC-spotting drills

Catalog no. 71190



Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation. Especially suitable for spotting in high tensile steels, cast steels, grey cast iron, chilled cast iron, austenitic and manganese steel, CrNi- steels, bronzes, light metals and non-ferrous metals.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	90
Web thinned ≥Ø	
Tolerance on Ø	h6
Helix angle: smaller than normal Web thickness: considerably smaller than normal Flute form: normal Web thinning: none	

NC-spotting drills

Catalog no. 71191



Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation. Especially suitable for spotting in high tensile steels, cast steels, grey cast iron, chilled cast iron, austenitic and manganese steel, CrNi- steels, bronzes, light metals and non-ferrous metals.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	120
Web thinned ≥Ø	
Tolerance on Ø	h6
Helix angle: smaller than normal Web thickness: considerably smaller than normal Flute form: normal Web thinning: none	

NC-spotting drills

Catalog no. 71189



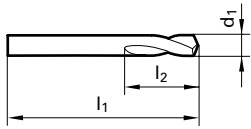
Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation. Especially suitable for spotting in high tensile steels, cast steels, grey cast iron, chilled cast iron, austenitic and manganese steel, CrNi- steels, bronzes, light metals and non-ferrous metals.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	142
Web thinned ≥Ø	
Tolerance on Ø	h6
Helix angle: smaller than normal Web thickness: considerably smaller than normal Flute form: normal Web thinning: none	

NC-spotting drills



			Catalog no.	71190	71191	71189
			Tool material	Solid Carbide		
			Discount group	102	102	102
			Cutting direction	right-hand	right-hand	right-hand
			Surface	bright	bright	bright
d1	l1	l2	price per piece			
mm	mm	mm				
4.000	55.00	12.00				●
5.000	62.00	14.00	●	●		●
6.000	66.00	16.00	●	●		●
8.000	79.00	21.00	●	●		●
10.000	89.00	25.00	●	●		●
12.000	102.00	30.00	●	●		●
16.000	115.00	37.50	●	●		●
20.000	131.00	45.00	●	●		●

Carbide drills

Special drills with carbide blade

Catalog no. 71180



Designed for drilling spring steel, hard cast iron of more than 300 HB, pure molybdenum, hard bronze and other materials with similar properties.

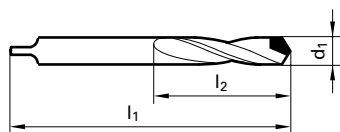
With tang acc. DIN 1809

DIN 8037

Tool material	Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.50
Tolerance on \emptyset	h8

Helix angle: normal
 Web thickness: normal
 Web taper: normal
 Web thinning: to DIN 1412, form A

Special drills with carbide blade



Catalog no.	71180
Tool material	Carbide
Discount group	102
Cutting direction	right-hand
Surface	bright

d1	l1	l2	price per piece
mm	mm	mm	
1.500	40.00	14.00	○
3.000	50.00	20.00	●
3.500	56.00	25.00	●
4.000	56.00	25.00	●
4.500	63.00	28.00	●
5.000	63.00	28.00	●
5.500	71.00	32.00	●
6.000	71.00	32.00	●
6.500	71.00	32.00	●
7.000	80.00	40.00	●
7.500	80.00	40.00	●
8.000	80.00	40.00	●
8.500	90.00	50.00	●
9.000	90.00	50.00	●
9.500	90.00	50.00	●
10.000	100.00	56.00	●
10.500	100.00	56.00	●
11.000	100.00	56.00	●
11.500	112.00	63.00	●
12.000	112.00	63.00	●
12.500	112.00	63.00	●
13.000	112.00	63.00	●
13.500	125.00	71.00	●
14.000	125.00	71.00	●
14.500	125.00	71.00	●
15.000	125.00	71.00	●
16.000	140.00	80.00	●
16.500	140.00	80.00	●
20.000	160.00	90.00	●

Carbide drills

Special drills with carbide blade

DIN 8041

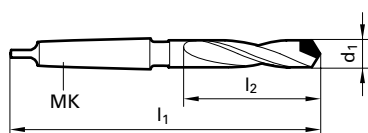
Catalog no. 71380



Specially designed for drilling spring steel, hard cast iron of more than 300 HB, pure molybdenum, very hard bronze and similar difficult materials as well as synthetic materials reinforced with glass fibres (e.g. printed circuit boards) and other resin based thermo-hardened products likely to cause rapid wear on the lands and cutting edges of high speed steel drills.

Tool material	Carbide
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	10.00
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71380
Tool material	Carbide
Discount group	102
Cutting direction	right-hand
Surface	bright

d1 mm	MT	l1 mm	l2 mm	price per piece
11.000	1	140.00	50.00	○
12.500	1	146.00	56.00	○
13.000	1	146.00	56.00	○
16.000	2	175.00	70.00	○
17.000	2	175.00	70.00	○
18.000	2	185.00	80.00	○
20.000	3	215.00	90.00	○
30.000	4	275.00	125.00	○
33.000	4	290.00	140.00	○

Solid carbide centre drills

Center drills without flat

Catalog no. 71616



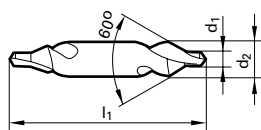
Standard drill for producing centre holes to DIN 332, sheet 1, form A (without protecting chamfer). Especially suitable for the drilling of high tensile steels, cast steel, grey cast iron, chilled cast iron, austenitic manganese steel, CrNi-steels, bronzes, light metals and nonferrous metals. Also suited for the machining of abrasive materials (AlSi-alloys), fiber-reinforced plastics and other Duroplastics likely to cause severe abrasion on cutting lips and lands.

Center drills with Ø 0.5 and 0.8 mm are only single-sided.

Stock std.

Tool material	Solid Carbide
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on \emptyset	

tol. on body \emptyset : h7 (to DIN h9)
 tol. on pilot \emptyset (to new standard):
 \emptyset 0,50 – 2,50 = + 0,14 mm
 \emptyset 3,15 – 5,00 = + 0,18 mm
 \emptyset 6,30 – 10,0 = + 0,22 mm
 \emptyset 12,50 = + 0,27 mm
 Web thinning: to DIN 1412, form A



Catalog no.	71616
Tool material	Solid Carbide
Discount group	102
Cutting direction	right-hand
Surface	bright

d1	d2	l1	price per piece
mm	mm	mm	
1.000	3.150	31.50	●
1.250	3.150	31.50	●
1.600	4.000	35.50	●
2.000	5.000	40.00	●
2.500	6.300	45.00	●
3.150	8.000	50.00	●
4.000	10.000	56.00	●
5.000	12.500	63.00	●
6.300	16.000	71.00	●

One-Shot-Drill Application Range

Our One-Shot-Drills are a special development for applications in hardened steel with a hardness of 40 to 65 HRC at drilling depths of up to $3 \times D$.

This drill is also extremely well suited for producing bores in mining bore heads. Such bores are required to hold rockbits. Here the One-Shot-Drills convince by their outstanding accuracy:

- diameter tolerances of ± 0.005 mm ($\leq IT 7$) and a process stability/ accuracy of $0.002 - 0.003$ mm from bore to bore
- surface quality of the bore to ca. $R_a 1.0 - 0.2 \mu\text{m}$ to class N6/N7 of DIN ISO 1302
- high positioning accuracy

The One-Shot-Drill achieves these results continuously, throughout its tool life, without reaming. The minimum target tool life is 3000 bores. This is a lot considering that this is achieved in steels of 47 HRC and more.

What's more, the One-Shot-Drill is a well proven drill in steels of 60 HRC and more as well. Required for such performance are performance machines, accurately aligned tool holders and spindles as well as steady, defined feeds.

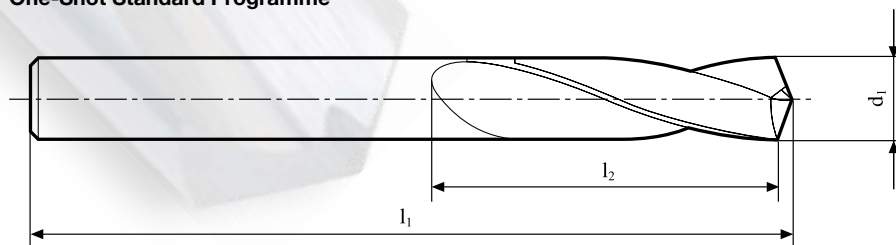
You can support the precision requirements by using hydraulic chucks.



Specifications

Point Geometry:	with secondary flank/relieve cone
Point Angle:	140°
Web thinning:	FL
Flute Form:	FL
Shank:	straight h6
Carbide:	solid K40
Coating:	TiAlN

One-Shot Standard Programme



Size-Ø mm d_1	Overall Length mm l_1	Flute Length mm l_2
4.0	55	22
4.3	55	22
5.0	62	26
5.1	62	26
6.0	66	28
6.9	74	34
7.0	74	34
8.0	79	37
8.6	84	40
9.0	84	40
10.0	89	43
10.3	89	43
11.0	95	47
12.0	102	51
















HSS-DRILLS



Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Stub drills

	N	right-hand	118	HSS	bright	DIN 1897	0,500 - 32,000	71110	134	226
	N	left-hand	118	HSS	bright	DIN 1897	0,500 - 32,000	71111	138	226
	N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 1897	2,000 - 20,000	71108	132	226
	N	left-hand	118	HSS	bright/steam tempered > Ø 6,0 mm	DIN 1897	2,600 - 26,500	71109	134	231
	N	right-hand	118	HSS	TiN	DIN 1897	1,000 - 13,100	61118	133	231
	N	right-hand	135	M42	bright	DIN 1897	1,000 - 10,000	71106	138	231
	NX	right-hand	118	HSS-Co	bright	DIN 1897	1,000 - 14,000	71220	134	234
	NX	right-hand	118	HSS-Co	TiN	DIN 1897	1,000 - 14,000	61220	135	234
	V97	right-hand	130	HSS	bright/nitr. lands > Ø 2,36 mm	DIN 1897	1,000 - 16,000	71107	136	234
	V97	right-hand	130	HSS-Co	TiAlN	DIN 1897	2,000 - 16,000	51159	137	237
	V-PM	right-hand	130	HSS-E-PM	TiN	DIN 1897	1,000 - 14,000	61131	135	237
	VX	right-hand	130	HSS-Co	bright/steam tempered > Ø 2,36 mm	DIN 1897	1,000 - 13,000	71112	134	237
	VX	right-hand	130	HSS-Co	TiN	DIN 1897	1,000 - 12,500	61112	135	241

Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Stub drills



V72	right-hand	118	HSS	bright	Stock std.	1,000 - 16,000	71114	134	244
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V72	left-hand	118	HSS	bright	Stock std.	1,000 - 16,000	71113	138	244
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Short lengths drills



N	right-hand	118	HSS	bright	DIN 338	0,200 - 16,000	71116	130	248
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N	left-hand	118	HSS	bright	DIN 338	1,600 - 14,700	71119	134	248
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N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 338	2,000 - 20,000	71115	130	248
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N	right-hand	118	HSS	steam tempered	DIN 338	3,000 - 10,700	71164	132	255
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N	right-hand	118	HSS	TiN	DIN 338	1,000 - 16,000	61116	131	255
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N	right-hand	118	HSS	TiN - tip coated	DIN 338	1,000 - 16,000	61115	130	255
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N	right-hand	118	HSS-Co	bright/steam tempered > Ø 2,36 mm	DIN 338	1,000 - 15,000	71149	134	259
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N	right-hand	135	M42	bright	DIN 338	1,000 - 16,000	71148	138	259
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H	right-hand	118	HSS	bright	DIN 338	1,000 - 14,000	71117	134	259
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NX	right-hand	118	HSS-Co	bright	DIN 338	1,000 - 14,000	71221	134	262
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Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Short lengths drills

	NX	right-hand	118	HSS-Co	TiN	DIN 338	1,000 - 14,000	61221	135	262
	V66	right-hand	130	HSS-Co	bright/nitr. lands > Ø 2,0 mm	DIN 338	0,800 - 13,500	71123	134	262
	V66 Ti	right-hand	130	HSS-Co	bright	DIN 338	1,000 - 16,000	71122	134	266
	V66 Ti	right-hand	130	HSS-Co	TiN	DIN 338	1,000 - 13,500	61223	135	266
	V66 Ti	right-hand	130	HSS-Co	TiAlN	DIN 338	2,000 - 13,000	51122	135	266
	V70	right-hand	130	HSS	bright	DIN 338	1,500 - 16,000	71124	136	269
	V70	left-hand	130	HSS	bright	DIN 338	1,500 - 16,000	71126	138	269
	V70	right-hand	130	HSS	TiN	DIN 338	1,500 - 16,000	61124	137	269
	V70	right-hand	130	HSS-Co	nitrided lands	DIN 338	1,500 - 13,000	71158	136	274
	V70	right-hand	130	HSS-Co	TiN	DIN 338	1,500 - 13,000	61158	137	274
	V72	right-hand	118	HSS	bright	DIN 338	0,550 - 13,000	71128	136	274
	V72	left-hand	118	HSS	bright	DIN 338	0,500 - 13,000	71129	138	278
	V97	right-hand	130	HSS-Co	TiAlN	DIN 338	1,000 - 13,000	51158	137	278

Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Short lengths drills



V-PM	right-hand	130	HSS-E-PM	TiN	DIN 338	1,000 - 14,000	61232	135	278
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Set of jobber drills in case

N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 338	-	78879	130	282
NX	right-hand	118	HSS-Co	bright	DIN 338	-	78879	130	282
N	right-hand	118	HSS	TiN - tip coated	DIN 338	-	78880	130	282

Set of jobber drills

N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 338	-	71160	130	283
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Cases for twist drill sets

					Stock std.	-	78878	138	284
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Stands for twist drill sets

					Stock std.	-	78877	138	284
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Twist drills with reinforced shank



NX	right-hand	118	HSS-Co	TiN	Stock std.	2,000 - 20,000	61120	115	285
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NX	right-hand	118	HSS-Co	TiN	Stock std.	2,000 - 20,000	61121	115	289
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Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Twist drills with reinforced shank



V-PM	right-hand	130	HSS-E-PM	TiAlN	Stock std.	2,000 - 13,000	51132	115	293
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Stub drills with 16.0 mm dia. shank



V72	right-hand	118	HSS-Co	bright	Stock std.	16,000 - 30,000	71168	138	295
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Stub drills with 25.4 mm dia. shank



V72	right-hand	118	HSS-Co	bright	Stock std.	28,000 - 40,000	71169	138	297
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Bushing drills



N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 339	1,000 - 19,500	71130	134	298
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Long series twist drills



N	right-hand	118	HSS	bright	DIN 340	0,500 - 16,500	71136	132	301
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N	right-hand	118	HSS	bright/steam tempered > Ø 2,36 mm	DIN 340	2,000 - 20,000	71135	132	301
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N	right-hand	118	HSS	TiN	DIN 340	1,000 - 16,000	61136	133	301
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NX	right-hand	118	HSS-Co	bright	DIN 340	1,000 - 14,000	71222	134	305
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NX	right-hand	118	HSS-Co	TiN	DIN 340	1,000 - 14,000	61222	135	305
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Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Long series twist drills

	V66	right-hand	130	HSS-Co	bright	DIN 340	1,000 - 13,000	71225	134	305
	V70	right-hand	130	HSS	bright	DIN 340	1,500 - 12,000	71150	136	308
	V70	left-hand	130	HSS	bright	DIN 340	1,500 - 13,000	71152	138	308
	V70	right-hand	130	HSS	TiN	DIN 340	2,000 - 12,000	61150	137	308
	V73	right-hand	130	HSS	nitrided lands	DIN 340	1,500 - 12,700	71154	136	311
	V73	right-hand	130	HSS-Co	nitrided lands	DIN 340	1,500 - 13,000	71156	136	311

Extra long twist drills, series 1

	V63	right-hand	130	HSS	bright/nitr. lands > Ø 2,36 mm	DIN 1869	2,000 - 13,000	71145	136	316
	V63	right-hand	130	HSS-Co	nitrided lands	DIN 1869	3,000 - 12,700	71192	136	316


Extra long twist drills, series 2

	V63	right-hand	130	HSS	nitrided lands	DIN 1869	3,000 - 13,000	71146	136	319
	V63	right-hand	130	HSS-Co	nitrided lands	DIN 1869	3,000 - 12,000	71193	138	319


Straight shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Extra long twist drills series 3

									
V63	right-hand	130	HSS	nitrided lands	DIN 1869	3,500 - 13,000	71147	136	321

Extra long twist drills

									
V63	right-hand	130	HSS	nitrided lands	Stock std.	6,000 - 12,000	71195	136	323
									
V63	right-hand	130	HSS	bright	Stock std.	8,000 - 12,000	71196	138	324




Twist drills with internal coolant

									
V73-IK	right-hand	130	HSS	bright	Stock std.	3,000 - 13,000	71584	136	325

Micro-precision drills

									
N	right-hand	118	HSS-E-PM	bright	DIN 1899	0,050 - 1,450	71187	134	327



NC-spotting drills

									
N	right-hand	90	HSS	bright	Stock std.	3,000 - 25,400	71175	134	331
									
N	right-hand	90	HSS	TiN	Stock std.	3,000 - 25,000	61175	135	331
									
N	right-hand	120	HSS	bright	Stock std.	3,000 - 25,400	71176	134	332






Taper shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Short lengths

									
N	right-hand	130	HSS-Co8	bright	Stock std.	10,000 - 25,500	71303	138	333
									
N	right-hand	130	HSS-Co8	bright	Stock std.	12,000 - 30,000	71304	138	335


Standard length

									
N	right-hand	118	HSS	steam tempered	DIN 345	3,750 - 60,000	71300	132	337
									
N	right-hand	118	HSS-Co	steam tempered	DIN 345	5,000 - 35,000	71416	134	337
									
V70	right-hand	130	HSS	bright	DIN 345	7,940 - 32,000	71305	136	337
									
V66 Ti	right-hand	130	HSS-Co	bright	DIN 345	8,000 - 32,000	71312	134	342
									
V66 Ti	right-hand	130	HSS-Co	bright	DIN 346	11,000 - 29,000	71313	138	344

Bushing drills

									
N	right-hand	118	HSS	steam tempered	DIN 341	6,000 - 40,000	71320	132	346
									
V70	right-hand	130	HSS	bright	DIN 341	7,940 - 44,000	71322	136	346

Extra long twist drills, series 1

									
V63	right-hand	130	HSS	nitrided lands/steam tempered > Ø 16,0	DIN 1870	7,940 - 30,000	71325	136	349

Taper shank twist drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Extra long twist drills, series 2



V63	right-hand	130	HSS	nitrided lands/steam tempered > Ø 16,0	DIN 1870	7,940 - 43,000	71326	136	351
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Twist drills with internal coolant



N-IK	right-hand	118	HSS	steam tempered	Stock std.	10,000 - 40,000	71554	138	353
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Twist drills with internal coolant, long



V70-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	14,500 - 32,000	71550	138	355
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V70-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	8,000 - 31,500	71553	138	355
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Extra-long spiral flute deep hole drill with internal coolant



V63-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	14,290 - 31,500	71565	136	357
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V63-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	8,000 - 14,000	71567	136	357
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V63-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	14,500 - 32,000	71566	136	359
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V63-IK	right-hand	130	HSS-Co	steam tempered	Stock std.	8,000 - 31,500	71568	136	359
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Coolant feeding „System Stock“						MT2 - MT4	71560	138	361
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Subland drills

Type	Form	chamfering angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Straight shank subland drills



N	A	90	HSS	steam tempered	DIN 8374	6,000 - 19,000	71501	138	362
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N	for tapping size holes	90	HSS	steam tempered	DIN 8378	3,400 - 13,500	71503	138	363
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N	medial	180	HSS	steam tempered	DIN 8376	6,000 - 18,000	71500	138	364
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Taper shank subland drills



N	for tapping size holes	90	HSS	steam tempered	DIN 8379	9,000 - 22,000	71523	138	365
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N	medial	180	HSS	steam tempered	DIN 8377	11,000 - 26,000	71520	138	366
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Center drills

Form	Cutting direction		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Center drills without flat

	A	right-hand	HSS	bright	DIN 333	0,500 - 12,500	71600	132	367
	A	left-hand	HSS	bright	DIN 333	0,500 - 8,000	71601	138	367
	R	right-hand	HSS	bright	DIN 333	0,500 - 10,000	71602	138	368
	R	right-hand	HSS	TiN	DIN 333	0,800 - 6,300	61602	139	368
	A	right-hand	reinf. neck HSS	bright	Stock std.	1,000 - 6,300	71605	138	369
	B	right-hand	HSS	bright	DIN 333	1,000 - 6,300	71604	138	370

Center drills with flat

	A	right-hand	HSS	bright	Stock std.	1,600 - 6,300	71607	138	371
	R	right-hand	HSS	bright	Stock std.	1,600 - 8,000	71609	138	371

Core drills

Type	Cutting direction	Point angle °	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Taper shank core drills



N	right-hand	120	HSS	steam tempered	DIN 343	8,000 - 48,600	72210	138	372
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Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

$\leq 3 \times D$ drilling depth

Catalogue no.	71108 71109	71110 71111	71114 71113	71107
Tool material	HSS	HSS	HSS	HSS
Surface finish	bright/st.	bright	bright	bright/nitr.l.
DIN/Form	1897	1897	Stock	1897
Type	N	N	V72	V97
Page	226/231	226	244	234

61118
HSS
TiN
1897
N
231

71112	71168	71169	71303 71304	71106
HSS-Co	HSS-Co	HSS-Co	HSS-Co8	M42
bright/st.	bright	bright	bright	bright
1897	Stock	Stock	Stock	1897
VX	V72	V72	N	N
237	295	297	333/335	231



V _c m/min	Feed column no.			
27	F	F	F	F
22	E	E	E	E
30	F	F	F	F
30	E	E	E	E
25	E	E	E	E
25	E	E	E	E
30	F	F	F	F
16	D	D		D
30	F	F	F	F
30	F	F	F	F
25	F	F	F	F
20	F	F	F	F
70			G	G
70			G	G
50	G	G	G	G
50	F	F	F	F
70	F	F	F	F
60	E	E	E	E
40	E	E	E	E
30	D	D	D	D
25	D	D	D	D
15	D	D	D	D
18	D	D	D	D
28	E	E	E	E



v_c m/min	Feed column no.
30	F
24	E
33	F
33	E
28	E
28	E
25	D
22	D
33	F
20	D
14	D
18	D
33	F
33	F
28	F
22	F
80	F
65	E
75	E
45	E
33	D
27	D
16	D
15	D
22	D
36	E



V _c m/min	Feed column no.				
35	E				E
30	E				E
40	E				E
40	E	E	E		E
40	E				E
40	E				E
35	D	D	D	D	D
20	D	D	D	D	D
16	C	C	C	C	C
36	F				F
20	D	D	D	D	C
15	C	C	C	C	C
16	D	D	D	D	
12	C	C	C	C	C
15	D	D	D	D	C
12	C	C	C	C	C
15	C	C	C	C	C
8	B	B	B	B	B
18	D	D	D		C
14	C	C	C	C	C
16	C	C	C	C	C
4	A			A	A
8	A	A	A	A	A
35	F				E
30	F				E
30	F				E
25	F				E
10	C			C	C
10	B			B	B
6	B			B	B
90					G
90					G
80					G
70					F
70					F
40					E
60					E
40					E
35	D				D
30	D				D
20	D				D
15	D				D
20	D	D	D		
30					D

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250
	50,00	0,250	0,310	0,400	0,500	0,630	0,800	1,000	1,250	1,250
	63,00	0,315	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600
	80,00	0,400	0,500	0,630	0,800	1,000	1,250	1,600	1,600	2,000
Feed column for 71187										
Drill-Ø mm	0,10	0,002	0,003	0,003	0,004	0,006	0,007	0,010	0,013	0,016
	0,16	0,002	0,003	0,004	0,005	0,007	0,009	0,012	0,016	0,022
	0,25	0,003	0,004	0,005	0,007	0,009	0,011	0,014	0,019	0,024
	0,30	0,004	0,005	0,007	0,009	0,011	0,015	0,019	0,025	0,033
	0,50	0,005	0,007	0,008	0,011	0,014	0,019	0,024	0,031	0,041
	0,63	0,007	0,009	0,012	0,015	0,020	0,026	0,034	0,044	0,057
	0,80	0,010	0,013	0,016	0,020	0,024	0,031	0,038	0,048	0,060
	1,00	0,020	0,024	0,029	0,035	0,041	0,050	0,060	0,072	0,086
	1,50	0,030	0,035	0,040	0,046	0,052	0,060	0,069	0,080	0,092
Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN						Tensile strength MPa (N/mm ²)	Hard- ness	Coolant	
General purpose steels	1.0035 S185(S133), 1.0486 P275N(S1E285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)						≤500 >500-850		■	
Free-cutting steels	1.0718 11SMnBp30 (9SMnBp28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)						≤850 850-1000		■	
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)						≤ 700 700-850 850-1000		■	
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4						850-≤1000 1000-1200		■	
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)						≤750		■	
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5						850-≤1000 1000-1200		■ ■	
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7						≥850-≤1000 >1000-1200		■ ■	
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4						≤850 >850-1000		■ ■	
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3						≥650-1000		■ ■	
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)							≤330 HB	■ ■	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9						≤850		■	
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)						≤850		■	
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2						≤850		■	
Hardened steels	-							≤40-48 HRC >48-60 HRC	■	
Special alloys	Nimonic, Inconel, Monel, Hastelloy						≤1200		■	
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)						850-≤1000 1000-1200		■ □	
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)							≤240 HB ≤300 HB	■	
Chilled cast iron	-							≤350 HB	■	
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1						≤850 >850-1200		■	
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1						≤400		■	
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5						≤450		■	
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9						≤600		■	
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg						≤600		■	
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1						≤450		□	
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb						≤400		■ ■	
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2						≤600		■ ■	
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5						≤600		■ ■	
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn						≤600		■ ■	
	2.0790 CuNi18Zn19Pb						>600-850		■ ■	
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2						≤850 >850-1000		■	
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren							-	□	
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon							-	■ □	
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6								■ □	
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)						800-1000 1200-1400		■ □	
Kevlar	Kevlar							-	-	
Glass/carbon-concentr. plastics	GFK/CFK							-	□	

Tools with feed column no. in bold are preferred choices for listed material group.

- ☐ right-hand cutting
 (catalogue no. without symbol is always right-hand cutting)
☐ left-hand cutting
 * only bright surface drills, respectively with bright ground flutes
 ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
 soluble oil (emulsion) ■
 without lubricant □
 air only □

$\leq 3 \times D$ drilling depth

Catalogue no.	61112	51159	61120	71220	61220	61131	71187
Tool material	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-E-PM	HSS-E-PM
Surface finish	TiN	TAiN	TiN	bright	TiN	TiN	bright
DIN/Form	1897	1897	Stock	1897	1897	1897	1899
Type	VX	V97	NX	NX	NX	V-PM	N
Page	241	237	285	234	234	237	327

[illegible]

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
Bronze, long-chipping	2.0790 CuNi18Zn19Pb 2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	>600-850 ≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

≤5×D drilling depth

Catalogue no.	71164	71116 71119	71115	71300	71117	71124 71126	71305	71128 71129
Tool material	HSS	HSS	HSS	HSS	HSS	HSS	HSS	HSS
Surface finish	steam	bright	bright/st.	steam	bright	bright	bright	bright
DIN/Form	338	338	338	345	338	338	345	338
Type	N	N	N	N	H	V70	V70	V72
Page	255	248	248	337	259	269	337	274/278

61116	61124	61115	61223
HSS	HSS	HSS	HSS-Co
TiN	TiN	TiN-tipped	TiN
338	338	338	338
N	V70	N	V66 Ti
255	269	255	266



V _c m/min	Feed column no.							
27	F	F	F	F	E	F	F	F
22	E	E	E	E		E	E	E
30	F	F	F	F		F	F	F
30	E	E	E	E		E	E	E
25	E	E	E	E		E	E	E
25	E	E	E	E		E	E	E
30	F	F	F	F		F	F	F
16	D		D	D		D	D	
30	F	F	F	F		G	G	F
30	F	F	F	F		F	F	F
25	F	F	F	F		F	F	F
25	F	F	F	F		F	F	F
80						G	G	G
80						G	G	G
70	G	G	G	G		G	G	G
70	F	F	F	F		F	F	F
50	F	F	F	F	F	F	F	F
50	E	E	E	E		F	F	E
70					F			
40	E	E	E	E		F	F	E
30	D	D	D	D	D			D
25	D	D	D	D				D
15	D	D	D	D		D	D	D
18	D	D	D	D	D	D	D	D
28	E	E	E	E	E			E

V _c m/min	Feed column no.		V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
30	F	F	30	F				
24	E	E	24	E				
33	F	F	33	F				
33	E	E	33	E				
28	E	E	28	E				
28	E	E	28	E				
25	D	D	25	D				
22	D	D	22	D				
					22	C		
33	F	F	33	F				
20	D	D	20	D				
					14	D		
14	D	D	14	D				
18	D	D	18	D				
					14	C		
					9	B		
					20	D		
					15	C		
					18	C		
					6	B		
33	F	G	33	F				
33	F	F	33	F				
28	F	F	28	F				
22	F	F	22	F				
					12	C		
					11	B		
					7	B		
80	F	F	80	F				
65	E	E	65	E				
75	E	E	75	E				
45	E	E	45	E				
33	D	D	33	D				
27	D	D	27	D				
16	D	D	16	D				
15	D	D	15	D				
22	D	D	22	D	17	D		
36	E	D	36	E				

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

$\leq 5 \times D$ drilling depth

Catalogue no.	71416	71149	71158	71123	71122	71312	71313	71148
Tool material	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	M42
Surface finish	steam	bright/st.	nitr. l.	bright/nitr.l.	bright	bright	bright	bright
DIN/Form	345	338	338	338	338	345	346	338
Type	N	N	V70	V66	V66 Ti	V66 Ti	V66 Ti	N
Page	337	259	274	262	266	342	344	259

71221	61221
HSS-Co	HSS-Co
bright	TiN
338	338
NX	NX
262	262



V _c m/min	Feed column no.								V _c m/min	Feed column no.	V _c m/min	Feed column no.
35	E	E						E	35	F	45	F
30	E	E						E	30	E	35	E
40	E	E						E	40	F	50	F
40	E	E	E					E	30	F	40	F
40	E	E						E	32	F	42	F
40	E	E	E					E	28	F	35	F
35	D	D	D					E	20	E	22	E
20	D	D	D					D	15	D	18	D
16	C	C	C	C	C	C	C	C	13	C	15	C
36	F	F		F	F	F	F	F	30	F	40	F
20	D	D	D					C	16	D	20	D
15	C	C	C	C	C	C	C	C	12	C	15	C
16	D	D	D					C	15	D	18	D
12	C	C	C	C	C	C	C	C	10	C	12	C
15	D	D	D					C	15	D	18	D
12	C	C	C	C	C	C	C	C	10	C	13	C
15	C	C	C	C	C	C	C	C	10	C	13	C
8	B	B		B	B	B	B	B				
18	D	D	D	D	D	D	D	C	14	D	18	D
14	C	C		C	C	C	C	C	10	D	12	D
16	C	C	C	C	C	C	C	C	12	D	15	D
4								A				
8				A	A	A	A	A				
35	F	F	F					E	36	F	45	F
30	F	F	F					E	30	F	36	F
30	F	F	F					E	30	F	40	F
28	F	F	F					E	22	F	28	F
10	C	C	C	C	C	C	C	C				
10				B	B	B	B	B				
6				B	B	B	B	B				
90								G	50	G	70	G
90								G	50	G	70	G
80			G					G	65	G	85	G
70			F					F	60	F	70	F
70								F	60	F	70	F
40	E	E	E					E	25	E	32	E
60								E	45	E	63	E
40	E	E	E					E	30	E	40	E
35	D	D						D	36	D	50	D
33	D	D						D	30	D	35	D
20	D	D	D					D	30	D	32	D
15	D	D	D					D	25	D	28	D
20	D	D	D						20	D	25	D
									15	D	15	D

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

≤5×D drilling depth

≤10×D

Catalogue no.	61121	61158	61232	51132	51158	51122	71222	61222
Tool material	HSS-Co	HSS-Co	HSS-E-PM	HSS-E-PM	HSS-Co	HSS-Co	HSS-Co	HSS-Co
Surface finish	TiN	TiN	TiN	TiAlN	TiAlN	TiAlN	bright	TiN
DIN/Form	Stock	338	338	Stock	338	338	340	340
Type	NX	V70	V-PM	V-PM	V97	V66 Ti	NX	NX
Page	289	274	278	293	278	266	305	305



V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.	V _c m/min	Feed column no.
38	F	38	F	40	F	42	F	42	F	35	F	38	F	35	F	38	F
33	E	33	E	32	E	37	E	36	E	30	E	33	E	30	E	33	E
44	F	44	E	45	F	47	F	48	F	40	F	44	F	40	F	44	F
40	E	38	E	40	E	44	F	42	F	30	F	40	E	30	F	40	E
44	F			42	F	47	F			32	F	44	F			44	F
44	F	44	E	40	E	47	F	48	F	28	F	44	F			44	F
40	E	38	D	28	D	44	E	42	E	20	E	40	E			40	E
27	D	27	D	25	D	30	D	30	E	15	D	27	D			27	D
22	C	22	C	20	C	25	C	34	D	13	C	22	C			22	C
44	F	44	D	40	D	47	C	48	F	30	F	44	F			44	F
22	D	22	D	22	D	25	D	24	E	16	D	22	D			22	D
18	C	18	C	18	C	20	C	20	D	12	C	18	C			18	C
22	D	22	D	20	D	25	D	24	E	15	D	22	D			22	D
16	C	18	C	15	C	18	D	20	D	10	C	16	C			16	C
20	D	19	D	25	D	22	E	21	E	15	D	20	D			20	D
15	C	14	C	15	C	17	D	16	D	10	C	15	C			15	C
13	C	14	C	15	C	14	D	17	D	10	C	13	C			13	C
9	B			12	B	10	B	11	C			9	B			9	B
20	D	20	D	15	D	22	D	22	E	14	D	20	D			20	D
16	D			10	C	18	C	17	D	10	D	16	D			16	D
18	D	18	C	12	C	20	C	20	D	12	D	18	D			18	D
								6	A								
						6	B	7	B								
45	F	40	F	50	F	50	G	45	G	36	F	45	F			45	F
40	F	35	F	40	F	44	G	40	G	30	F	40	F			40	F
40	F	33	F	45	F	44	G	36	G	30	F	40	F			40	F
30	F	27	F	32	F	33	G	29	G	22	F	30	F			30	F
				8	C	16	D	14	D								
								12									
								8									
										50	G						
										50	G						
										65	G						
										60	F						
										60	F						
80	F			50	E					25	E	80	F				
88	E	88	E					96	F	45	E	88	E				
77	E									30	E	77	E				
44	E			60	E					36	D	44	E				
45	D			50	E	50	E			30	D	45	D				
40	D			45	D	44	E			30	D	40	D				
30	D	22	D	40	D	33	E	25	E	30	D	30	D				
25	D	17	D	32	D	28	E	20	E	25	D	25	D				
22	D	22	D	25	D			24	E	20	D	22	D				
27	D									15	D	27	D				

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

- R** right-hand cutting
(catalogue no. without symbol is always right-hand cutting)
- L** left-hand cutting
- * only bright surface drills, respectively with bright ground flutes
- ** cutting edge corrected approx. 10°

Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

$\leq 10 \times D$ drilling depth

Catalogue no.	71136	71130	71135	71320	71150 71152	71322	71154
Tool material	HSS	HSS	HSS	HSS	HSS	HSS	HSS
Surface finish	bright	bright/st.	bright/st.	steam	bright	bright	nitr. l.
DIN/Form	340	339	340	341	340	341	340
Type	N	N	N	N	V70	V70	V73
Page	301	298	301	346	308	346	311



V _c m/min	Feed column no.					
24	F	F	F	F	F	F
20	E	E	E	E	E	E
27	F	F	F	F	F	F
27	E	E	E	E	E	E
22	E	E	E	E	E	E
22	E	E	E	E	E	E
27		F	F	F	F	F
14		D	D	D	D	D
12				D		
27	F	F	F	F	G	F
27	F	F	F	F	F	F
22	F	F	F	F	F	F
18	F	F	F	F	F	F
70					G	G
70					G	G
45	G	G	G	G	G	G
45	F	F	F	F	F	F
63	F	F	F	F	F	F
54	E	E	E	E	F	F
36	E	E	E	E	F	F
28	D	D	D	D		
22	D	D	D	D		
22	D	D	D	D	D	D
14	D	D	D	D	D	D
22	E	E	E	E		

71584
HSS
bright
Stock
V73-IK
325



V _c m/min	Feed col. no.
26	F
22	E
30	F
30	E
24	E
24	E
22	D
20	D
14	C
30	F
17	D
12	C
14	D
10	C
15	D
10	C
10	C
7	B
30	F
30	F
24	F
20	F
7	C
80	F
50	G
50	F
60	E
40	E
24	D
24	D
22	D
24	E

61136	61150
HSS	HSS
TiN	TiN
340	340
N	V70
301	308



V _c m/min	Feed column no.
28	F
22	E
30	F
30	E
25	E
25	E
22	D
18	D
30	F
14	D
12	D
16	D
10	C
30	F
30	F
24	F
20	F
50	G
50	F
70	F
60	E
40	E
30	D
25	D
14	D
12	D
18	D
32	E

71225	71156
HSS-Co	
bright	nitr. l.
340	340
V66	V73
305	311



V _c m/min	Feed column no.
24	E
24	E
16	D
16	D
14	C
14	D
10	C
12	D
8	C
16	D
8	C
8	C
6	B
12	D
8	C
10	C
5	A
30	F
24	F
24	F
20	F
6	C
8	B
5	B
60	G
50	F
60	E
30	E
38	E
24	D
13	D
16	D
26	D

71550	71553
HSS-Co	
steam	
Stock	
V70-IK	
355	



V _c m/min	Feed col. no.
26	F
22	E
30	F
30	E
24	E
24	E
22	D
20	D
14	C
30	F
17	D
12	C
14	D
10	C
15	D
10	C
10	C
7	B
30	F
30	F
24	F
20	F
7	C
80	F
50	G
50	F
60	E
40	E
24	D
24	D
22	D
24	E

Application recommendations for drills

Feed column										
Code-letter	A	B	C	D	E	F	G	H	I	
Drill-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Tools with feed column no. in bold are preferred choices for listed material group.

R right-hand cutting
(catalogue no. without symbol is always right-hand cutting)

L left-hand cutting

* only bright surface drills, respectively with bright ground flutes

** cutting edge corrected approx. 10°

Lubricants:

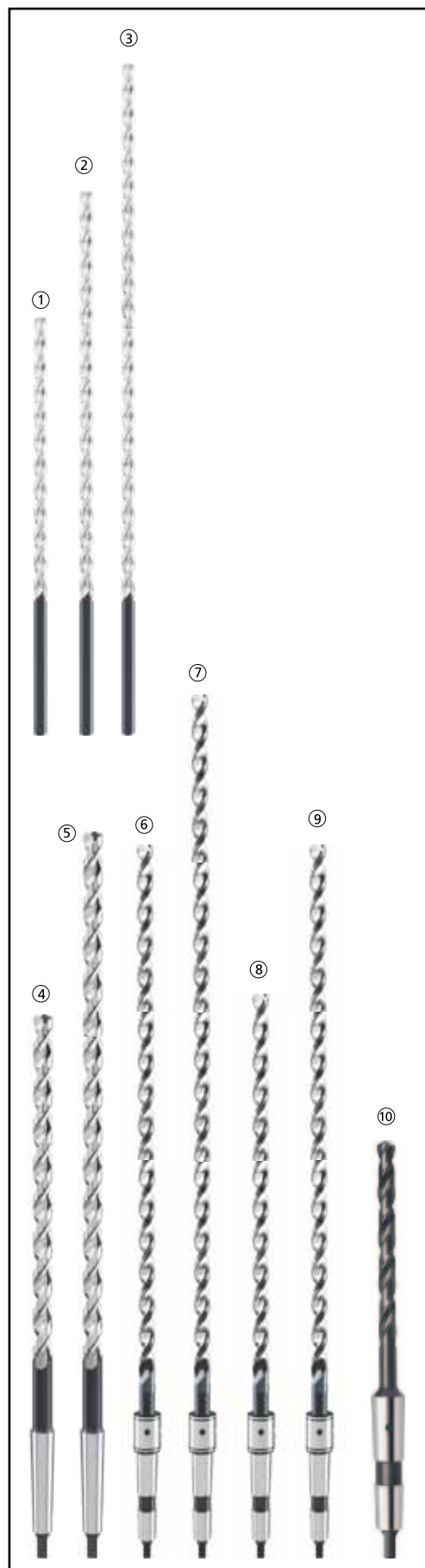
- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- without lubricant □
- air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	850-≤1000 1000-1200		■ □
Spheroidal graphit iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB ≤300 HB	■
Chilled cast iron	-		≤350 HB	■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5Zn2Pb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7Zn2Pb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
	2.0790 CuNi18Zn19Pb	>600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
New Cast iron GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35) EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo6			■ □
New Cast iron ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000) EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	800-1000 1200-1400		■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

$\geq 10 \times D$ drilling depth

Catalogue no.	71145 ^①	71195 ^①	71325 ^④	71192 ^①	71565 ^⑥	71554 ^⑩
	71146 ^②	71196 ^②	71326 ^⑤	71193 ^②	71566 ^⑦	
	71147 ^③				71567 ^⑧	
					71568 ^⑨	
Tool material	HSS	HSS	HSS	HSS-Co	HSS-Co	HSS
Surface finish	bright/nitr.l.	nitr. l.	nitr.l./st.	nitr. l.	steam	steam
DIN/Form	1869	Stock	1870	1869	Stock	Stock
Type	V63	V63	V63	V63	V63-IK	N-IK
Page	316/319/321	323/324	349/351	316/319	357/359	353

V _c m/min	Feed column no.			V _c m/min	Feed col. no.	V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
22	E	E	E	30	D	30	E	26	F
18	D	D	D	25	D	25	D	22	E
22	E	E	E	33	D	30	E	30	F
18	D	D	D	30	D	25	D	30	E
22	D	D	D	33	D	30	D	24	E
18	D	D	D	33	D	25	D	24	E
				20	C	18	C	22	D
				14	C	16	C	20	D
				10	B	12	B	14	C
22	E	E	E	29	D	30	E	30	F
				14	C	14	C	17	D
				10	B	12	B	12	C
				10	C	12	C	14	D
				8	B	8	B	10	C
12	C	C	C	11	C	16	C	15	D
6	B	B	B	8	B	8	B	10	C
				8	B	8	B	10	C
				5	A	6	A	7	B
				10	C	12	C		
				8	B	8	B		
				10	B	12	B		
				3	A	3	A		
				6	A	6	A		
22	E	E	E	30	E	30	E	30	F
18	E	E	E	20	E	25	E	30	F
20	E	E	E	16	E	28	E	24	F
14	E	E	E	5	B	20	E	20	F
				5	B	6	B	7	C
				6	A	8	B		
				5	A	6	B		
45	F	F	F	50	F	63	F	50	G
36	E	E	E	40	E	50	E	50	F
55	E	E	E						
22	D	D	D	30	D	30	D	60	E
				45	D				
28	D	D	D	30	D	40	D	40	E
22	C	C	C	25	D				
20	C	C	C	20	D	28	D	24	D
18	C	C	C	16	C	25	D	24	D
				10	C	20	D	22	D
12	C	C	C	14	C				
18	D	D	D	20	C	25	D	24	E



Straight shank twist drills

Stub drills

Catalog no. 71110



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills

Catalog no. 71111



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills

Catalog no. 71108

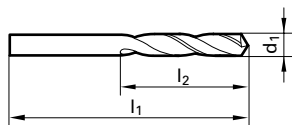


For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

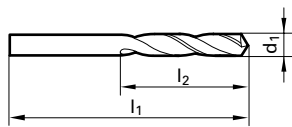
Tool material	HSS
Surface	bright/steam tempered $> \emptyset 2,36$ mm
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills



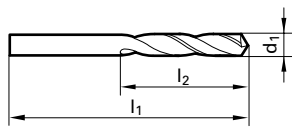
				Catalog no.	71110	71111	71108
				Tool material	HSS		
				Discount group	134	138	132
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	0.500	20.00	3.00	●	○		
	0.550	21.00	3.50		○		
	0.600	21.00	3.50	●	○		
	0.650	22.00	4.00		○		
	0.700	23.00	4.50	●	○		
	0.750	23.00	4.50	●	○		
	0.800	24.00	5.00	●	○		
	0.850	24.00	5.00		○		
	0.900	25.00	5.50	●	○		
	0.950	25.00	5.50		○		
	1.000	26.00	6.00	●	○		
	1.050	26.00	6.00	●	○		
	1.100	28.00	7.00	●	○		
	1.150	28.00	7.00	●	○		
	1.200	30.00	8.00	●	○		
	1.250	30.00	8.00	●	○		
	1.300	30.00	8.00	●	○		
	1.350	32.00	9.00	●	○		
	1.400	32.00	9.00	●	○		
	1.450	32.00	9.00	●	○		
	1.500	32.00	9.00	●	○		
	1.550	34.00	10.00	●	○		
	1.600	34.00	10.00	●	○		
	1.650	34.00	10.00	●	○		
	1.700	34.00	10.00	●	○		
	1.750	36.00	11.00	●	○		
	1.800	36.00	11.00	●	○		
	1.850	36.00	11.00		○		
	1.900	36.00	11.00	●	○		
	1.950	38.00	12.00	●	○		
	2.000	38.00	12.00	●	○		●
	2.050	38.00	12.00	●	○		
	2.100	38.00	12.00	●	○		●
	2.150	40.00	13.00	●	○		
	2.200	40.00	13.00	●	○		●
	2.250	40.00	13.00	●	○		
	2.300	40.00	13.00	●	○		●
	2.350	40.00	13.00		○		
	2.400	43.00	14.00	●	○		●
	2.450	43.00	14.00	●	○		
	2.500	43.00	14.00	●	○		●
	2.550	43.00	14.00	●	○		●
	2.600	43.00	14.00	●	○		●
	2.650	43.00	14.00	●	○		
	2.700	46.00	16.00		○		●
	2.750	46.00	16.00	●			
	2.800	46.00	16.00	●	○		●
	2.850	46.00	16.00	●	○		
	2.900	46.00	16.00	●	○		●
	2.950	46.00	16.00	●	○		●
	3.000	46.00	16.00	●	○		●
	3.100	49.00	18.00	●	○		●
	3.150	49.00	18.00		○		
	3.200	49.00	18.00	●	○		●
	3.250	49.00	18.00	●	○		●
	3.300	49.00	18.00	●	○		●
	3.350	49.00	18.00		○		
	3.400	52.00	20.00	●	○		●
	3.450	52.00	20.00		○		
	3.500	52.00	20.00	●	○		●

Stub drills



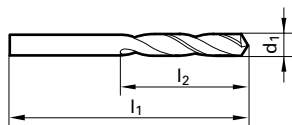
Catalog no.				71110	71111	71108
Tool material				HSS		
Discount group				134	138	132
Cutting direction				right-hand	left-hand	right-hand
Surface				bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	3.550	52.00	20.00		○	
	3.600	52.00	20.00	●	○	●
	3.650	52.00	20.00		○	
	3.700	52.00	20.00	●	○	●
	3.750	52.00	20.00	●	○	
	3.800	55.00	22.00	●	○	●
	3.850	55.00	22.00		○	
	3.900	55.00	22.00	●	○	●
	3.950	55.00	22.00		○	
	4.000	55.00	22.00	●	○	●
	4.100	55.00	22.00	●	○	●
	4.200	55.00	22.00	●	○	●
	4.250	55.00	22.00	●	○	
	4.300	58.00	24.00	●	○	●
	4.400	58.00	24.00	●	○	●
	4.500	58.00	24.00	●	○	●
	4.600	58.00	24.00	●	○	●
	4.700	58.00	24.00	●	○	●
	4.750	58.00	24.00	●	○	
	4.800	62.00	26.00	●	○	●
	4.900	62.00	26.00	●	○	●
	5.000	62.00	26.00	●	○	●
	5.100	62.00	26.00	●	○	●
	5.150	62.00	26.00	●		
	5.200	62.00	26.00	●	○	●
	5.250	62.00	26.00	●	○	●
	5.300	62.00	26.00	●	○	●
	5.400	66.00	28.00	●	○	●
	5.500	66.00	28.00	●	○	●
	5.600	66.00	28.00	●	○	●
	5.700	66.00	28.00	●	○	●
	5.750	66.00	28.00	●	○	
	5.800	66.00	28.00	●	○	●
	5.900	66.00	28.00	●	○	●
	6.000	66.00	28.00	●	○	●
	6.100	70.00	31.00	●	○	●
	6.200	70.00	31.00	●	○	●
	6.250	70.00	31.00	●	○	
	6.300	70.00	31.00	●	○	●
	6.400	70.00	31.00	●	○	●
	6.500	70.00	31.00	●	○	●
	6.600	70.00	31.00	●	○	●
	6.700	70.00	31.00	●	○	●
17/64	6.750	74.00	34.00	●		●
	6.800	74.00	34.00	●	○	●
	6.900	74.00	34.00	●	○	●
	7.000	74.00	34.00	●	○	●
	7.100	74.00	34.00	●	○	●
	7.200	74.00	34.00	●	○	●
	7.250	74.00	34.00	●		
	7.300	74.00	34.00	●	○	●
	7.400	74.00	34.00	●	○	●
	7.500	74.00	34.00	●	○	●
	7.600	79.00	37.00	●	○	●
	7.700	79.00	37.00	●	○	●
	7.750	79.00	37.00	●		
	7.800	79.00	37.00	●	○	●
	7.900	79.00	37.00	●	○	●
	8.000	79.00	37.00	●	○	●
	8.100	79.00	37.00	●	○	●

Stub drills



				Catalog no.	71110	71111	71108
				Tool material	HSS		
				Discount group	134	138	132
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	8.200	79.00	37.00		●	○	●
	8.250	79.00	37.00		●	○	
	8.300	79.00	37.00		●	○	●
	8.400	79.00	37.00		●	○	●
	8.500	79.00	37.00		●	○	●
	8.600	84.00	40.00		●	○	●
	8.700	84.00	40.00		●	○	●
	8.750	84.00	40.00		●	○	●
	8.800	84.00	40.00		●	○	●
	8.900	84.00	40.00		●	○	●
	9.000	84.00	40.00		●	○	●
	9.100	84.00	40.00		●	○	●
	9.200	84.00	40.00		●	○	●
	9.250	84.00	40.00		●	○	
	9.300	84.00	40.00		●	○	●
	9.400	84.00	40.00		●	○	●
	9.500	84.00	40.00		●	○	●
	9.600	89.00	43.00		●	○	●
	9.700	89.00	43.00		●	○	●
	9.750	89.00	43.00		●	○	
	9.800	89.00	43.00		●	○	●
	9.900	89.00	43.00		●	○	●
	10.000	89.00	43.00		●	○	●
	10.100	89.00	43.00		●	○	
	10.200	89.00	43.00		●	○	
	10.250	89.00	43.00		●		
	10.300	89.00	43.00		●	○	
	10.400	89.00	43.00		●	○	
	10.500	89.00	43.00		●	○	●
	10.600	89.00	43.00			○	
	10.700	95.00	47.00			○	
	10.750	95.00	47.00		●		
	10.800	95.00	47.00			○	
	11.000	95.00	47.00		●	○	●
	11.100	95.00	47.00			○	
	11.300	95.00	47.00			○	
	11.400	95.00	47.00			○	
	11.500	95.00	47.00		●		●
	11.600	95.00	47.00			○	
	11.750	95.00	47.00			○	
	11.900	102.00	51.00			○	
	12.000	102.00	51.00		●	○	●
31/64	12.100	102.00	51.00			○	
	12.300	102.00	51.00			○	
	12.400	102.00	51.00			○	
	12.500	102.00	51.00		●		●
	12.750	102.00	51.00		●	○	
	12.900	102.00	51.00			○	
33/64	13.000	102.00	51.00		●	○	●
	13.100	102.00	51.00			○	
	13.200	102.00	51.00			○	
	13.250	107.00	54.00			○	
	13.300	107.00	54.00			○	
	13.500	107.00	54.00		●		●
	13.600	107.00	54.00			○	
	13.750	107.00	54.00			○	
	13.800	107.00	54.00			○	
	13.900	107.00	54.00			○	
	14.000	107.00	54.00		●		●
	14.100	111.00	56.00			○	

Stub drills



				Catalog no.	71110	71111	71108
				Tool material	HSS		
				Discount group	134	138	132
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	14.300	111.00	56.00			○	
	14.400	111.00	56.00			○	
	14.500	111.00	56.00		●		●
	14.800	111.00	56.00			○	
	14.900	111.00	56.00			○	
	15.000	111.00	56.00		●	○	●
	15.300	115.00	58.00			○	
	15.400	115.00	58.00			○	
	15.500	115.00	58.00		●		
	15.750	115.00	58.00			○	
	15.800	115.00	58.00			○	
	15.900	115.00	58.00			○	
	16.000	115.00	58.00		●	●	●
	16.250	119.00	60.00			○	
	16.300	119.00	60.00			○	
	16.500	119.00	60.00		●		●
	16.900	119.00	60.00			○	
	17.000	119.00	60.00		●		●
	17.250	123.00	62.00			○	
	17.400	123.00	62.00			○	
	17.500	123.00	62.00		●		
	17.600	123.00	62.00			○	
	17.900	123.00	62.00			○	
	18.000	123.00	62.00		●		●
	18.500	127.00	64.00		●		
	18.600	127.00	64.00			○	
	18.750	127.00	64.00			○	
	18.800	127.00	64.00			○	
	18.900	127.00	64.00			○	
	19.000	127.00	64.00		●	○	
	19.500	131.00	66.00		●		●
	20.000	131.00	66.00		●		●
	20.500	136.00	68.00		●		
	21.000	136.00	68.00		●		
	21.500	141.00	70.00		●	○	
	22.000	141.00	70.00		●		
	22.500	146.00	72.00		●		
	23.000	146.00	72.00		●		
	24.000	151.00	75.00		●		
63/64	25.000	151.00	75.00		●		
	26.000	156.00	78.00		●		
	27.000	162.00	81.00		●		
	28.000	162.00	81.00		●		
	29.000	168.00	84.00		●	○	
	30.000	168.00	84.00		●	○	
	31.000	174.00	87.00		●		
	32.000	180.00	90.00		●	○	

Straight shank twist drills

Stub drills

Catalog no. 71109



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	bright/steam tempered > Ø 6,0 mm
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	14.01
Tolerance on Ø	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills

Catalog no. 61118



For use in automatic and capstan lathes. Especially suitable for hand drilling machines in drilling thin sections, sheet metals, car bodies, etc.

DIN 1897

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills

Catalog no. 71106

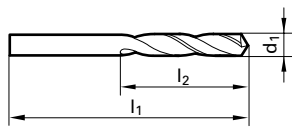


A very robust, rigid, high heat-resistant drill of high alloyed CoMo steel (8% Co, 10% Mo). Preferential application in medium and high-strength alloys on a CrNi base such as Hastelloy, Inconel, Monel, Nimonic, stainless steels, non-corrosive and heat resistant sheet metal as well as steels or bronzes with tensile strengths of up to approx 1400 N/mm².

DIN 1897

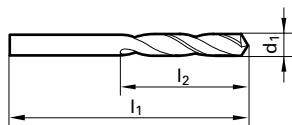
Tool material	M42
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: normal Web thickness: considerably greater than standard Web taper: smaller than normal Flute form: normal Web thinning: to DIN 1412, form A	

Stub drills



				Catalog no.	71109	61118	71106
				Tool material	HSS		M42
				Discount group	134	133	138
				Cutting direction	left-hand bright/steam > Ø 6,0 mm	right-hand	right-hand
				Surface		TiN	bright
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	1.000	26.00	6.00			●	●
	1.100	28.00	7.00			●	
	1.200	30.00	8.00			●	
	1.300	30.00	8.00			●	
	1.400	32.00	9.00			●	
	1.500	32.00	9.00			●	●
	1.600	34.00	10.00			●	
	1.700	34.00	10.00			●	
	1.800	36.00	11.00			●	
	1.900	36.00	11.00			●	
	2.000	38.00	12.00			●	●
	2.100	38.00	12.00			●	
	2.200	40.00	13.00			●	
	2.300	40.00	13.00			●	
	2.400	43.00	14.00			●	
	2.500	43.00	14.00			●	●
	2.600	43.00	14.00	○		●	
	2.700	46.00	16.00			●	
	2.750	46.00	16.00	○			
	2.800	46.00	16.00			●	
	2.900	46.00	16.00			●	
	3.000	46.00	16.00			●	●
	3.100	49.00	18.00	○		●	
	3.200	49.00	18.00	○		●	
	3.300	49.00	18.00	○		●	●
	3.400	52.00	20.00	○		●	
	3.500	52.00	20.00	○		●	●
	3.600	52.00	20.00			●	
	3.700	52.00	20.00			●	
	3.800	55.00	22.00			●	
	3.900	55.00	22.00			●	
	4.000	55.00	22.00			●	●
	4.100	55.00	22.00	○		●	
	4.200	55.00	22.00	○		●	●
	4.250	55.00	22.00	○		●	
	4.300	58.00	24.00	○		●	
	4.400	58.00	24.00	○		●	
	4.500	58.00	24.00	○		●	●
	4.600	58.00	24.00			●	
	4.700	58.00	24.00			●	
	4.800	62.00	26.00			●	
	4.900	62.00	26.00	○		●	
	5.000	62.00	26.00	○		●	●
	5.100	62.00	26.00			●	
	5.200	62.00	26.00	○		●	
	5.300	62.00	26.00	○		●	
	5.400	66.00	28.00	○		●	
	5.500	66.00	28.00	○		●	●
	5.600	66.00	28.00	○		●	
	5.700	66.00	28.00	○		●	
	5.800	66.00	28.00			●	
	5.900	66.00	28.00			●	
	6.000	66.00	28.00			●	●
	6.100	70.00	31.00	○		●	
	6.200	70.00	31.00	○		●	
	6.300	70.00	31.00			●	
	6.400	70.00	31.00	○		●	
	6.500	70.00	31.00	○		●	●
	6.600	70.00	31.00			●	
	6.700	70.00	31.00			●	

Stub drills



				Catalog no.	71109	61118	71106
				Tool material	HSS		M42
				Discount group	134	133	138
				Cutting direction	left-hand bright/steam > Ø 6,0 mm	right-hand	right-hand
				Surface		TiN	bright
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	6.800	74.00	34.00			●	●
	6.900	74.00	34.00	○		●	
	7.000	74.00	34.00			●	●
	7.100	74.00	34.00			●	
	7.200	74.00	34.00	○		●	
	7.300	74.00	34.00			●	
	7.400	74.00	34.00			●	
	7.500	74.00	34.00	○		●	●
	7.600	79.00	37.00			●	
	7.700	79.00	37.00			●	
	7.800	79.00	37.00	○		●	
	7.900	79.00	37.00	○		●	
	8.000	79.00	37.00	○		●	●
	8.100	79.00	37.00	○		●	
	8.200	79.00	37.00			●	
	8.300	79.00	37.00	○		●	
	8.400	79.00	37.00			●	
	8.500	79.00	37.00			●	●
	8.600	84.00	40.00			●	
	8.700	84.00	40.00	○		●	
	8.800	84.00	40.00	○		●	
	8.900	84.00	40.00	○		●	
	9.000	84.00	40.00			●	●
	9.100	84.00	40.00	○		●	
	9.200	84.00	40.00			●	
	9.300	84.00	40.00	○		●	
	9.400	84.00	40.00	○		●	
	9.500	84.00	40.00	○		●	●
	9.600	89.00	43.00			●	
	9.700	89.00	43.00	○		●	
	9.800	89.00	43.00			●	
	9.900	89.00	43.00			●	
	10.000	89.00	43.00			●	●
	10.100	89.00	43.00			●	
	10.200	89.00	43.00	○		●	
	10.300	89.00	43.00			●	
	10.400	89.00	43.00			●	
	10.500	89.00	43.00			●	
	10.600	89.00	43.00			●	
	10.750	95.00	47.00	○		●	
	10.800	95.00	47.00			●	
	11.000	95.00	47.00	○		●	
	11.500	95.00	47.00	○		●	
	12.000	102.00	51.00			●	
	12.500	102.00	51.00	○		●	
	13.000	102.00	51.00			●	
33/64	13.100	102.00	51.00			○	
	13.250	107.00	54.00	○			
	14.500	111.00	56.00	○			
	15.500	115.00	58.00	○			
	15.750	115.00	58.00	○			
	16.000	115.00	58.00	○			
	17.000	119.00	60.00	○			
	17.250	123.00	62.00	○			
	17.500	123.00	62.00	○			
	21.000	136.00	68.00	○			
	22.000	141.00	70.00	○			
	24.000	151.00	75.00	○			
	26.500	156.00	78.00	○			

Straight shank twist drills

Stub drills

Catalog no. 71220



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 1897

Tool material	HSS-Co
Surface	bright
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: greater than standard Web thickness: normal Web taper: normal Flute form: normal Web thinning: special	

Stub drills

Catalog no. 61220



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 1897

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: greater than standard Web thickness: normal Web taper: normal Flute form: normal Web thinning: special	

Stub drills

Catalog no. 71107

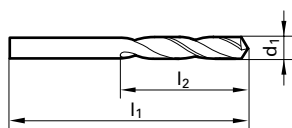


A rigid special drill for use principally in automatic turning machines, NC-machines and capstan lathes. For drilling into long-chipping materials with tensile strengths of up to 800 N/mm², Al- and copper-alloys, soft bronzes and electrolytic copper and tough brass.

DIN 1897

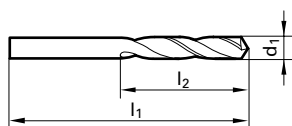
Tool material	HSS
Surface	bright/nitr. lands > Ø 2,36 mm
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: normal Web thickness: greater than standard Web taper: none Flute form: wide flutes with „rounded“ heels Web thinning: special	

Stub drills



Catalog no.				71220	61220	71107
Tool material				HSS-Co		HSS
Discount group				134	135	136
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright/nitr. lands > Ø 2,36 mm
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	1.000	26.00	6.00	●	●	○
	1.100	28.00	7.00	●	●	
	1.200	30.00	8.00	●	●	
	1.300	30.00	8.00	●	●	
	1.400	32.00	9.00	●	●	
	1.500	32.00	9.00	●	●	○
	1.600	34.00	10.00	●	●	
	1.700	34.00	10.00	●	●	
	1.800	36.00	11.00	●	●	
	1.900	36.00	11.00	●	●	
	2.000	38.00	12.00	●	●	○
	2.100	38.00	12.00	●	●	
	2.200	40.00	13.00	●	●	
	2.300	40.00	13.00	●	●	
	2.400	43.00	14.00	●	●	
	2.500	43.00	14.00	●	●	○
	2.600	43.00	14.00	●	●	
	2.700	46.00	16.00	●	●	
	2.800	46.00	16.00	●	●	
	2.900	46.00	16.00	●	●	
	3.000	46.00	16.00	●	●	○
	3.100	49.00	18.00	●	●	
	3.200	49.00	18.00	●	●	
	3.300	49.00	18.00	●	●	○
	3.400	52.00	20.00	●	●	
	3.500	52.00	20.00	●	●	○
	3.600	52.00	20.00	●	●	
	3.700	52.00	20.00	●	●	
	3.800	55.00	22.00	●	●	
	3.900	55.00	22.00	●	●	
	4.000	55.00	22.00	●	●	○
	4.100	55.00	22.00	●	●	
	4.200	55.00	22.00	●	●	○
	4.300	58.00	24.00	●	●	
	4.400	58.00	24.00	●	●	
	4.500	58.00	24.00	●	●	○
	4.600	58.00	24.00	●	●	
	4.700	58.00	24.00	●	●	
	4.800	62.00	26.00	●	●	
	4.900	62.00	26.00	●	●	
	5.000	62.00	26.00	●	●	○
	5.100	62.00	26.00	●	●	
	5.200	62.00	26.00	●	●	
	5.300	62.00	26.00	●	●	
	5.400	66.00	28.00	●	●	
	5.500	66.00	28.00	●	●	○
	5.600	66.00	28.00	●	●	
	5.700	66.00	28.00	●	●	
	5.800	66.00	28.00	●	●	
	5.900	66.00	28.00	●	●	
	6.000	66.00	28.00	●	●	○
	6.100	70.00	31.00	●	●	
	6.200	70.00	31.00	●	●	
	6.300	70.00	31.00	●	●	
	6.400	70.00	31.00	●	●	
	6.500	70.00	31.00	●	●	○
	6.600	70.00	31.00	●	●	
	6.700	70.00	31.00	●	●	
	6.800	74.00	34.00	●	●	○
	6.900	74.00	34.00	●	●	

Stub drills



Catalog no.				71220	61220	71107
Tool material				HSS-Co		HSS
Discount group				134	135	136
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright/nitr. lands > Ø 2,36 mm
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	7.000	74.00	34.00	●	●	○
	7.100	74.00	34.00	●	●	
	7.200	74.00	34.00	●	●	
	7.300	74.00	34.00	●	●	
	7.400	74.00	34.00	●	●	
	7.500	74.00	34.00	●	●	○
	7.600	79.00	37.00	●	●	
	7.700	79.00	37.00	●	●	
	7.800	79.00	37.00	●	●	
	7.900	79.00	37.00	●	●	
	8.000	79.00	37.00	●	●	○
	8.100	79.00	37.00	●	●	
	8.200	79.00	37.00	●	●	
	8.300	79.00	37.00	●	●	
	8.400	79.00	37.00	●	●	
	8.500	79.00	37.00	●	●	○
	8.600	84.00	40.00	●	●	
	8.700	84.00	40.00	●	●	
	8.800	84.00	40.00	●	●	
	8.900	84.00	40.00	●	●	
	9.000	84.00	40.00	●	●	○
	9.100	84.00	40.00	●	●	
	9.200	84.00	40.00	●	●	
	9.300	84.00	40.00	●	●	
	9.400	84.00	40.00	●	●	
	9.500	84.00	40.00	●	●	○
	9.600	89.00	43.00	●	●	
	9.700	89.00	43.00	●	●	
	9.800	89.00	43.00	●	●	
	9.900	89.00	43.00	●	●	
	10.000	89.00	43.00	●	●	○
	10.100	89.00	43.00	●	●	
	10.200	89.00	43.00	●	●	○
	10.300	89.00	43.00	●	●	
	10.400	89.00	43.00	●	●	
	10.500	89.00	43.00	●	●	○
	11.000	95.00	47.00	●	●	○
	11.500	95.00	47.00	●	●	○
	12.000	102.00	51.00	●	●	○
	12.500	102.00	51.00	●	●	○
	13.000	102.00	51.00	●	●	○
	13.500	107.00	54.00	●	●	○
	14.000	107.00	54.00	●	●	○
	15.000	111.00	56.00			○
	16.000	115.00	58.00			○

Straight shank twist drills

Stub drills

Catalog no. 51159



A high heat-resistant drill. For use principally in automatics and NC-machines. For drilling into long-chipping materials with tensile strengths of up to 1000 N/mm², Al- and copper-alloys, soft bronzes and electrolytic copper and tough brass.

DIN 1897

Tool material	HSS-Co
Surface	TiAlN
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Stub drills

Catalog no. 61131



High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

DIN 1897

Tool material	HSS-E-PM
Surface	TiN
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Stub drills

Catalog no. 71112



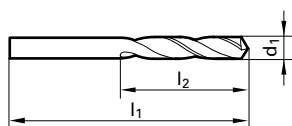
An extremely rigid high heat-resistant twist drill. Especially suitable for use primarily in automatic and capstan lathes. For the drilling of stainless steel, non-corrosive steels (VA steels), spring steels, austenitic steels etc.

DIN 1897

Tool material	HSS-Co
Surface	bright/steam tempered > Ø 2,36 mm
Type	VX
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.00
Tolerance on Ø	h8

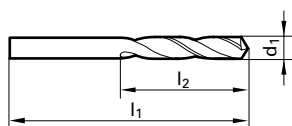
helix angle: normal
web thickness: greater than standard
web taper: normal
flute form: normal
web thinning: to DIN 1412, Form A

Stub drills



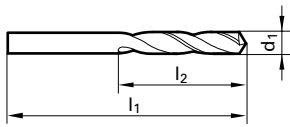
Catalog no.				51159	61131	71112
Tool material				HSS-Co	HSS-E-PM	HSS-Co
Discount group				137	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				TiAlN	TiN	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	1.000	26.00	6.00		○	●
	1.100	28.00	7.00		○	●
	1.150	28.00	7.00			●
	1.200	30.00	8.00		○	●
	1.250	30.00	8.00			●
	1.300	30.00	8.00		○	●
	1.400	32.00	9.00		○	●
	1.500	32.00	9.00		○	●
	1.550	34.00	10.00			●
	1.600	34.00	10.00		○	●
	1.650	34.00	10.00			●
	1.700	34.00	10.00		○	●
	1.750	36.00	11.00			●
	1.800	36.00	11.00		○	●
	1.850	36.00	11.00			●
	1.900	36.00	11.00		○	●
	1.950	38.00	12.00			●
	2.000	38.00	12.00	●	○	●
	2.050	38.00	12.00			●
	2.100	38.00	12.00	●	○	●
	2.200	40.00	13.00	●	○	●
	2.250	40.00	13.00			●
	2.300	40.00	13.00	●	○	●
	2.350	40.00	13.00			●
	2.400	43.00	14.00	●	○	●
	2.450	43.00	14.00			●
	2.500	43.00	14.00	●	○	●
	2.600	43.00	14.00	●	○	●
	2.650	43.00	14.00			●
	2.700	46.00	16.00	●	○	●
	2.750	46.00	16.00			●
	2.800	46.00	16.00	●	○	●
	2.850	46.00	16.00			●
	2.900	46.00	16.00	●	○	●
	2.950	46.00	16.00			●
	3.000	46.00	16.00	●	○	●
	3.100	49.00	18.00	●	○	●
	3.200	49.00	18.00	●	○	●
	3.300	49.00	18.00	●	○	●
	3.400	52.00	20.00	●	○	●
	3.500	52.00	20.00	●	○	●
	3.600	52.00	20.00	●	○	●
	3.700	52.00	20.00	●	○	●
	3.750	52.00	20.00			●
	3.800	55.00	22.00	●	○	●
	3.900	55.00	22.00	●	○	●
	4.000	55.00	22.00	●	○	●
	4.100	55.00	22.00	●	○	●
	4.200	55.00	22.00	●	○	●
	4.250	55.00	22.00			●
	4.300	58.00	24.00	●	○	●
	4.400	58.00	24.00	●	○	●
	4.500	58.00	24.00	●	○	●
	4.600	58.00	24.00	●	○	●
	4.700	58.00	24.00	●	○	●
	4.750	58.00	24.00			●
	4.800	62.00	26.00	●	○	●
	4.900	62.00	26.00	●	○	●
	5.000	62.00	26.00	●	○	●
	5.100	62.00	26.00	●	○	●

Stub drills



Catalog no.				51159	61131	71112
Tool material				HSS-Co	HSS-E-PM	HSS-Co
Discount group				137	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				TiAlN	TiN	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	5.200	62.00	26.00	●	○	●
	5.300	62.00	26.00	●	○	●
	5.400	66.00	28.00	●	○	●
	5.500	66.00	28.00	●	○	●
	5.600	66.00	28.00	●	○	●
	5.700	66.00	28.00	●	○	●
	5.800	66.00	28.00	●	○	●
	5.900	66.00	28.00	●	○	●
	6.000	66.00	28.00	●	○	●
	6.100	70.00	31.00	●	○	●
	6.200	70.00	31.00	●	○	●
	6.300	70.00	31.00	●	○	●
	6.400	70.00	31.00	●	○	●
	6.500	70.00	31.00	●	○	●
	6.600	70.00	31.00	●	○	●
	6.700	70.00	31.00	●	○	●
	6.800	74.00	34.00	●	○	●
	6.900	74.00	34.00	●	○	●
	7.000	74.00	34.00	●	○	●
	7.100	74.00	34.00	●	○	●
	7.200	74.00	34.00	●	○	●
	7.300	74.00	34.00	●	○	●
	7.400	74.00	34.00	●	○	●
	7.500	74.00	34.00	●	○	●
	7.600	79.00	37.00	●	○	●
	7.700	79.00	37.00	●	○	●
	7.800	79.00	37.00	●	○	●
	7.900	79.00	37.00	●	○	●
	8.000	79.00	37.00	●	○	●
	8.100	79.00	37.00	●	○	●
	8.200	79.00	37.00	●	○	●
	8.300	79.00	37.00	●	○	●
	8.400	79.00	37.00	●	○	●
	8.500	79.00	37.00	●	○	●
	8.600	84.00	40.00	●	○	●
	8.700	84.00	40.00	●	○	●
	8.800	84.00	40.00	●	○	●
	8.900	84.00	40.00	●	○	●
	9.000	84.00	40.00	●	○	●
	9.100	84.00	40.00	●	○	●
	9.200	84.00	40.00	●	○	●
	9.300	84.00	40.00	●	○	●
	9.400	84.00	40.00	●	○	●
	9.500	84.00	40.00	●	○	●
	9.600	89.00	43.00	●	○	●
	9.700	89.00	43.00	●	○	●
	9.800	89.00	43.00	●	○	●
	9.900	89.00	43.00	●	○	●
	10.000	89.00	43.00	●	○	●
	10.100	89.00	43.00	●	○	●
	10.200	89.00	43.00	●	○	●
	10.300	89.00	43.00	●	○	●
	10.400	89.00	43.00	●	○	●
	10.500	89.00	43.00	●	○	●
	10.700	95.00	47.00	●	○	●
	10.800	95.00	47.00	●	○	●
	11.000	95.00	47.00	●	○	●
	11.500	95.00	47.00	●	○	●
	11.800	95.00	47.00	●	○	●
	12.000	102.00	51.00	●	○	●

Stub drills



Catalog no.	51159	61131	71112
Tool material	HSS-Co	HSS-E-PM	HSS-Co
Discount group	137	135	134
Cutting direction	right-hand	right-hand	right-hand
Surface	TiAlN	TiN	bright/steam tempered > Ø 2,36

d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
31/64	12.300	102.00	51.00	●		
	12.500	102.00	51.00	●	○	●
	13.000	102.00	51.00	●	○	●
	13.500	107.00	54.00	●	○	
	14.000	107.00	54.00	●	○	
	14.500	111.00	56.00	●		
	15.000	111.00	56.00	●		
	15.500	115.00	58.00	●		
	16.000	115.00	58.00	●		

Straight shank twist drills

Stub drills

Catalog no. 61112



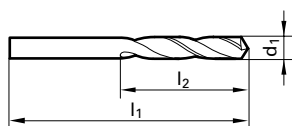
An extremely rigid high heat-resistant twist drill. Especially suitable for use primarily in automatic and capstan lathes. For the drilling of stainless steel, non-corrosive steels (VA steels), spring steels, austenitic steels etc.

DIN 1897

Tool material	HSS-Co
Surface	TiN
Type	VX
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

Helix angle: normal
 Web thickness: greater than standard
 Web taper: normal
 Flute form: normal
 Web thinning: to DIN 1412, form A

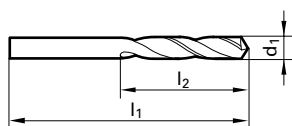
Stub drills



Catalog no. 61112
Tool material HSS-Co
Discount group 135
Cutting direction right-hand
Surface TiN

d1 inch	d1 mm	l1 mm	l2 mm	price per piece
	1.000	26.00	6.00	●
	1.100	28.00	7.00	●
	1.200	30.00	8.00	●
	1.300	30.00	8.00	●
	1.400	32.00	9.00	●
	1.500	32.00	9.00	●
	1.600	34.00	10.00	●
	1.700	34.00	10.00	●
	1.800	36.00	11.00	●
	1.900	36.00	11.00	●
	2.000	38.00	12.00	●
	2.100	38.00	12.00	●
	2.200	40.00	13.00	●
	2.300	40.00	13.00	●
	2.400	43.00	14.00	●
	2.500	43.00	14.00	●
	2.600	43.00	14.00	●
	2.700	46.00	16.00	●
	2.800	46.00	16.00	●
	2.900	46.00	16.00	●
	3.000	46.00	16.00	●
	3.100	49.00	18.00	●
	3.200	49.00	18.00	●
	3.300	49.00	18.00	●
	3.400	52.00	20.00	●
	3.500	52.00	20.00	●
	3.600	52.00	20.00	●
	3.700	52.00	20.00	●
	3.800	55.00	22.00	●
	3.900	55.00	22.00	●
	4.000	55.00	22.00	●
	4.100	55.00	22.00	●
	4.200	55.00	22.00	●
	4.300	58.00	24.00	●
	4.400	58.00	24.00	●
	4.500	58.00	24.00	●
	4.600	58.00	24.00	●
	4.700	58.00	24.00	●
	4.800	62.00	26.00	●
	4.900	62.00	26.00	●
	5.000	62.00	26.00	●
	5.100	62.00	26.00	●
	5.200	62.00	26.00	●
	5.300	62.00	26.00	●
	5.400	66.00	28.00	●
	5.500	66.00	28.00	●
	5.600	66.00	28.00	●
	5.700	66.00	28.00	●
	5.800	66.00	28.00	●
	5.900	66.00	28.00	●
	6.000	66.00	28.00	●
	6.100	70.00	31.00	●
	6.200	70.00	31.00	●
	6.300	70.00	31.00	●
	6.400	70.00	31.00	●
	6.500	70.00	31.00	●
	6.600	70.00	31.00	●
	6.700	70.00	31.00	●
	6.800	74.00	34.00	●
	6.900	74.00	34.00	●

Stub drills



Catalog no. 61112
Tool material HSS-Co
Discount group 135
Cutting direction right-hand
Surface TiN

d1 inch	d1 mm	l1 mm	l2 mm	price per piece
	7.000	74.00	34.00	●
	7.100	74.00	34.00	●
	7.200	74.00	34.00	●
	7.300	74.00	34.00	●
	7.400	74.00	34.00	●
	7.500	74.00	34.00	●
	7.600	79.00	37.00	●
	7.700	79.00	37.00	●
	7.800	79.00	37.00	●
	7.900	79.00	37.00	●
	8.000	79.00	37.00	●
	8.100	79.00	37.00	●
	8.200	79.00	37.00	●
	8.300	79.00	37.00	●
	8.400	79.00	37.00	●
	8.500	79.00	37.00	●
	8.600	84.00	40.00	●
	8.700	84.00	40.00	●
	8.800	84.00	40.00	●
	9.000	84.00	40.00	●
	9.100	84.00	40.00	●
	9.200	84.00	40.00	●
	9.300	84.00	40.00	●
	9.400	84.00	40.00	●
	9.500	84.00	40.00	●
	9.600	89.00	43.00	●
	9.700	89.00	43.00	●
	9.800	89.00	43.00	●
	9.900	89.00	43.00	●
	10.000	89.00	43.00	●
	10.100	89.00	43.00	●
	10.200	89.00	43.00	●
	10.500	89.00	43.00	●
	11.000	95.00	47.00	●
	11.500	95.00	47.00	●
	12.000	102.00	51.00	●
31/64	12.300	102.00	51.00	●
	12.500	102.00	51.00	●

Straight shank twist drills

Stub drills

Catalog no. 71114



An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

Stock std.

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: smaller than normal Web taper: standard Flute form: extremely wide and open Web thinning: not necessary	

Stub drills

Catalog no. 71113

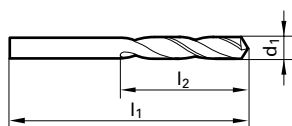


An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

Stock std.

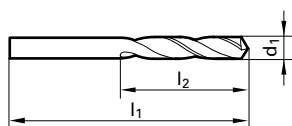
Tool material	HSS
Surface	bright
Type	V72
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: smaller than normal Web taper: standard Flute form: extremely wide and open Web thinning: not necessary	

Stub drills



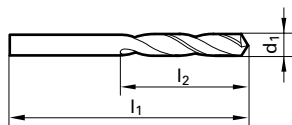
Catalog no.				71114	71113
Tool material				HSS	
Discount group				134	138
Cutting direction				right-hand	left-hand
Surface				bright	bright
d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	1.000	28.00	8.00	○	○
	1.050	28.00	8.00	○	
	1.100	30.00	9.00	○	○
	1.150	30.00	9.00	○	○
	1.250	32.00	10.00	○	○
	1.300	32.00	10.00	○	○
	1.350	35.00	12.00		○
	1.400	35.00	12.00		○
	1.450	35.00	12.00	○	○
	1.600	37.00	13.00	○	○
	1.650	37.00	13.00	○	○
	1.700	37.00	13.00	○	○
	1.750	39.00	14.00	○	○
	1.800	39.00	14.00	○	○
	1.850	39.00	14.00	○	○
	1.900	39.00	14.00	○	○
	1.950	42.00	16.00	○	○
	2.000	42.00	16.00	○	○
	2.050	42.00	16.00	○	○
	2.100	42.00	16.00		○
	2.150	44.00	17.00	○	○
	2.200	44.00	17.00	○	○
	2.250	44.00	17.00		○
	2.300	44.00	17.00	○	○
	2.350	44.00	17.00	○	○
	2.400	47.00	18.00	○	○
	2.450	47.00	18.00	○	○
	2.500	47.00	18.00	○	
	2.550	47.00	18.00	○	○
	2.600	47.00	18.00	○	○
	2.650	47.00	18.00	○	○
	2.700	51.00	21.00	○	○
	2.750	51.00	21.00	○	
	2.800	51.00	21.00	○	○
	2.850	51.00	21.00		○
	2.900	51.00	21.00	○	○
	2.950	51.00	21.00	○	
	3.000	51.00	21.00		○
	3.050	54.00	23.00		○
	3.100	54.00	23.00	○	○
	3.150	54.00	23.00	○	○
	3.200	54.00	23.00	○	○
	3.250	54.00	23.00	○	○
	3.300	54.00	23.00	○	○
	3.350	54.00	23.00	○	
	3.400	58.00	26.00	○	○
	3.450	58.00	26.00	○	○
	3.500	58.00	26.00	○	○
	3.550	58.00	26.00	○	○
	3.600	58.00	26.00	○	○
	3.650	58.00	26.00	○	
	3.700	58.00	26.00	○	○
	3.750	58.00	26.00	○	○
	3.800	62.00	29.00	○	○
	3.850	62.00	29.00	○	○
	3.900	62.00	29.00	○	○
	3.950	62.00	29.00	○	○
	4.000	62.00	29.00	○	○
	4.050	62.00	29.00	○	
	4.100	62.00	29.00	○	○

Stub drills



Catalog no.				71114	71113
Tool material				HSS	
Discount group				134	138
Cutting direction				right-hand	left-hand
Surface				bright	bright
d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	4.150	62.00	29.00	○	○
	4.200	62.00	29.00	○	○
	4.250	62.00	29.00		○
	4.300	65.00	31.00	○	○
	4.350	65.00	31.00	○	○
	4.400	65.00	31.00	○	○
	4.450	65.00	31.00	○	○
	4.500	65.00	31.00	○	
	4.550	65.00	31.00	○	○
	4.600	65.00	31.00	○	○
	4.650	65.00	31.00	○	○
	4.700	65.00	31.00	○	○
	4.750	65.00	31.00	○	○
	4.800	70.00	34.00	○	○
	4.850	70.00	34.00	○	○
	4.900	70.00	34.00	○	○
	4.950	70.00	34.00	○	○
	5.200	70.00	34.00	○	○
	5.300	70.00	34.00	○	○
	5.400	74.00	36.00	○	○
	5.500	74.00	36.00	○	○
	5.600	74.00	36.00	○	○
	5.700	74.00	36.00	○	○
	5.800	74.00	36.00	○	○
	5.900	74.00	36.00	○	○
	6.000	74.00	36.00	○	
	6.200	79.00	40.00	○	○
	6.300	79.00	40.00	○	○
	6.400	79.00	40.00		○
	6.500	79.00	40.00		○
	6.600	79.00	40.00	○	○
	6.700	79.00	40.00	○	○
	6.900	84.00	44.00	○	○
	7.000	84.00	44.00	○	
	7.100	84.00	44.00	○	○
	7.200	84.00	44.00		○
	7.300	84.00	44.00		○
	7.400	84.00	44.00		○
	7.500	84.00	44.00		○
	7.600	90.00	48.00		○
	7.700	90.00	48.00		○
	7.800	90.00	48.00		○
	7.900	90.00	48.00		○
	8.000	90.00	48.00	○	○
	8.300	90.00	48.00		○
	8.500	90.00	48.00	○	○
	8.600	96.00	52.00		○
	8.700	96.00	52.00		○
	8.800	96.00	52.00		○
	8.900	96.00	52.00		○
	9.000	96.00	52.00	○	
	9.100	96.00	52.00	○	○
	9.200	96.00	52.00		○
	9.300	96.00	52.00		○
	9.400	96.00	52.00		○
	9.500	96.00	52.00	○	○
	9.600	102.00	56.00		○
	9.700	102.00	56.00		○
	9.800	102.00	56.00		○
	9.900	102.00	56.00		○

Stub drills



Catalog no.				71114	71113
Tool material				HSS	
Discount group				134	138
Cutting direction				right-hand	left-hand
Surface				bright	bright
d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	10.000	102.00	56.00	○	○
	10.400	102.00	56.00		○
	10.500	102.00	56.00		○
	10.600	102.00	56.00		○
	10.700	109.00	61.00		○
	10.800	109.00	61.00		○
	10.900	109.00	61.00		○
	11.100	109.00	61.00		○
	11.200	109.00	61.00		○
	11.300	109.00	61.00		○
	11.400	109.00	61.00		○
	11.500	109.00	61.00	○	○
	11.600	109.00	61.00		○
	11.700	109.00	61.00		○
	11.800	109.00	61.00		○
	11.900	117.00	66.00		○
	12.000	117.00	66.00	○	
	12.200	117.00	66.00		○
	12.250	117.00	66.00		○
31/64	12.300	117.00	66.00		○
	12.600	117.00	66.00		○
1/2	12.700	117.00	66.00		○
	12.800	117.00	66.00		○
	12.900	117.00	66.00		○
	13.000	117.00	66.00	○	
	13.500	122.00	70.00		○
	13.750	122.00	70.00		○
	14.000	122.00	70.00	○	
	14.250	128.00	73.00		○
	14.500	128.00	73.00	○	○
	14.750	128.00	73.00		○
	15.000	128.00	73.00	○	○
	15.500	132.00	75.00	○	○
	15.750	132.00	75.00		○
	16.000	132.00	75.00	○	○

Straight shank twist drills

Short lengths drills

Catalog no. 71116



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 71119



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright
Type	N
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 71115



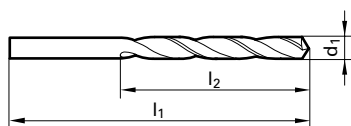
Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	bright/steam tempered $> \emptyset 2,36 \text{ mm}$
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h8

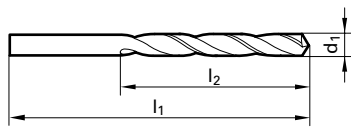
Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills



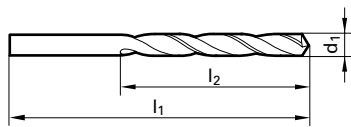
				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	0.200	19.00	2.50		●		
	0.250	19.00	3.00		○		
	0.290	19.00	3.00		○		
	0.300	19.00	3.00		●		
	0.310	19.00	4.00		○		
	0.330	19.00	4.00		○		
	0.340	19.00	4.00		○		
	0.350	19.00	4.00		○		
	0.370	19.00	4.00		○		
1/64	0.390	20.00	5.00		○		
	0.400	20.00	5.00		●		
	0.450	20.00	5.00		●		
	0.500	22.00	6.00		●		
	0.540	24.00	7.00		○		
	0.550	24.00	7.00		●		
	0.580	24.00	7.00		○		
	0.590	24.00	7.00		○		
	0.600	24.00	7.00		●		
	0.630	26.00	8.00		○		
	0.660	26.00	8.00		○		
	0.680	28.00	9.00		○		
	0.700	28.00	9.00		●		
	0.740	28.00	9.00		○		
	0.760	30.00	10.00		○		
	0.770	30.00	10.00		○		
	0.780	30.00	10.00		○		
	0.800	30.00	10.00		●		
	0.850	30.00	10.00		●		
	0.860	32.00	11.00		○		
	0.870	32.00	11.00		○		
	0.880	32.00	11.00		○		
	0.900	32.00	11.00		●		
	0.940	32.00	11.00		○		
	0.950	32.00	11.00		○		
	0.960	34.00	12.00		○		
	1.000	34.00	12.00		●		
	1.050	34.00	12.00		○		
	1.060	34.00	12.00		○		
	1.080	36.00	14.00		○		
	1.100	36.00	14.00		●		
	1.110	36.00	14.00		○		
	1.120	36.00	14.00		○		
	1.130	36.00	14.00		○		
	1.150	36.00	14.00		○		
	1.160	36.00	14.00		○		
3/64	1.170	36.00	14.00		○		
	1.190	38.00	16.00		○		
	1.200	38.00	16.00		●		
	1.230	38.00	16.00		○		
	1.250	38.00	16.00		○		
	1.300	38.00	16.00		●		
	1.320	38.00	16.00		○		
	1.340	40.00	18.00		○		
	1.360	40.00	18.00		○		
	1.380	40.00	18.00		○		
	1.400	40.00	18.00		●		
	1.430	40.00	18.00		○		
	1.450	40.00	18.00		○		
	1.500	40.00	18.00		●		
	1.560	43.00	20.00		○		

Short lengths drills



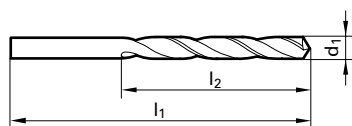
				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	1.570	43.00	20.00		○		
	1.600	43.00	20.00		●	○	
	1.610	43.00	20.00		○		
	1.620	43.00	20.00		○		
	1.650	43.00	20.00		○		
	1.660	43.00	20.00		○		
	1.670	43.00	20.00		○		
	1.680	43.00	20.00		○		
	1.700	43.00	20.00		●	○	
	1.710	46.00	22.00		○		
	1.730	46.00	22.00		○		
	1.750	46.00	22.00		○		
	1.800	46.00	22.00		●	○	
	1.810	46.00	22.00		○		
	1.850	46.00	22.00		○		
	1.870	46.00	22.00		○		
	1.900	46.00	22.00		●	○	
	1.990	49.00	24.00		○		
	2.000	49.00	24.00		●		●
	2.050	49.00	24.00		○	○	○
	2.100	49.00	24.00		●		●
	2.150	53.00	27.00				○
	2.200	53.00	27.00		●	○	●
	2.250	53.00	27.00			○	○
	2.300	53.00	27.00		●	○	●
	2.350	53.00	27.00				○
	2.370	57.00	30.00		○		
	2.400	57.00	30.00		●	○	●
	2.450	57.00	30.00			○	
	2.490	57.00	30.00				○
	2.500	57.00	30.00		●		●
	2.600	57.00	30.00		●	○	●
	2.650	57.00	30.00			○	○
	2.700	61.00	33.00		●	○	●
	2.710	61.00	33.00				○
	2.800	61.00	33.00		●	○	●
	2.850	61.00	33.00			○	
	2.900	61.00	33.00		●	○	●
	2.950	61.00	33.00				○
	3.000	61.00	33.00		●		●
	3.100	65.00	36.00		●		●
	3.200	65.00	36.00		●		●
	3.250	65.00	36.00			○	○
	3.300	65.00	36.00		●		●
	3.350	65.00	36.00			○	
	3.400	70.00	39.00		●	○	●
	3.450	70.00	39.00			○	○
	3.500	70.00	39.00		●		●
9/64	3.570	70.00	39.00				○
	3.600	70.00	39.00		●	○	●
	3.650	70.00	39.00				○
	3.700	70.00	39.00		●	○	●
	3.730	70.00	39.00				○
	3.750	70.00	39.00			○	
	3.800	75.00	43.00		●	○	●
	3.850	75.00	43.00			○	
	3.860	75.00	43.00				○
	3.900	75.00	43.00		●		●
	3.910	75.00	43.00				○
	3.950	75.00	43.00				○

Short lengths drills



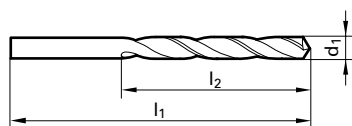
				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	3.990	75.00	43.00				○
	4.000	75.00	43.00	●			●
	4.090	75.00	43.00				○
	4.100	75.00	43.00	●		○	●
	4.200	75.00	43.00	●			●
	4.220	75.00	43.00				○
	4.250	75.00	43.00			○	○
	4.300	80.00	47.00	●		○	●
	4.390	80.00	47.00				○
	4.400	80.00	47.00	●		○	●
	4.450	80.00	47.00			○	
	4.500	80.00	47.00	●			●
	4.570	80.00	47.00				○
	4.600	80.00	47.00	●		○	●
	4.620	80.00	47.00				○
	4.650	80.00	47.00			○	○
	4.700	80.00	47.00	●		○	●
	4.750	80.00	47.00			○	
3/16	4.760	86.00	52.00				○
	4.800	86.00	52.00	●			●
	4.850	86.00	52.00			○	○
	4.900	86.00	52.00	●		○	●
	4.920	86.00	52.00				○
	4.950	86.00	52.00			○	○
	5.000	86.00	52.00	●			●
	5.050	86.00	52.00				○
	5.100	86.00	52.00	●		○	●
	5.110	86.00	52.00				○
	5.180	86.00	52.00				○
	5.200	86.00	52.00	●		○	●
	5.220	86.00	52.00				○
	5.250	86.00	52.00			○	○
	5.300	86.00	52.00	●		○	●
	5.310	93.00	57.00				○
	5.400	93.00	57.00			○	●
	5.410	93.00	57.00				○
	5.450	93.00	57.00				○
	5.500	93.00	57.00	●			●
	5.550	93.00	57.00				○
7/32	5.560	93.00	57.00				○
	5.600	93.00	57.00	●		○	●
	5.610	93.00	57.00				○
	5.700	93.00	57.00	●		○	●
	5.750	93.00	57.00			○	
	5.790	93.00	57.00				○
	5.800	93.00	57.00	●		○	●
	5.900	93.00	57.00	●		○	●
15/64	5.950	93.00	57.00				○
	6.000	93.00	57.00	●		○	●
	6.050	101.00	63.00				○
	6.100	101.00	63.00	●			●
	6.150	101.00	63.00				○
	6.200	101.00	63.00	●			●
	6.250	101.00	63.00	○		○	○
	6.300	101.00	63.00	●			●
	6.400	101.00	63.00			○	○
	6.450	101.00	63.00				○
	6.500	101.00	63.00	●		○	●
	6.600	101.00	63.00	●		○	●
	6.700	101.00	63.00	●		○	●

Short lengths drills



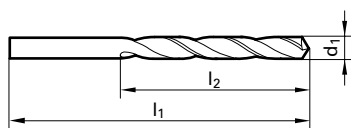
				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
17/64	6.750	109.00	69.00			○	○
	6.800	109.00	69.00	●			●
	6.850	109.00	69.00				○
	6.900	109.00	69.00	●		○	●
9/32	7.000	109.00	69.00	●		○	●
	7.050	109.00	69.00				○
	7.100	109.00	69.00	●		○	●
	7.140	109.00	69.00				○
19/64	7.200	109.00	69.00	●			●
	7.250	109.00	69.00			○	○
	7.300	109.00	69.00			○	●
	7.400	109.00	69.00			○	●
5/16	7.500	109.00	69.00	●		○	●
	7.540	117.00	75.00				○
	7.600	117.00	75.00			○	●
	7.700	117.00	75.00	●		○	●
11/32	7.750	117.00	75.00			○	●
	7.800	117.00	75.00	●		○	●
	7.900	117.00	75.00			○	●
	7.940	117.00	75.00				○
23/64	8.000	117.00	75.00	●		○	●
	8.100	117.00	75.00	●		○	●
	8.200	117.00	75.00	●			●
	8.250	117.00	75.00				○
11/16	8.300	117.00	75.00	●			●
	8.400	117.00	75.00				●
	8.500	117.00	75.00	●			●
	8.550	125.00	81.00				○
11/32	8.600	125.00	81.00			○	●
	8.650	125.00	81.00				○
	8.700	125.00	81.00				●
	8.730	125.00	81.00				○
3/8	8.750	125.00	81.00				○
	8.800	125.00	81.00	●		○	●
	8.900	125.00	81.00			○	●
	9.000	125.00	81.00	●		○	●
13/32	9.100	125.00	81.00	●			●
	9.130	125.00	81.00				○
	9.150	125.00	81.00				○
	9.200	125.00	81.00	●			●
7/16	9.250	125.00	81.00				○
	9.300	125.00	81.00	●		○	●
	9.350	125.00	81.00				○
	9.400	125.00	81.00	●			●
1/2	9.450	125.00	81.00				○
	9.500	125.00	81.00			○	●
	9.520	133.00	87.00				○
	9.600	133.00	87.00	●		○	●
9/16	9.650	133.00	87.00				○
	9.700	133.00	87.00				●
	9.750	133.00	87.00				○
	9.800	133.00	87.00				●
5/8	9.900	133.00	87.00	●		○	●
	10.000	133.00	87.00	●			●
	10.100	133.00	87.00			○	●
	10.200	133.00	87.00	●			●
3/4	10.250	133.00	87.00				●
	10.300	133.00	87.00				●
	10.320	133.00	87.00				○
	10.400	133.00	87.00				●

Short lengths drills



				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	10.500	133.00	87.00				●
	10.600	133.00	87.00				●
	10.700	142.00	94.00		●		●
	10.800	142.00	94.00				●
	10.900	142.00	94.00		●		●
	11.000	142.00	94.00				●
	11.100	142.00	94.00				●
	11.200	142.00	94.00				●
	11.300	142.00	94.00				●
	11.400	142.00	94.00			○	●
	11.500	142.00	94.00			○	●
	11.600	142.00	94.00				●
	11.700	142.00	94.00				●
	11.750	142.00	94.00				○
	11.800	142.00	94.00		●	○	●
15/32	11.900	151.00	101.00		●	○	○
	11.910	151.00	101.00				○
	12.000	151.00	101.00		●		●
	12.100	151.00	101.00				●
	12.200	151.00	101.00		●		●
	12.250	151.00	101.00				○
31/64	12.300	151.00	101.00			○	●
	12.400	151.00	101.00				●
	12.500	151.00	101.00		●		●
	12.600	151.00	101.00				●
1/2	12.700	151.00	101.00			○	●
	12.750	151.00	101.00		○	○	○
	12.800	151.00	101.00				●
	12.900	151.00	101.00				●
	13.000	151.00	101.00		●	○	●
33/64	13.100	151.00	101.00				●
	13.200	151.00	101.00				●
	13.250	160.00	108.00				○
	13.300	160.00	108.00				●
	13.400	160.00	108.00				●
	13.500	160.00	108.00			○	●
	13.600	160.00	108.00				●
	13.700	160.00	108.00			○	●
	13.750	160.00	108.00				●
	13.800	160.00	108.00			○	●
	13.900	160.00	108.00				●
	14.000	160.00	108.00		●		●
	14.100	169.00	114.00				●
	14.200	169.00	114.00				●
	14.250	169.00	114.00				○
	14.300	169.00	114.00			○	●
	14.400	169.00	114.00				●
	14.500	169.00	114.00			○	●
	14.600	169.00	114.00				●
	14.700	169.00	114.00			○	●
	14.750	169.00	114.00				○
	14.800	169.00	114.00				●
	14.900	169.00	114.00				●
	15.000	169.00	114.00		●		●
	15.100	178.00	120.00				●
	15.200	178.00	120.00				●
	15.250	178.00	120.00				○
	15.300	178.00	120.00				●
	15.400	178.00	120.00				●
	15.500	178.00	120.00		○		●

Short lengths drills



				Catalog no.	71116	71119	71115
				Tool material	HSS		
				Discount group	130	134	130
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	bright/steam tempered > Ø 2,36
d1 inch	d1 mm	l1 mm	l2 mm	price per piece			
	15.600	178.00	120.00				●
	15.700	178.00	120.00				●
	15.750	178.00	120.00				○
	15.800	178.00	120.00				●
	15.900	178.00	120.00				●
	16.000	178.00	120.00	●			●
	16.100	184.00	125.00				●
	16.200	184.00	125.00				●
	16.250	184.00	125.00				○
	16.500	184.00	125.00				●
	16.700	184.00	125.00				●
	17.000	184.00	125.00				●
11/16	17.460	191.00	130.00				○
	17.500	191.00	130.00				●
	17.750	191.00	130.00				○
	18.000	191.00	130.00				●
	18.500	198.00	135.00				●
	19.000	198.00	135.00				●
3/4	19.050	205.00	140.00				○
	19.500	205.00	140.00				●
	20.000	205.00	140.00				●

Straight shank twist drills

Short lengths drills

Catalog no. 71164



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, german silver and graphite.
With tang to DIN 1809.

DIN 338

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 61116



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 61115



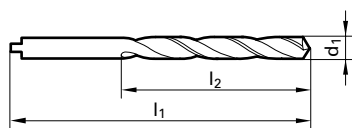
Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 338

Tool material	HSS
Surface	TiN - tip coated
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

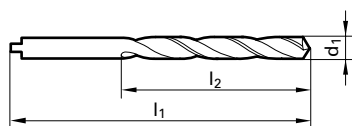
Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Short lengths drills



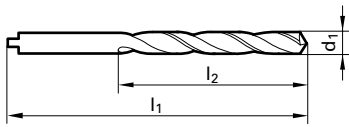
Catalog no.				71164	61116	61115
Tool material				HSS		
Discount group				132	131	130
Cutting direction				right-hand	right-hand	right-hand
Surface				steam tempered	TiN	TiN - tip coated
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	1.000	34.00	12.00		●	●
	1.100	36.00	14.00		●	●
	1.200	38.00	16.00		●	●
	1.300	38.00	16.00		●	●
	1.400	40.00	18.00		●	●
	1.500	40.00	18.00		●	●
	1.600	43.00	20.00		●	●
	1.700	43.00	20.00		●	●
	1.800	46.00	22.00		●	●
	1.900	46.00	22.00		●	●
	2.000	49.00	24.00		●	●
	2.100	49.00	24.00		●	●
	2.200	53.00	27.00		●	●
	2.300	53.00	27.00		●	●
	2.400	57.00	30.00		●	●
	2.500	57.00	30.00		●	●
	2.600	57.00	30.00		●	●
	2.700	61.00	33.00		●	●
	2.800	61.00	33.00		●	●
	2.900	61.00	33.00		●	●
	3.000	61.00	33.00	○	●	●
	3.100	65.00	36.00		●	●
	3.200	65.00	36.00		●	●
	3.300	65.00	36.00	○	●	●
	3.400	70.00	39.00		●	●
	3.500	70.00	39.00		●	●
	3.600	70.00	39.00	○	●	●
	3.700	70.00	39.00	○	●	●
	3.800	75.00	43.00	○	●	●
	3.900	75.00	43.00		●	●
	4.000	75.00	43.00	○	●	●
	4.100	75.00	43.00		●	●
	4.200	75.00	43.00	○	●	●
	4.250	75.00	43.00	○	●	●
	4.300	80.00	47.00		●	●
	4.400	80.00	47.00		●	●
	4.500	80.00	47.00		●	●
	4.600	80.00	47.00		●	●
	4.700	80.00	47.00		●	●
	4.800	86.00	52.00		●	●
	4.900	86.00	52.00		●	●
	5.000	86.00	52.00	○	●	●
	5.100	86.00	52.00		●	●
	5.200	86.00	52.00		●	●
	5.300	86.00	52.00		●	●
	5.400	93.00	57.00		●	●
	5.500	93.00	57.00		●	●
	5.600	93.00	57.00		●	●
	5.700	93.00	57.00		●	●
	5.800	93.00	57.00		●	●
	5.900	93.00	57.00		●	●
	6.000	93.00	57.00		●	●
	6.100	101.00	63.00		●	●
	6.200	101.00	63.00		●	●
	6.300	101.00	63.00		●	●
	6.400	101.00	63.00		●	●
	6.500	101.00	63.00	○	●	●
	6.600	101.00	63.00	○	●	●
	6.700	101.00	63.00		●	●
	6.800	109.00	69.00	○	●	●

Short lengths drills



				Catalog no.	71164	61116	61115
				Tool material	HSS		
				Discount group	132	131	130
				Cutting direction	right-hand	right-hand	right-hand
				Surface	steam tempered	TiN	TiN - tip coated
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	6.900	109.00	69.00			●	●
	7.000	109.00	69.00			●	●
	7.100	109.00	69.00			●	●
	7.200	109.00	69.00			●	●
	7.300	109.00	69.00			●	●
	7.400	109.00	69.00			●	●
	7.500	109.00	69.00			●	●
	7.600	117.00	75.00			●	●
	7.700	117.00	75.00			●	●
	7.800	117.00	75.00			●	●
	7.900	117.00	75.00		○	●	●
	8.000	117.00	75.00			●	●
	8.100	117.00	75.00			●	●
	8.200	117.00	75.00		○	●	●
	8.300	117.00	75.00			●	●
	8.400	117.00	75.00			●	●
	8.500	117.00	75.00			●	●
	8.600	125.00	81.00			●	●
	8.700	125.00	81.00			●	●
	8.800	125.00	81.00			●	●
	8.900	125.00	81.00		○	●	●
	9.000	125.00	81.00		○	●	●
	9.100	125.00	81.00		○	●	●
	9.200	125.00	81.00			●	●
	9.300	125.00	81.00			●	●
	9.400	125.00	81.00			●	●
	9.500	125.00	81.00			●	●
	9.600	133.00	87.00			●	●
	9.700	133.00	87.00			●	●
	9.800	133.00	87.00			●	●
	9.900	133.00	87.00		○	●	●
	10.000	133.00	87.00			●	●
	10.100	133.00	87.00			●	●
	10.200	133.00	87.00			●	●
	10.300	133.00	87.00			●	●
	10.400	133.00	87.00			●	●
	10.500	133.00	87.00			●	●
	10.600	133.00	87.00			●	●
	10.700	142.00	94.00		○	●	●
	10.800	142.00	94.00			●	●
	10.900	142.00	94.00			●	●
	11.000	142.00	94.00			●	●
	11.100	142.00	94.00			●	●
	11.200	142.00	94.00			●	●
	11.300	142.00	94.00			●	●
	11.400	142.00	94.00			●	●
	11.500	142.00	94.00			●	●
	11.600	142.00	94.00			●	●
	11.700	142.00	94.00			●	●
	11.800	142.00	94.00			●	●
	11.900	151.00	101.00			●	●
	12.000	151.00	101.00			●	●
	12.100	151.00	101.00			●	●
	12.200	151.00	101.00			●	●
	12.400	151.00	101.00			●	●
	12.500	151.00	101.00			●	●
	12.600	151.00	101.00			●	●
1/2	12.700	151.00	101.00			●	●
	12.800	151.00	101.00			●	●
	12.900	151.00	101.00			●	●

Short lengths drills



Catalog no.	71164	61116	61115
Tool material	HSS		
Discount group	132	131	130
Cutting direction	right-hand	right-hand	right-hand
Surface	steam tempered	TiN	TiN - tip coated

d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	13.000	151.00	101.00	●	●
	13.200	151.00	101.00		●
	13.300	160.00	108.00		●
	13.400	160.00	108.00		●
	13.500	160.00	108.00	●	●
	13.600	160.00	108.00		●
	13.700	160.00	108.00		●
	13.800	160.00	108.00		●
	13.900	160.00	108.00		●
	14.000	160.00	108.00	●	●
	14.500	169.00	114.00	●	●
	15.000	169.00	114.00	●	●
	15.500	178.00	120.00	●	●
	16.000	178.00	120.00	●	●

Straight shank twist drills

Short lengths drills

Catalog no. 71149



Standard drill with high heat resistance. For drilling in alloyed and unalloyed steels and cast iron with a tensile strength of more than 800 N/mm². Especially suitable for hot and cold-rolled steels as well as case hardening and heat treatable steels.

DIN 338

Tool material	HSS-Co
Surface	bright/steam tempered > Ø 2,36 mm
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	1.00
Tolerance on Ø	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Short lengths drills

Catalog no. 71148



A very robust, rigid, high heat-resistant drill of high alloyed CoMo steel (8% Co, 10% Mo). Preferential application in medium and high-strength alloys on a CrNi base such as Hastelloy, Inconel, Monel, Nimonic, stainless steels, non-corrosive and heat resistant sheet metal as well as steels or bronzes with tensile strengths of up to approx 1400 N/mm².

DIN 338

Tool material	M42
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	135
Web thinned ≥ Ø	1.00
Tolerance on Ø	h8
Helix angle: normal Web thickness: considerably greater than standard Web taper: smaller than normal Flute form: normal Web thinning: to DIN 1412, form A	

Short lengths drills

Catalog no. 71117



For drilling hard, crumbly materials such as brass, magnesium alloys, bronze, phosphor bronze, slate, mica, pertinax, zamak (thin sections), electron (thin sections), *(insulating materials, ebonite, bakelite, galalithe, celluloid, synthetic resins, horn compounds, eternit, hardboard, perspex and plastic laminates).

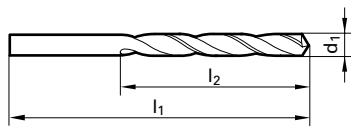
*For these and similar materials a point angle of 140° is recommended when drilling in the plane of the laminations: for drilling of right angles to the laminations a point angle of 80 - 100° will give the best results.

Please note: Polishing of the cutting surfaces will improve drill performance in eternit or hardboard.

DIN 338

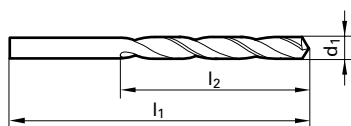
Tool material	HSS
Surface	bright
Type	H
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	
Tolerance on Ø	h8
Helix angle: smaller than normal Web thickness: normal Web taper: smaller than normal Flute form: wider than standard Web thinning: to DIN 1412, form A	

Short lengths drills



Catalog no.				71149	71148	71117
Tool material				HSS-Co	M42	HSS
Discount group				134	138	134
Cutting direction				right-hand bright/steam tempered > Ø 2,36	right-hand bright	right-hand bright
Surface				price per piece		
d1 inch	d1 mm	l1 mm	l2 mm			
	1.000	34.00	12.00	●	●	●
	1.100	36.00	14.00	●	●	●
	1.200	38.00	16.00	●	●	●
	1.300	38.00	16.00	●	●	●
	1.400	40.00	18.00	●	●	●
	1.500	40.00	18.00	●	●	●
	1.600	43.00	20.00	●	●	●
	1.700	43.00	20.00	●	●	●
	1.800	46.00	22.00	●	●	●
	1.900	46.00	22.00	●	●	●
	2.000	49.00	24.00	●	●	●
	2.100	49.00	24.00	●	●	●
	2.200	53.00	27.00	●	●	●
	2.300	53.00	27.00	●	●	●
	2.400	57.00	30.00	●	●	●
	2.500	57.00	30.00	●	●	●
	2.600	57.00	30.00	●	●	●
	2.700	61.00	33.00	●	●	●
	2.800	61.00	33.00	●	●	●
	2.900	61.00	33.00	●	●	●
	3.000	61.00	33.00	●	●	●
	3.100	65.00	36.00	●	●	●
	3.200	65.00	36.00	●	●	●
	3.300	65.00	36.00	●	●	●
	3.400	70.00	39.00	●	●	●
	3.500	70.00	39.00	●	●	●
	3.600	70.00	39.00	●	●	●
	3.700	70.00	39.00	●	●	●
	3.800	75.00	43.00	●	●	●
	3.900	75.00	43.00	●	●	●
	4.000	75.00	43.00	●	●	●
	4.100	75.00	43.00	●	●	●
	4.200	75.00	43.00	●	●	●
	4.300	80.00	47.00	●	●	●
	4.400	80.00	47.00	●	●	●
	4.500	80.00	47.00	●	●	●
	4.600	80.00	47.00	●	●	●
	4.700	80.00	47.00	●	●	●
	4.800	86.00	52.00	●	●	●
	4.900	86.00	52.00	●	●	●
	5.000	86.00	52.00	●	●	●
	5.100	86.00	52.00	●	●	●
	5.200	86.00	52.00	●	●	●
	5.300	86.00	52.00	●	●	●
	5.400	93.00	57.00	●	●	●
	5.500	93.00	57.00	●	●	●
	5.600	93.00	57.00	●	●	●
	5.700	93.00	57.00	●	●	●
	5.800	93.00	57.00	●	●	●
	5.900	93.00	57.00	●	●	●
	6.000	93.00	57.00	●	●	●
	6.100	101.00	63.00	●	●	●
	6.200	101.00	63.00	●	●	●
	6.300	101.00	63.00	●	●	●
	6.400	101.00	63.00	●	●	●
	6.500	101.00	63.00	●	●	●
	6.600	101.00	63.00	●	●	●
	6.700	101.00	63.00	●	●	●
	6.800	109.00	69.00	●	●	●
	6.900	109.00	69.00	●	●	●

Short lengths drills



				Catalog no.	71149	71148	71117
				Tool material	HSS-Co	M42	HSS
				Discount group	134	138	134
				Cutting direction	right-hand bright/steam tempered > Ø 2,36	right-hand bright	right-hand bright
				Surface			
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	7.000	109.00	69.00	●	●	●	
	7.100	109.00	69.00	●	●	●	
	7.200	109.00	69.00	●	●	●	
	7.300	109.00	69.00	●	●	●	
	7.400	109.00	69.00	●	●	●	
	7.500	109.00	69.00	●	●	●	
	7.600	117.00	75.00	●	●	●	
	7.700	117.00	75.00	●	●	●	
	7.750	117.00	75.00			●	
	7.800	117.00	75.00	●	●	●	
	7.900	117.00	75.00			●	
	8.000	117.00	75.00	●	●	●	
	8.100	117.00	75.00	●	●	●	
	8.200	117.00	75.00	●	●	●	
	8.300	117.00	75.00	●	●	●	
	8.400	117.00	75.00	●	●	●	
	8.500	117.00	75.00	●	●	●	
	8.600	125.00	81.00	●	●	●	
	8.700	125.00	81.00	●	●	●	
	8.800	125.00	81.00	●	●	●	
	8.900	125.00	81.00	●	●	●	
	9.000	125.00	81.00	●	●	●	
	9.100	125.00	81.00	●	●	●	
	9.200	125.00	81.00	●	●	●	
	9.300	125.00	81.00	●	●	●	
	9.400	125.00	81.00	●	●	●	
	9.500	125.00	81.00	●	●	●	
	9.600	133.00	87.00	●	●	●	
	9.700	133.00	87.00	●	●	●	
	9.800	133.00	87.00	●	●	●	
	9.900	133.00	87.00	●	●	●	
	10.000	133.00	87.00	●	●	●	
10.200	133.00	87.00	●	●	●		
10.500	133.00	87.00	●	●	●		
11.000	142.00	94.00	●	●	●		
11.500	142.00	94.00	●	●	●		
1/2	12.000	151.00	101.00	●	●	●	
	12.500	151.00	101.00	●	●	●	
	12.700	151.00	101.00	●	●	●	
	13.000	151.00	101.00	●	●	●	
	13.500	160.00	108.00	●	●	●	
	14.000	160.00	108.00	●	●	●	
	14.500	169.00	114.00		●		
	15.000	169.00	114.00	●	●		
15.500	178.00	120.00		●			
16.000	178.00	120.00		●			

Technical drawing of a drill bit. The drawing shows a side view of the drill bit with the following dimensions labeled: d1 is the diameter of the shank, l1 is the length of the cutting edge, l2 is the length of the flute, and d2 is the diameter of the tip.

Straight shank twist drills

Short lengths drills

Catalog no. 71221



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 338

Tool material	HSS-Co
Surface	bright
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: greater than standard Web thickness: normal Web taper: normal Flute form: normal Web thinning: special	

Short lengths drills

Catalog no. 61221



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8
Helix angle: greater than standard Web thickness: normal Web taper: normal Flute form: normal Web thinning: special	

Short lengths drills

Catalog no. 71123

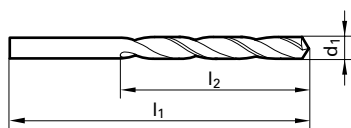


Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable for stainless, non-corrosive and heat-resistant steels, chilled cast iron, titanium and special materials.

DIN 338

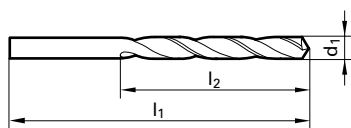
Tool material	HSS-Co
Surface	bright/nitr. lands > Ø 2,0 mm
Type	V66
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	0.96
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: larger than standard Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Short lengths drills



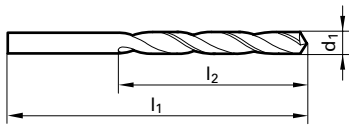
Catalog no.				71221	61221	71123
Tool material				HSS-Co		
Discount group				134	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright/nitr. lands > Ø 2,0 mm
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	0.800	30.00	10.00			●
	0.850	30.00	10.00			○
	0.900	32.00	11.00			●
	1.000	34.00	12.00	●	●	●
	1.050	34.00	12.00			○
	1.100	36.00	14.00	●	●	●
	1.200	38.00	16.00	●	●	●
	1.300	38.00	16.00	●	●	●
	1.350	40.00	18.00			○
	1.400	40.00	18.00	●	●	●
	1.450	40.00	18.00			○
	1.500	40.00	18.00	●	●	●
	1.550	43.00	20.00			○
	1.600	43.00	20.00	●	●	●
	1.700	43.00	20.00	●	●	●
	1.800	46.00	22.00	●	●	●
	1.900	46.00	22.00	●	●	●
	1.950	49.00	24.00			○
	2.000	49.00	24.00	●	●	●
	2.050	49.00	24.00			○
	2.100	49.00	24.00	●	●	●
	2.200	53.00	27.00	●	●	●
	2.300	53.00	27.00	●	●	●
	2.400	57.00	30.00	●	●	●
	2.450	57.00	30.00			○
	2.500	57.00	30.00	●	●	●
	2.550	57.00	30.00			○
	2.600	57.00	30.00	●	●	●
	2.700	61.00	33.00	●	●	●
	2.750	61.00	33.00			○
	2.800	61.00	33.00	●	●	●
	2.850	61.00	33.00			○
	2.900	61.00	33.00	●	●	●
	2.950	61.00	33.00			○
	3.000	61.00	33.00	●	●	●
	3.100	65.00	36.00	●	●	●
	3.200	65.00	36.00	●	●	●
	3.300	65.00	36.00	●	●	●
	3.400	70.00	39.00	●	●	●
	3.500	70.00	39.00	●	●	●
	3.600	70.00	39.00	●	●	●
	3.700	70.00	39.00	●	●	●
	3.800	75.00	43.00	●	●	●
	3.900	75.00	43.00	●	●	●
	4.000	75.00	43.00	●	●	●
	4.100	75.00	43.00	●	●	●
	4.200	75.00	43.00	●	●	●
	4.300	80.00	47.00	●	●	●
	4.400	80.00	47.00	●	●	●
	4.500	80.00	47.00	●	●	●
	4.600	80.00	47.00	●	●	●
	4.700	80.00	47.00	●	●	●
	4.800	86.00	52.00	●	●	●
	4.900	86.00	52.00	●	●	●
	5.000	86.00	52.00	●	●	●
	5.100	86.00	52.00	●	●	●
	5.200	86.00	52.00	●	●	●
	5.300	86.00	52.00	●	●	●
	5.400	93.00	57.00	●	●	●
	5.500	93.00	57.00	●	●	●

Short lengths drills



Catalog no.				71221	61221	71123
Tool material				HSS-Co		
Discount group				134	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright/nitr. lands > Ø 2,0 mm
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	5.600	93.00	57.00	●	●	●
	5.700	93.00	57.00	●	●	●
	5.800	93.00	57.00	●	●	●
	5.900	93.00	57.00	●	●	●
	6.000	93.00	57.00	●	●	●
	6.100	101.00	63.00	●	●	●
	6.200	101.00	63.00	●	●	●
	6.300	101.00	63.00	●	●	●
	6.400	101.00	63.00	●	●	●
	6.500	101.00	63.00	●	●	●
	6.600	101.00	63.00	●	●	●
	6.700	101.00	63.00	●	●	●
	6.800	109.00	69.00	●	●	●
	6.900	109.00	69.00	●	●	●
	7.000	109.00	69.00	●	●	●
	7.100	109.00	69.00	●	●	●
	7.200	109.00	69.00	●	●	●
	7.300	109.00	69.00	●	●	●
	7.400	109.00	69.00	●	●	●
	7.500	109.00	69.00	●	●	●
	7.600	117.00	75.00	●	●	●
	7.700	117.00	75.00	●	●	●
	7.800	117.00	75.00	●	●	●
	7.900	117.00	75.00	●	●	●
	8.000	117.00	75.00	●	●	●
	8.100	117.00	75.00	●	●	●
	8.200	117.00	75.00	●	●	●
	8.300	117.00	75.00	●	●	●
	8.400	117.00	75.00	●	●	●
	8.500	117.00	75.00	●	●	●
	8.600	125.00	81.00	●	●	●
	8.700	125.00	81.00	●	●	●
	8.800	125.00	81.00	●	●	●
	8.900	125.00	81.00	●	●	●
	9.000	125.00	81.00	●	●	●
	9.100	125.00	81.00	●	●	●
	9.200	125.00	81.00	●	●	●
	9.300	125.00	81.00	●	●	●
	9.400	125.00	81.00	●	●	●
	9.500	125.00	81.00	●	●	●
	9.600	133.00	87.00	●	●	●
	9.700	133.00	87.00	●	●	●
	9.800	133.00	87.00	●	●	●
	9.900	133.00	87.00	●	●	●
	10.000	133.00	87.00	●	●	●
	10.100	133.00	87.00	●	●	●
	10.200	133.00	87.00	●	●	●
	10.300	133.00	87.00	●	●	●
	10.400	133.00	87.00	●	●	●
	10.500	133.00	87.00	●	●	●
	10.800	142.00	94.00	●	●	●
	11.000	142.00	94.00	●	●	●
	11.500	142.00	94.00	●	●	●
	11.700	142.00	94.00	●	●	●
	11.800	142.00	94.00	●	●	●
	11.900	151.00	101.00	●	●	○
	12.000	151.00	101.00	●	●	●
	12.100	151.00	101.00	●	●	●
	12.200	151.00	101.00	●	●	●
	12.400	151.00	101.00	●	●	○

Short lengths drills



				Catalog no.	71221	61221	71123
				Tool material	HSS-Co		
				Discount group	134	135	134
				Cutting direction	right-hand	right-hand	right-hand
				Surface	bright	TiN	bright/nitr. lands > Ø 2,0 mm
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	12.500	151.00	101.00	●	●	●	●
	12.600	151.00	101.00				○
	12.800	151.00	101.00				○
	13.000	151.00	101.00	●	●	●	●
	13.500	160.00	108.00	●	●	●	●
	14.000	160.00	108.00	●	●	●	●

Straight shank twist drills

Short lengths drills

Catalog no. 71122



Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant steels, high tensile and short-chipping steels from approx. 900 N/mm² tensile strength and above. Especially suitability for CrNi-alloys such as Hastelloy, Inconel, Nimonic.

DIN 338

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Short lengths drills

Catalog no. 61223



Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant steels, high tensile and short-chipping steels from approx. 900 N/mm² tensile strength and above. Especially suitability for CrNi-alloys such as Hastelloy, Inconel, Nimonic.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Short lengths drills

Catalog no. 51122



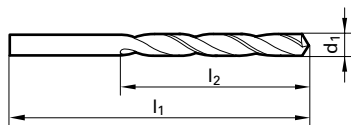
Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant steels, high tensile and short-chipping steels from approx. 900 N/mm² tensile strength and above. Especially suitability for CrNi-alloys such as Hastelloy, Inconel, Nimonic.

DIN 338

Tool material	HSS-Co
Surface	TiAlN
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	2.00
Tolerance on Ø	h8

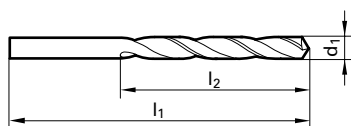
Helix angle: larger than standard
Web thickness: larger than standard
Web taper: normal
Flute form: normal
Web thinning: special

Short lengths drills



Catalog no.				71122	61223	51122
Tool material				HSS-Co		
Discount group				134	135	135
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	TiAlN
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	1.000	34.00	12.00	●	●	
	1.100	36.00	14.00	●	●	
	1.200	38.00	16.00	●	●	
	1.300	38.00	16.00	●	●	
	1.400	40.00	18.00	●	●	
	1.500	40.00	18.00	●	●	
	1.600	43.00	20.00	●	●	
	1.700	43.00	20.00	●	●	
	1.800	46.00	22.00	●	●	
	1.900	46.00	22.00	●	●	
	2.000	49.00	24.00	●	●	●
	2.100	49.00	24.00	●	●	
	2.200	53.00	27.00	●	●	
	2.300	53.00	27.00	●	●	
	2.400	57.00	30.00	●	●	
	2.500	57.00	30.00	●	●	●
	2.600	57.00	30.00	●	●	
	2.700	61.00	33.00	●	●	
	2.800	61.00	33.00	●	●	
	2.900	61.00	33.00	●	●	
	3.000	61.00	33.00	●	●	●
	3.100	65.00	36.00	●	●	
	3.200	65.00	36.00	●	●	
	3.300	65.00	36.00	●	●	
	3.400	70.00	39.00	●	●	
	3.500	70.00	39.00	●	●	●
	3.600	70.00	39.00	●	●	
	3.700	70.00	39.00	●	●	
	3.800	75.00	43.00	●	●	
	3.900	75.00	43.00	●	●	
	4.000	75.00	43.00	●	●	●
	4.100	75.00	43.00	●	●	
	4.200	75.00	43.00	●	●	●
	4.300	80.00	47.00	●	●	
	4.400	80.00	47.00	●	●	
	4.500	80.00	47.00	●	●	●
	4.600	80.00	47.00	●	●	
	4.700	80.00	47.00	●	●	
	4.800	86.00	52.00	●	●	
	4.900	86.00	52.00	●	●	
	5.000	86.00	52.00	●	●	●
	5.100	86.00	52.00	●	●	
	5.200	86.00	52.00	●	●	
	5.300	86.00	52.00	●	●	
	5.400	93.00	57.00	●	●	
	5.500	93.00	57.00	●	●	●
	5.600	93.00	57.00	●	●	
	5.700	93.00	57.00	●	●	
	5.800	93.00	57.00	●	●	
	5.900	93.00	57.00	●	●	
	6.000	93.00	57.00	●	●	●
	6.100	101.00	63.00	●	●	
	6.200	101.00	63.00	●	●	
	6.300	101.00	63.00	●	●	
	6.400	101.00	63.00	●	●	
	6.500	101.00	63.00	●	●	●
	6.600	101.00	63.00	●	●	
	6.700	101.00	63.00	●	●	
	6.800	109.00	69.00	●	●	●
	6.900	109.00	69.00	●	●	

Short lengths drills



Catalog no.				71122	61223	51122
Tool material				HSS-Co		
Discount group				134	135	135
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	TiAlN
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	7.000	109.00	69.00	●	●	●
	7.100	109.00	69.00	●	●	
	7.200	109.00	69.00	●	●	
	7.300	109.00	69.00	●	●	
	7.400	109.00	69.00	●	●	
	7.500	109.00	69.00	●	●	●
	7.600	117.00	75.00	●	●	
	7.700	117.00	75.00	●	●	
	7.800	117.00	75.00	○	●	
	7.900	117.00	75.00	●	●	
	8.000	117.00	75.00	●	●	●
	8.100	117.00	75.00	●	●	
	8.200	117.00	75.00	●	●	
	8.300	117.00	75.00	●	●	
	8.400	117.00	75.00	●	●	
	8.500	117.00	75.00	●	●	●
	8.600	125.00	81.00	●	●	
	8.700	125.00	81.00	●	●	
	8.800	125.00	81.00	●	●	
	8.900	125.00	81.00	●	●	
	9.000	125.00	81.00	●	●	●
	9.100	125.00	81.00	●	●	
	9.200	125.00	81.00	●	●	
	9.300	125.00	81.00	●	●	
	9.400	125.00	81.00	●	●	
	9.500	125.00	81.00	●	●	●
	9.600	133.00	87.00	●	●	
	9.700	133.00	87.00	●	●	
	9.800	133.00	87.00	●	●	
	9.900	133.00	87.00	●	●	
	10.000	133.00	87.00	●	●	●
	10.200	133.00	87.00	●	●	●
	10.500	133.00	87.00	●	●	●
	11.000	142.00	94.00	●	●	●
	11.500	142.00	94.00	●	●	●
	12.000	151.00	101.00	●	●	●
	12.500	151.00	101.00	●	●	●
	13.000	151.00	101.00	●	●	●
	13.500	160.00	108.00	●	●	
	14.000	160.00	108.00	●	●	
	14.500	169.00	114.00	●	●	
	15.000	169.00	114.00	●	●	
	16.000	178.00	120.00	●		

Straight shank twist drills

Short lengths drills

Catalog no. 71124



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 71126



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 61124



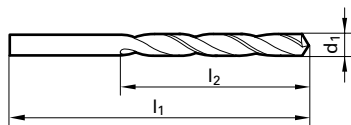
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8

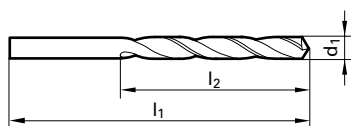
Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Short lengths drills



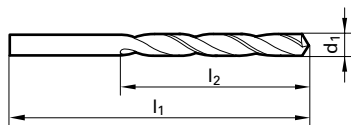
Catalog no.				71124	71126	61124
Tool material				HSS		
Discount group				136	138	137
Cutting direction				right-hand	left-hand	right-hand
Surface				bright	bright	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	1.500	40.00	18.00	●	○	○
	1.570	43.00	20.00	○		
	1.600	43.00	20.00	●	○	○
	1.700	43.00	20.00	●	○	○
	1.750	46.00	22.00	○	○	
	1.780	46.00	22.00	○		
	1.800	46.00	22.00	●	○	○
	1.850	46.00	22.00	○		
	1.900	46.00	22.00	●	○	○
5/64	1.930	49.00	24.00	○		
	1.980	49.00	24.00	○		
	1.990	49.00	24.00	○		
	2.000	49.00	24.00	●	○	○
	2.050	49.00	24.00	○		
	2.080	49.00	24.00	○		
	2.100	49.00	24.00	●	○	○
	2.180	53.00	27.00	○		
	2.200	53.00	27.00	●	○	○
	2.260	53.00	27.00	○		
	2.300	53.00	27.00	●	○	○
	2.370	57.00	30.00	○		
	2.400	57.00	30.00	●	○	○
	2.450	57.00	30.00	○		
	2.490	57.00	30.00	○		
	2.500	57.00	30.00	●	○	○
	2.580	57.00	30.00	○		
	2.600	57.00	30.00	●	○	○
7/64	2.700	61.00	33.00	●	○	○
	2.710	61.00	33.00	○		
	2.780	61.00	33.00	○		
	2.790	61.00	33.00	○		
	2.800	61.00	33.00	●	○	○
	2.870	61.00	33.00	○		
	2.900	61.00	33.00	●	○	○
	2.950	61.00	33.00	○		
	3.000	61.00	33.00	●	○	○
	3.050	65.00	36.00	○		
	3.100	65.00	36.00	●	○	○
	3.200	65.00	36.00	●	○	○
	3.260	65.00	36.00	○		
	3.300	65.00	36.00	●	○	○
	3.400	70.00	39.00	●	○	○
	3.450	70.00	39.00	○		
	3.500	70.00	39.00	●	○	○
	3.600	70.00	39.00	●	○	○
	3.700	70.00	39.00	●	○	○
	3.730	70.00	39.00	○		
	3.800	75.00	43.00	●	○	○
	3.860	75.00	43.00	○		
	3.900	75.00	43.00	●	○	○
	3.910	75.00	43.00	○		
5/32	3.970	75.00	43.00	○		
	3.990	75.00	43.00	○		
	4.000	75.00	43.00	●	○	○
	4.040	75.00	43.00		○	
	4.090	75.00	43.00	○		
	4.100	75.00	43.00	●	○	○
	4.200	75.00	43.00	●	○	○
	4.220	75.00	43.00	○		
	4.300	80.00	47.00	●		○

Short lengths drills



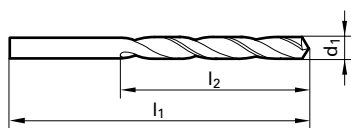
Catalog no.				71124	71126	61124
Tool material				HSS		
Discount group				136	138	137
Cutting direction				right-hand	left-hand	right-hand
Surface				bright	bright	TiN
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	4.390	80.00	47.00	○		
	4.400	80.00	47.00	●	○	○
	4.500	80.00	47.00	●	○	○
	4.570	80.00	47.00	○		
	4.600	80.00	47.00	●	○	○
	4.700	80.00	47.00	●	○	○
	4.800	86.00	52.00	●	○	○
	4.850	86.00	52.00	○		
	4.900	86.00	52.00	●	○	○
	4.980	86.00	52.00	○		
	5.000	86.00	52.00	●	○	○
	5.100	86.00	52.00	●		○
	5.110	86.00	52.00	○		
	5.180	86.00	52.00	○		
	5.200	86.00	52.00	●	○	○
	5.220	86.00	52.00	○		
	5.300	86.00	52.00	●	○	○
	5.310	93.00	57.00	○		
	5.400	93.00	57.00	●	○	○
	5.410	93.00	57.00	○		
	5.500	93.00	57.00	●	○	○
7/32	5.560	93.00	57.00	○		
	5.600	93.00	57.00	●	○	○
	5.610	93.00	57.00	○		
	5.700	93.00	57.00	●	○	○
	5.790	93.00	57.00	○		
	5.800	93.00	57.00	●	○	○
	5.900	93.00	57.00	●	○	
15/64	5.940	93.00	57.00	○		
	5.950	93.00	57.00	○		
	6.000	93.00	57.00	●	○	○
	6.040	101.00	63.00	○		
	6.050	101.00	63.00	○		
	6.100	101.00	63.00	●	○	○
	6.200	101.00	63.00	●	○	○
	6.300	101.00	63.00	●	○	○
1/4	6.350	101.00	63.00	○		
	6.400	101.00	63.00	●		○
	6.500	101.00	63.00	○	○	○
	6.530	101.00	63.00	○		
	6.600	101.00	63.00	●	○	○
	6.630	101.00	63.00	○		
	6.700	101.00	63.00	●	○	○
17/64	6.750	109.00	69.00	○		
	6.760	109.00	69.00	○		
	6.800	109.00	69.00	●	○	○
	6.900	109.00	69.00	●	○	○
	6.910	109.00	69.00	○		
	7.000	109.00	69.00	●	○	○
	7.040	109.00	69.00	○		
	7.100	109.00	69.00	●	○	○
9/32	7.140	109.00	69.00	○		
	7.200	109.00	69.00	●	○	○
	7.300	109.00	69.00	●	○	○
	7.370	109.00	69.00	○		
	7.400	109.00	69.00	●	○	○
	7.490	109.00	69.00	○		
	7.500	109.00	69.00	●	○	○
19/64	7.540	117.00	75.00	○		
	7.600	117.00	75.00	●	○	○

Short lengths drills



				Catalog no.	71124	71126	61124
				Tool material	HSS		
				Discount group	136	138	137
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	TiN
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
5/16	7.670	117.00	75.00		○		
	7.700	117.00	75.00		●	○	○
	7.750	117.00	75.00		○		
	7.800	117.00	75.00		●	○	○
	7.900	117.00	75.00		●		○
	7.940	117.00	75.00		○		
	8.000	117.00	75.00		●	○	○
	8.030	117.00	75.00		○		
21/64	8.100	117.00	75.00		●	○	○
	8.200	117.00	75.00		●	○	○
	8.300	117.00	75.00		●	○	○
	8.330	117.00	75.00		○		
	8.400	117.00	75.00		●	○	○
	8.430	117.00	75.00		○		
	8.500	117.00	75.00		●	○	○
	8.600	125.00	81.00		●	○	○
23/64	8.610	125.00	81.00		○		
	8.700	125.00	81.00		●	○	○
	8.800	125.00	81.00		●	○	○
	8.840	125.00	81.00		○		
	8.900	125.00	81.00		●	○	○
	9.000	125.00	81.00		●	○	○
	9.090	125.00	81.00		○		
	9.100	125.00	81.00		●	○	○
3/8	9.130	125.00	81.00		○		
	9.200	125.00	81.00		●	○	○
	9.300	125.00	81.00		●	○	○
	9.350	125.00	81.00		○		
	9.400	125.00	81.00		●	○	○
	9.500	125.00	81.00		●	○	○
	9.520	133.00	87.00		○		
	9.530	133.00	87.00		○		
25/64	9.580	133.00	87.00		○		
	9.600	133.00	87.00		●	○	○
	9.700	133.00	87.00		●	○	○
	9.800	133.00	87.00		●	○	○
	9.900	133.00	87.00		●	○	○
	9.920	133.00	87.00		○		
	10.000	133.00	87.00		●	○	○
	10.080	133.00	87.00		○		
27/64	10.100	133.00	87.00		●	○	○
	10.200	133.00	87.00		●	○	○
	10.260	133.00	87.00		○		
	10.300	133.00	87.00		●	○	○
	10.400	133.00	87.00		●	○	○
	10.490	133.00	87.00		○		
	10.500	133.00	87.00		●	○	○
	10.600	133.00	87.00		●	○	○
7/16	10.700	142.00	94.00		●	○	
	10.720	142.00	94.00		○		
	10.800	142.00	94.00		●	○	○
	10.900	142.00	94.00		●	○	○
	11.000	142.00	94.00		●	○	○
	11.100	142.00	94.00		●	○	○
	11.110	142.00	94.00		○		
	11.200	142.00	94.00		●		○
29/64	11.300	142.00	94.00		○	○	○
	11.400	142.00	94.00		○	○	○
	11.500	142.00	94.00		●	○	○
	11.510	142.00	94.00		○		

Short lengths drills



				Catalog no.	71124	71126	61124
				Tool material	HSS		
				Discount group	136	138	137
				Cutting direction	right-hand	left-hand	right-hand
				Surface	bright	bright	TiN
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	11.600	142.00	94.00	●	○	○	○
	11.700	142.00	94.00	○	○	○	○
	11.800	142.00	94.00	●	○	○	○
	11.900	151.00	101.00	○	○	○	○
15/32	11.910	151.00	101.00	○			
	12.000	151.00	101.00	●			○
31/64	12.300	151.00	101.00	●	○		○
	12.500	151.00	101.00	●			○
1/2	12.700	151.00	101.00	○			○
	13.000	151.00	101.00	●	○		
	13.500	160.00	108.00	●			○
	14.000	160.00	108.00	●	○		○
	14.500	169.00	114.00	●	○		
	15.000	169.00	114.00	●	○		○
	15.500	178.00	120.00	●			○
	16.000	178.00	120.00	●	○		○

Straight shank twist drills

Short lengths drills

Catalog no. 71158



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1300 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS-Co
Surface	nitrided lands
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 61158



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx 1300 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 338

Tool material	HSS-Co
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: wide flutes
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 71128



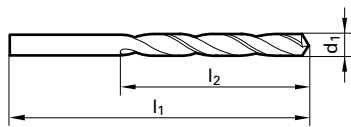
An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

DIN 338

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	
Tolerance on Ø	h8

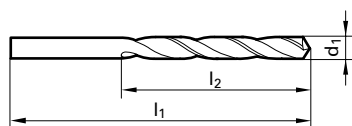
Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Short lengths drills



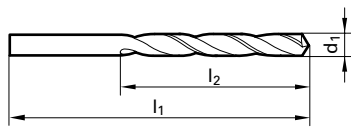
				Catalog no.	71158	61158	71128
				Tool material	HSS-Co		HSS
				Discount group	136	137	136
				Cutting direction	right-hand	right-hand	right-hand
				Surface	nitrided lands	TiN	bright
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	0.550	24.00	7.00				○
	0.600	24.00	7.00				○
	0.650	26.00	8.00				○
	0.750	28.00	9.00				○
	0.800	30.00	10.00				○
	0.850	30.00	10.00				○
	0.900	32.00	11.00				○
	0.950	32.00	11.00				○
	1.000	34.00	12.00				○
	1.050	34.00	12.00				○
	1.100	36.00	14.00				○
	1.200	38.00	16.00				○
	1.250	38.00	16.00				○
	1.300	38.00	16.00				○
	1.400	40.00	18.00				○
	1.450	40.00	18.00				○
	1.500	40.00	18.00	●	●		○
	1.550	43.00	20.00				○
1/16	1.590	43.00	20.00	○			
	1.600	43.00	20.00	●	●		○
	1.700	43.00	20.00	●	●		○
	1.750	46.00	22.00				○
	1.800	46.00	22.00	●	●		○
	1.850	46.00	22.00				○
	1.900	46.00	22.00	●	●		○
	1.950	49.00	24.00				○
	2.000	49.00	24.00	●	●		○
	2.100	49.00	24.00	●	●		○
	2.150	53.00	27.00				○
	2.200	53.00	27.00	●	●		○
	2.250	53.00	27.00				○
	2.300	53.00	27.00	●	●		○
	2.400	57.00	30.00	●	●		○
	2.450	57.00	30.00				○
	2.500	57.00	30.00	●	●		○
	2.550	57.00	30.00				○
	2.600	57.00	30.00	●	●		○
	2.700	61.00	33.00	●	●		○
	2.800	61.00	33.00	●	●		○
	2.850	61.00	33.00				○
	2.900	61.00	33.00	●	●		○
	2.950	61.00	33.00				○
	3.000	61.00	33.00	●	●		○
	3.100	65.00	36.00	●	●		○
	3.150	65.00	36.00				○
1/8	3.170	65.00	36.00	○			
	3.200	65.00	36.00	●	●		
	3.250	65.00	36.00				○
	3.300	65.00	36.00	●	●		○
	3.350	65.00	36.00				○
	3.400	70.00	39.00	●	●		○
	3.450	70.00	39.00				○
	3.500	70.00	39.00	●	●		○
	3.550	70.00	39.00				○
	3.600	70.00	39.00	●	●		○
	3.700	70.00	39.00	●	●		○
	3.750	70.00	39.00				○
	3.800	75.00	43.00	●	●		○
	3.850	75.00	43.00				○
	3.900	75.00	43.00	●	●		○

Short lengths drills



				Catalog no.	71158	61158	71128
				Tool material	HSS-Co		HSS
				Discount group	136	137	136
				Cutting direction	right-hand	right-hand	right-hand
				Surface	nitrided lands	TiN	bright
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
1/4	4.000	75.00	43.00	●	●	○	
	4.100	75.00	43.00	●	●	○	
	4.150	75.00	43.00			○	
	4.200	75.00	43.00	●	●	○	
	4.300	80.00	47.00	●	●	○	
	4.350	80.00	47.00			○	
	4.400	80.00	47.00	●	●	○	
	4.450	80.00	47.00			○	
	4.500	80.00	47.00	●	●	○	
	4.550	80.00	47.00			○	
	4.600	80.00	47.00	●	●	○	
	4.700	80.00	47.00	●	●	○	
	4.800	86.00	52.00	●	●	○	
	4.850	86.00	52.00			○	
	4.900	86.00	52.00	●	●	○	
	4.950	86.00	52.00			○	
	5.000	86.00	52.00	●	●	○	
	5.100	86.00	52.00	●	●	○	
	5.200	86.00	52.00	●	●	○	
	5.300	86.00	52.00	●	●	○	
	5.400	93.00	57.00	●	●	○	
	5.500	93.00	57.00	●	●	○	
	5.600	93.00	57.00	●	●	○	
	5.700	93.00	57.00	●	●	○	
	5.800	93.00	57.00	●	●	○	
	5.900	93.00	57.00	●	●	○	
	6.000	93.00	57.00	●	●	○	
	6.100	101.00	63.00	●	●	○	
	6.200	101.00	63.00	●	●	○	
	6.300	101.00	63.00	●	●	○	
	6.350	101.00	63.00	○			
	6.400	101.00	63.00	●	●	○	
	6.500	101.00	63.00	●			
	6.600	101.00	63.00	●	●	○	
	6.700	101.00	63.00	●			
	6.800	109.00	69.00	●	●	○	
	6.900	109.00	69.00	●	●	○	
	7.000	109.00	69.00	●	●	○	
	7.100	109.00	69.00	●	●	○	
	7.140	109.00	69.00	○			
	7.200	109.00	69.00	●	●	○	
	7.300	109.00	69.00	●	●	○	
	7.400	109.00	69.00	●	●	○	
	7.500	109.00	69.00	●	●	○	
	7.600	117.00	75.00	●	●	○	
	7.700	117.00	75.00	●	●	○	
	7.800	117.00	75.00	●	●	○	
	7.900	117.00	75.00	●	●	○	
7.940	117.00	75.00	○				
8.000	117.00	75.00	●	●	○		
8.100	117.00	75.00	●				
8.200	117.00	75.00	●	●			
8.300	117.00	75.00	●	●			
8.400	117.00	75.00	●	●			
8.500	117.00	75.00	●	●	○		
8.600	125.00	81.00	●	●	○		
8.700	125.00	81.00	●	●			
8.730	125.00	81.00	○				
8.800	125.00	81.00	●	●			
8.900	125.00	81.00	●				

Short lengths drills



				Catalog no.	71158	61158	71128
				Tool material	HSS-Co		HSS
				Discount group	136	137	136
				Cutting direction	right-hand	right-hand	right-hand
				Surface	nitrided lands	TiN	bright
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
3/8	9.000	125.00	81.00	●	●	○	
	9.100	125.00	81.00	●			
	9.200	125.00	81.00	●	●		
	9.300	125.00	81.00	●			
	9.400	125.00	81.00	●			
	9.500	125.00	81.00	●	●	○	
	9.520	133.00	87.00	○			
	9.600	133.00	87.00	●	●		
	9.700	133.00	87.00	●			
	9.800	133.00	87.00	●	●	○	
7/16	9.900	133.00	87.00	●			
	10.000	133.00	87.00	●	●	○	
	10.200	133.00	87.00	●	●	○	
	10.500	133.00	87.00	●	●	○	
	10.800	142.00	94.00	●			
	11.000	142.00	94.00	●	●	○	
15/32	11.110	142.00	94.00	○			
	11.200	142.00	94.00	●			
	11.500	142.00	94.00	●	●	○	
	11.800	142.00	94.00	●	●		
1/2	11.910	151.00	101.00	○			
	12.000	151.00	101.00	●	●	○	
	12.500	151.00	101.00	●	●	○	
	12.700	151.00	101.00	●			
	13.000	151.00	101.00	●	●	○	

Straight shank twist drills

Short lengths drills

Catalog no. 71129



An extremely rigid high heat-resistant twist drill, especially for automatic turning machines. Suitable for use in free cutting steel (Pb alloyed), brass and aluminium.

DIN 338

Tool material	HSS
Surface	bright
Type	V72
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: smaller than normal
Web taper: standard
Flute form: extremely wide and open
Web thinning: not necessary

Short lengths drills

Catalog no. 51158



High heat-resistant drill with wide chip space. Suitable for drilling alloyed and unalloyed steels and castings with tensile strengths over 800 N/mm². Particularly suitable for drilling hot and cold-rolled steels, antifriction bearing steel, high alloyed steels as well as case hardening and heat-treatable steels. Well suited for drilling depths greater than 3 x D (nitrided lands and wide flutes).

DIN 338

Tool material	HSS-Co
Surface	TiAlN
Type	V97
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

Helix angle: larger than standard
Web thickness: greater than standard
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: to DIN 1412, form A

Short lengths drills

Catalog no. 61232



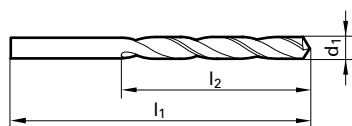
High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

DIN 338

Tool material	HSS-E-PM
Surface	TiN
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8

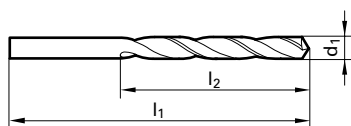
Helix angle: normal
Web thickness: normal
Web taper: none
Flute form: wide flutes with „rounded“ heels
Web thinning: special

Short lengths drills



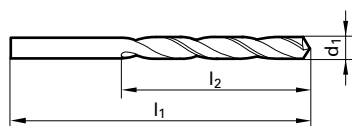
				Catalog no.	71129	51158	61232
				Tool material	HSS	HSS-Co	HSS-E-PM
				Discount group	138	137	135
				Cutting direction	left-hand	right-hand	right-hand
				Surface	bright	TiAlN	TiN
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	0.500	22.00	6.00		○		
	0.550	24.00	7.00		○		
	0.600	24.00	7.00		○		
	0.650	26.00	8.00		○		
	0.700	28.00	9.00		○		
	0.750	28.00	9.00		○		
	0.900	32.00	11.00		○		
	0.950	32.00	11.00		○		
	1.000	34.00	12.00		○	●	○
	1.100	36.00	14.00			●	○
	1.200	38.00	16.00			●	○
	1.250	38.00	16.00		○		
	1.300	38.00	16.00			●	○
	1.400	40.00	18.00			●	○
	1.500	40.00	18.00			●	○
	1.600	43.00	20.00		○	●	○
	1.650	43.00	20.00		○		
	1.700	43.00	20.00		○	●	○
	1.800	46.00	22.00			●	○
	1.850	46.00	22.00		○		
	1.900	46.00	22.00		○	●	○
	2.000	49.00	24.00			●	○
	2.100	49.00	24.00			●	○
	2.150	53.00	27.00		○		
	2.200	53.00	27.00		○	●	○
	2.250	53.00	27.00		○		
	2.300	53.00	27.00		○	●	○
	2.350	53.00	27.00		○		
	2.400	57.00	30.00		○	●	○
	2.450	57.00	30.00		○		
	2.500	57.00	30.00		○	●	○
	2.600	57.00	30.00		○	●	○
	2.650	57.00	30.00		○		
	2.700	61.00	33.00		○	●	○
	2.750	61.00	33.00		○		
	2.800	61.00	33.00		○	●	○
	2.850	61.00	33.00		○		
	2.900	61.00	33.00			●	○
	2.950	61.00	33.00		○		
	3.000	61.00	33.00		○	●	○
	3.100	65.00	36.00		○	●	○
	3.150	65.00	36.00		○		
	3.200	65.00	36.00			●	○
	3.300	65.00	36.00		○	●	○
	3.400	70.00	39.00		○	●	○
	3.450	70.00	39.00		○		
	3.500	70.00	39.00			●	○
	3.550	70.00	39.00		○		
	3.600	70.00	39.00		○	●	○
	3.650	70.00	39.00		○		
	3.700	70.00	39.00			●	○
	3.750	70.00	39.00		○		
	3.800	75.00	43.00			●	○
	3.850	75.00	43.00		○		
	3.900	75.00	43.00			●	○
	3.950	75.00	43.00		○		
	4.000	75.00	43.00		○	●	○
	4.050	75.00	43.00		○		
	4.100	75.00	43.00		○	●	○
	4.150	75.00	43.00		○		

Short lengths drills



				Catalog no.	71129	51158	61232
				Tool material	HSS	HSS-Co	HSS-E-PM
				Discount group	138	137	135
				Cutting direction	left-hand	right-hand	right-hand
				Surface	bright	TiAlN	TiN
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	4.200	75.00	43.00			●	○
	4.250	75.00	43.00	○			
	4.300	80.00	47.00	○		●	○
	4.350	80.00	47.00	○			
	4.400	80.00	47.00	○		●	○
	4.450	80.00	47.00	○			
	4.500	80.00	47.00	○		●	○
	4.550	80.00	47.00	○			
	4.600	80.00	47.00	○		●	○
	4.650	80.00	47.00	○			
	4.700	80.00	47.00	○		●	○
	4.800	86.00	52.00	○		●	○
	4.850	86.00	52.00	○			
	4.900	86.00	52.00	○		●	○
	4.950	86.00	52.00	○			
	5.000	86.00	52.00	○		●	○
	5.100	86.00	52.00			●	○
	5.200	86.00	52.00	○		●	○
	5.300	86.00	52.00	○		●	○
	5.400	93.00	57.00	○		●	○
	5.500	93.00	57.00	○		●	○
	5.600	93.00	57.00	○		●	○
	5.700	93.00	57.00	○		●	○
	5.800	93.00	57.00	○		●	○
	5.900	93.00	57.00	○		●	○
	6.000	93.00	57.00			●	○
	6.100	101.00	63.00	○		●	○
	6.200	101.00	63.00	○		●	○
	6.300	101.00	63.00	○		●	○
	6.400	101.00	63.00	○		●	○
	6.500	101.00	63.00	○		●	○
	6.600	101.00	63.00	○		●	○
	6.700	101.00	63.00	○		●	○
	6.800	109.00	69.00	○		●	○
	6.900	109.00	69.00	○		●	○
	7.000	109.00	69.00	○		●	○
	7.100	109.00	69.00	○		●	○
	7.200	109.00	69.00	○			○
	7.300	109.00	69.00	○			○
	7.400	109.00	69.00	○		●	○
	7.500	109.00	69.00	○		●	○
	7.600	117.00	75.00	○		●	○
	7.700	117.00	75.00	○		●	○
	7.800	117.00	75.00	○		●	○
	7.900	117.00	75.00	○		●	○
	8.000	117.00	75.00	○		●	○
	8.100	117.00	75.00	○		●	○
	8.200	117.00	75.00	○		●	○
	8.300	117.00	75.00	○		●	○
	8.400	117.00	75.00	○			○
	8.500	117.00	75.00			●	○
	8.600	125.00	81.00	○		●	
	8.700	125.00	81.00	○		●	
	8.800	125.00	81.00	○		●	○
	8.900	125.00	81.00	○		●	
	9.000	125.00	81.00	○		●	○
	9.100	125.00	81.00	○		●	
	9.200	125.00	81.00	○		●	
	9.300	125.00	81.00	○		●	○
	9.400	125.00	81.00	○		●	

Short lengths drills



				Catalog no.	71129	51158	61232
				Tool material	HSS	HSS-Co	HSS-E-PM
				Discount group	138	137	135
				Cutting direction	left-hand	right-hand	right-hand
				Surface	bright	TiAlN	TiN
d1	d1	l1	l2	price per piece			
inch	mm	mm	mm				
	9.500	125.00	81.00	○	●	○	
	9.600	133.00	87.00	○	●		
	9.700	133.00	87.00	○	●		
	9.800	133.00	87.00	○	●	○	
	9.900	133.00	87.00	○	●		
	10.000	133.00	87.00	○	●	○	
	10.100	133.00	87.00	○	●		
	10.200	133.00	87.00	○	●	○	
	10.300	133.00	87.00	○	●		
	10.400	133.00	87.00	○	●		
	10.500	133.00	87.00	○	●	○	
	10.600	133.00	87.00	○			
	10.700	142.00	94.00	○	●		
	10.800	142.00	94.00	○	●		
	10.900	142.00	94.00	○			
	11.000	142.00	94.00	○	●	○	
	11.100	142.00	94.00	○			
	11.200	142.00	94.00	○	●		
	11.300	142.00	94.00	○			
	11.400	142.00	94.00	○			
	11.500	142.00	94.00	○	●	○	
	11.600	142.00	94.00	○			
	11.700	142.00	94.00	○	●		
	11.800	142.00	94.00	○	●		
	11.900	151.00	101.00	○			
	12.000	151.00	101.00	○	●	○	
	12.100	151.00	101.00	○			
	12.200	151.00	101.00	○			
	12.300	151.00	101.00	○			
	12.400	151.00	101.00	○			
31/64	12.500	151.00	101.00	○	●	○	
	12.600	151.00	101.00	○			
	12.700	151.00	101.00	○			
	12.800	151.00	101.00	○			
	12.900	151.00	101.00	○			
	13.000	151.00	101.00	○	●	○	
	13.500	160.00	108.00			○	
	14.000	160.00	108.00			○	

Jobber drills

Jobber drills in cases

catalog no. 78879

For mechanics and craftsmen we matched sets out of the most commonly used drill dimensions. They are suitable for workshops (in bakelite stands) and when travelling (in boxes). On demand other set combinations are available.

DIN 338

Tool material	HSS
Surface	bright/steam > Ø 2,36 mm
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	
Tolerance on Ø	h8

Jobber drills in cases

catalog no. 78879

For mechanics and craftsmen we matched sets out of the most commonly used drill dimensions. They are suitable for workshops (in bakelite stands) and when travelling (in boxes). On demand other set combinations are available.

DIN 338

Tool material	HSS-Co
Surface	bright
Type	NX
Cutting direction	right-hand
Point grinding	2-facet
Point angle °	118
Web thinned ≥Ø	
Tolerance on Ø	h8

Jobber drills in cases

catalog no. 78880

For mechanics and craftsmen we matched sets out of the most commonly used drill dimensions. They are suitable for workshops (in bakelite stands) and when travelling (in boxes). On demand other set combinations are available.

DIN 338

Tool material	HSS
Surface	TiN tipped
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	
Tolerance on Ø	

				catalog no.	78879	78879	78880
				Tool material	HSS	HSS-Co	HSS
				Discount group	130	130	130
				Cutting direction	right-hand	right-hand	right-hand
				Surface	bright/steam > Ø 2,36 mm	bright	TiN tipped
Code no.	d1 mm	in increments of mm	pieces/set	price per set			
0,011	1,0-5,0	0,1	41	●			
0,012	5,1-10,0	0,1	50	●			
0,013	1,0-10,0	0,5	19	●			
0,014	1,0-13,0	0,5	25	●			
0,015	1,0-5,9	0,1	50	●			
0,016	6,0-10,0	0,1	41	●			
0,018	1,0-10,5	0,5	24	●			
6,013	1,0-10,0	0,5	19				
6,014	1,0-13,0	0,5	25				
7,014	1,0-13,0	0,5	25				
7,018	1,0-10,5	0,5	24				

Straight shank twist drills

Set of jobber drills

DIN 338

Catalog no. 71160

Refilling sets for our cases catalog no. 78879.

Tool material	HSS
Surface	bright/steam tempered > Ø 2,36 mm
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	
Tolerance on Ø	h8

Catalog no.	71160
Tool material	HSS
Discount group	130
Cutting direction	right-hand
Surface	bright/steam tempered > Ø 2,36 mm

Code no.	d1 mm	for increments mm	pieces/set	Price per set
0.011	1,0-5,0	0.1	41	●
0.012	5,1-10,0	0.1	50	●
0.013	1,0-10,0	0.5	19	●
0.014	1,0-13,0	0.5	25	●
0.015	1,0-5,9	0.1	50	●
0.016	6,0-10,0	0.1	41	●
7.018	1,0-10,5	0.5	24	●

Straight shank twist drills

Catalog no.

78878

Cases for twist drill sets

Discount group

138

Code no.	d1 mm	for increments mm	pieces/set	price per piece
0.213	1,0-10,0	0.5	19	○
0.214	1,0-13,0	0.5	25	○
0.215	1,0-5,9	0.1	50	○
0.216	6,0-10,0	0.1	41	○

Catalog no.

78877

Stands only

Discount group

138

Code no.	d1 mm	for increments mm	pieces/set	price per piece
0.111	1,0-5,0	0.1	41	○
0.112	5,1-10,0	0.1	50	○
0.113	1,0-10,0	0.5	19	○
0.114	1,0-13,0	0.5	25	○

Straight shank twist drills

Twist drills with reinforced shank

Catalog no. 61120



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics

Stock std.

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	2.00
Tolerance on Ø	h8

Helix angle: greater than standard

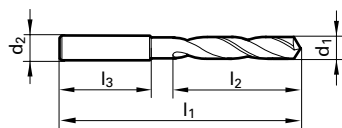
Web thickness: normal

Web taper: normal

Flute form: normal

Web thinning: special

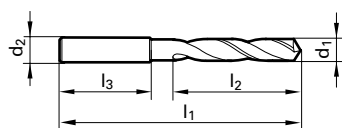
Twist drills with reinforced shank



Catalog no.	61120
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
2.000	3.000	44.00	12.00	28.00	○
2.100	3.000	44.00	12.00	28.00	○
2.200	3.000	45.00	13.00	28.00	○
2.300	3.000	45.00	13.00	28.00	○
2.400	3.000	46.00	14.00	28.00	○
2.500	3.000	46.00	14.00	28.00	○
2.600	3.000	46.00	14.00	28.00	○
2.700	3.000	48.00	16.00	28.00	○
2.800	3.000	48.00	16.00	28.00	○
2.900	3.000	48.00	16.00	28.00	○
3.000	3.000	48.00	16.00	28.00	○
3.100	4.000	50.00	18.00	28.00	○
3.200	4.000	50.00	18.00	28.00	○
3.300	4.000	50.00	18.00	28.00	○
3.400	4.000	52.00	20.00	28.00	○
3.500	4.000	52.00	20.00	28.00	○
3.600	4.000	52.00	20.00	28.00	○
3.700	4.000	52.00	20.00	28.00	○
3.800	4.000	54.00	22.00	28.00	○
3.900	4.000	54.00	22.00	28.00	○
4.000	4.000	54.00	22.00	28.00	○
4.100	6.000	66.00	22.00	36.00	○
4.200	6.000	66.00	22.00	36.00	○
4.300	6.000	68.00	24.00	36.00	○
4.400	6.000	68.00	24.00	36.00	○
4.500	6.000	68.00	24.00	36.00	○
4.600	6.000	68.00	24.00	36.00	○
4.700	6.000	68.00	24.00	36.00	○
4.800	6.000	70.00	26.00	36.00	○
4.900	6.000	70.00	26.00	36.00	○
5.000	6.000	70.00	26.00	36.00	○
5.100	6.000	70.00	26.00	36.00	○
5.200	6.000	70.00	26.00	36.00	○
5.300	6.000	70.00	26.00	36.00	○
5.400	6.000	72.00	28.00	36.00	○
5.500	6.000	72.00	28.00	36.00	○
5.600	6.000	72.00	28.00	36.00	○
5.700	6.000	72.00	28.00	36.00	○
5.800	6.000	72.00	28.00	36.00	○
5.900	6.000	72.00	28.00	36.00	○
6.000	6.000	72.00	28.00	36.00	○
6.100	8.000	75.00	31.00	36.00	○
6.200	8.000	75.00	31.00	36.00	○
6.300	8.000	75.00	31.00	36.00	○
6.400	8.000	75.00	31.00	36.00	○
6.500	8.000	75.00	31.00	36.00	○
6.600	8.000	75.00	31.00	36.00	○
6.700	8.000	75.00	31.00	36.00	○
6.800	8.000	78.00	34.00	36.00	○
6.900	8.000	78.00	34.00	36.00	○
7.000	8.000	78.00	34.00	36.00	○
7.100	8.000	78.00	34.00	36.00	○
7.200	8.000	78.00	34.00	36.00	○
7.300	8.000	78.00	34.00	36.00	○
7.400	8.000	78.00	34.00	36.00	○
7.500	8.000	78.00	34.00	36.00	○
7.600	8.000	81.00	37.00	36.00	○
7.700	8.000	81.00	37.00	36.00	○
7.800	8.000	81.00	37.00	36.00	○
7.900	8.000	81.00	37.00	36.00	○

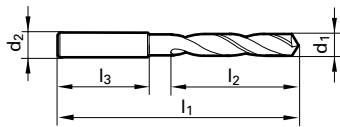
Twist drills with reinforced shank



Catalog no.	61120
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

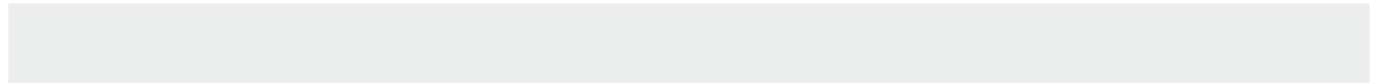
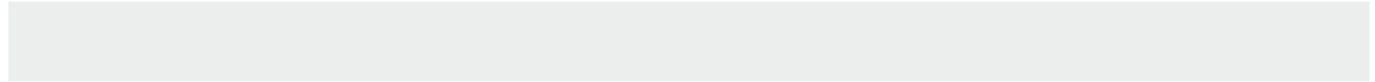
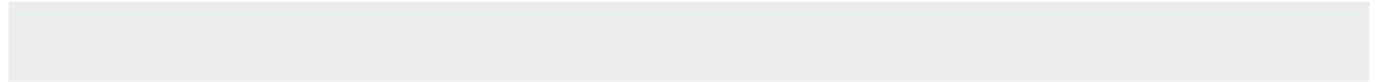
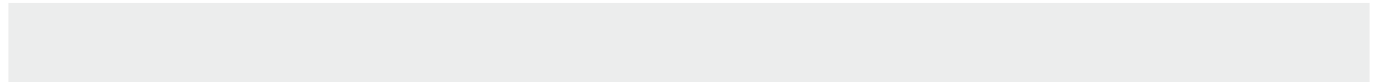
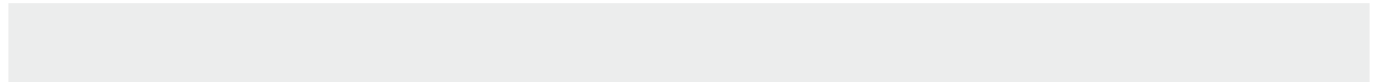
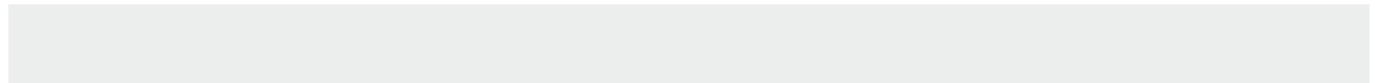
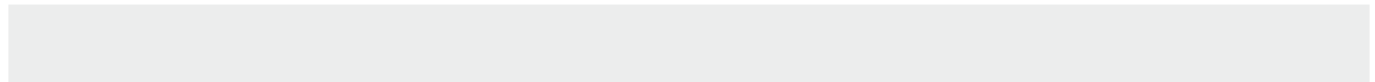
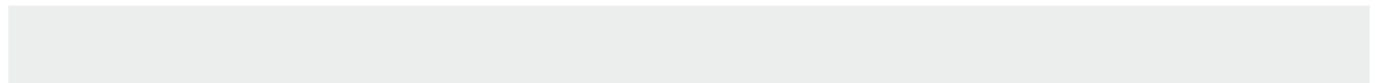
d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
8.000	8.000	81.00	37.00	36.00	○
8.100	10.000	87.00	37.00	40.00	○
8.200	10.000	87.00	37.00	40.00	○
8.300	10.000	87.00	37.00	40.00	○
8.400	10.000	87.00	37.00	40.00	○
8.500	10.000	87.00	37.00	40.00	○
8.600	10.000	91.00	40.00	40.00	○
8.700	10.000	91.00	40.00	40.00	○
8.800	10.000	91.00	40.00	40.00	○
8.900	10.000	91.00	40.00	40.00	○
9.000	10.000	91.00	40.00	40.00	○
9.100	10.000	91.00	40.00	40.00	○
9.200	10.000	91.00	40.00	40.00	○
9.300	10.000	91.00	40.00	40.00	○
9.400	10.000	91.00	40.00	40.00	○
9.500	10.000	91.00	40.00	40.00	○
9.600	10.000	93.00	43.00	40.00	○
9.700	10.000	93.00	43.00	40.00	○
9.800	10.000	93.00	43.00	40.00	○
9.900	10.000	93.00	43.00	40.00	○
10.000	10.000	93.00	43.00	40.00	○
10.100	12.000	100.00	43.00	45.00	○
10.200	12.000	100.00	43.00	45.00	○
10.300	12.000	100.00	43.00	45.00	○
10.400	12.000	100.00	43.00	45.00	○
10.500	12.000	100.00	43.00	45.00	○
10.600	12.000	100.00	43.00	45.00	○
10.700	12.000	104.00	47.00	45.00	○
10.800	12.000	104.00	47.00	45.00	○
10.900	12.000	104.00	47.00	45.00	○
11.000	12.000	104.00	47.00	45.00	○
11.100	12.000	104.00	47.00	45.00	○
11.200	12.000	104.00	47.00	45.00	○
11.300	12.000	104.00	47.00	45.00	○
11.400	12.000	104.00	47.00	45.00	○
11.500	12.000	104.00	47.00	45.00	○
11.600	12.000	104.00	47.00	45.00	○
11.700	12.000	104.00	47.00	45.00	○
11.800	12.000	104.00	47.00	45.00	○
11.900	12.000	108.00	51.00	45.00	○
12.000	12.000	108.00	51.00	45.00	○
12.100	16.000	111.00	51.00	48.00	○
12.200	16.000	111.00	51.00	48.00	○
12.300	16.000	111.00	51.00	48.00	○
12.400	16.000	111.00	51.00	48.00	○
12.500	16.000	111.00	51.00	48.00	○
12.600	16.000	111.00	51.00	48.00	○
12.700	16.000	111.00	51.00	48.00	○
12.800	16.000	111.00	51.00	48.00	○
12.900	16.000	111.00	51.00	48.00	○
13.000	16.000	111.00	51.00	48.00	○
13.100	16.000	111.00	51.00	48.00	○
13.500	16.000	114.00	54.00	48.00	○
14.000	16.000	114.00	54.00	48.00	○
14.500	16.000	116.00	56.00	48.00	○
15.000	16.000	116.00	56.00	48.00	○
15.500	16.000	118.00	58.00	48.00	○
16.000	16.000	118.00	58.00	48.00	○
16.500	20.000	126.00	60.00	50.00	○
17.000	20.000	126.00	60.00	50.00	○

Twist drills with reinforced shank



Catalog no.	61120
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
17.500	20.000	128.00	62.00	50.00	○
18.000	20.000	128.00	62.00	50.00	○
18.500	20.000	130.00	64.00	50.00	○
19.000	20.000	130.00	64.00	50.00	○
19.500	20.000	132.00	66.00	50.00	○
20.000	20.000	132.00	66.00	50.00	○



Straight shank twist drills

Twist drills with reinforced shank

Catalog no. 61121



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics

Stock std.

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	2.00
Tolerance on Ø	h8

Helix angle: greater than standard

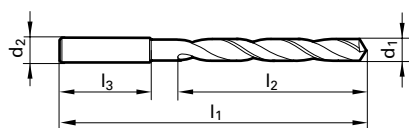
Web thickness: normal

Web taper: normal

Flute form: normal

Web thinning: special

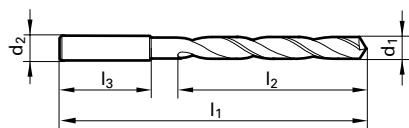
Twist drills with reinforced shank



Catalog no.	61121
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
2.000	3.000	56.00	24.00	28.00	○
2.100	3.000	56.00	24.00	28.00	○
2.200	3.000	59.00	27.00	28.00	○
2.300	3.000	59.00	27.00	28.00	○
2.400	3.000	62.00	30.00	28.00	○
2.500	3.000	62.00	30.00	28.00	○
2.600	3.000	62.00	30.00	28.00	○
2.700	3.000	65.00	33.00	28.00	○
2.800	3.000	65.00	33.00	28.00	○
2.900	3.000	65.00	33.00	28.00	○
3.000	3.000	65.00	33.00	28.00	○
3.100	4.000	68.00	36.00	28.00	○
3.200	4.000	68.00	36.00	28.00	○
3.300	4.000	68.00	36.00	28.00	○
3.400	4.000	71.00	39.00	28.00	○
3.500	4.000	71.00	39.00	28.00	○
3.600	4.000	71.00	39.00	28.00	○
3.700	4.000	71.00	39.00	28.00	○
3.800	4.000	75.00	43.00	28.00	○
3.900	4.000	75.00	43.00	28.00	○
4.000	4.000	75.00	43.00	28.00	○
4.100	6.000	87.00	43.00	36.00	○
4.200	6.000	87.00	43.00	36.00	○
4.300	6.000	91.00	47.00	36.00	○
4.400	6.000	91.00	47.00	36.00	○
4.500	6.000	91.00	47.00	36.00	○
4.600	6.000	91.00	47.00	36.00	○
4.700	6.000	91.00	47.00	36.00	○
4.800	6.000	96.00	52.00	36.00	○
4.900	6.000	96.00	52.00	36.00	○
5.000	6.000	96.00	52.00	36.00	○
5.100	6.000	96.00	52.00	36.00	○
5.200	6.000	96.00	52.00	36.00	○
5.300	6.000	96.00	52.00	36.00	○
5.400	6.000	101.00	57.00	36.00	○
5.500	6.000	101.00	57.00	36.00	○
5.600	6.000	101.00	57.00	36.00	○
5.700	6.000	101.00	57.00	36.00	○
5.800	6.000	101.00	57.00	36.00	○
5.900	6.000	101.00	57.00	36.00	○
6.000	6.000	101.00	57.00	36.00	○
6.100	8.000	107.00	63.00	36.00	○
6.200	8.000	107.00	63.00	36.00	○
6.300	8.000	107.00	63.00	36.00	○
6.400	8.000	107.00	63.00	36.00	○
6.500	8.000	107.00	63.00	36.00	○
6.600	8.000	107.00	63.00	36.00	○
6.700	8.000	107.00	63.00	36.00	○
6.800	8.000	113.00	69.00	36.00	○
6.900	8.000	113.00	69.00	36.00	○
7.000	8.000	113.00	69.00	36.00	○
7.100	8.000	113.00	69.00	36.00	○
7.200	8.000	113.00	69.00	36.00	○
7.300	8.000	113.00	69.00	36.00	○
7.400	8.000	113.00	69.00	36.00	○
7.500	8.000	113.00	69.00	36.00	○
7.600	8.000	119.00	75.00	36.00	○
7.700	8.000	119.00	75.00	36.00	○
7.800	8.000	119.00	75.00	36.00	○
7.900	8.000	119.00	75.00	36.00	○

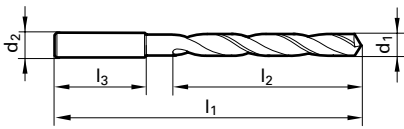
Twist drills with reinforced shank



Catalog no.	61121
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
8.000	8.000	119.00	75.00	36.00	○
8.100	10.000	125.00	75.00	40.00	○
8.200	10.000	125.00	75.00	40.00	○
8.300	10.000	125.00	75.00	40.00	○
8.400	10.000	125.00	75.00	40.00	○
8.500	10.000	125.00	75.00	40.00	○
8.600	10.000	131.00	81.00	40.00	○
8.700	10.000	131.00	81.00	40.00	○
8.800	10.000	131.00	81.00	40.00	○
8.900	10.000	131.00	81.00	40.00	○
9.000	10.000	131.00	81.00	40.00	○
9.100	10.000	131.00	81.00	40.00	○
9.200	10.000	131.00	81.00	40.00	○
9.300	10.000	131.00	81.00	40.00	○
9.400	10.000	131.00	81.00	40.00	○
9.500	10.000	131.00	81.00	40.00	○
9.600	10.000	137.00	87.00	40.00	○
9.700	10.000	137.00	87.00	40.00	○
9.800	10.000	137.00	87.00	40.00	○
10.000	10.000	137.00	87.00	40.00	○
10.100	12.000	144.00	87.00	45.00	○
10.200	12.000	144.00	87.00	45.00	○
10.300	12.000	144.00	87.00	45.00	○
10.400	12.000	144.00	87.00	45.00	○
10.500	12.000	144.00	87.00	45.00	○
10.600	12.000	144.00	87.00	45.00	○
10.700	12.000	151.00	94.00	45.00	○
10.800	12.000	151.00	94.00	45.00	○
10.900	12.000	151.00	94.00	45.00	○
11.000	12.000	151.00	94.00	45.00	○
11.100	12.000	151.00	94.00	45.00	○
11.200	12.000	151.00	94.00	45.00	○
11.300	12.000	151.00	94.00	45.00	○
11.400	12.000	151.00	94.00	45.00	○
11.500	12.000	151.00	94.00	45.00	○
11.600	12.000	151.00	94.00	45.00	○
11.700	12.000	151.00	94.00	45.00	○
11.800	12.000	151.00	94.00	45.00	○
11.900	12.000	158.00	101.00	45.00	○
12.000	12.000	158.00	101.00	45.00	○
12.100	16.000	161.00	101.00	48.00	○
12.200	16.000	161.00	101.00	48.00	○
12.300	16.000	161.00	101.00	48.00	○
12.400	16.000	161.00	101.00	48.00	○
12.500	16.000	161.00	101.00	48.00	○
12.600	16.000	161.00	101.00	48.00	○
12.700	16.000	161.00	101.00	48.00	○
12.800	16.000	161.00	101.00	48.00	○
12.900	16.000	161.00	101.00	48.00	○
13.000	16.000	161.00	101.00	48.00	○
13.100	16.000	161.00	101.00	48.00	○
13.500	16.000	166.00	106.00	48.00	○
14.000	16.000	166.00	106.00	48.00	○
14.500	16.000	169.00	109.00	48.00	○
15.000	16.000	169.00	109.00	48.00	○
15.500	16.000	172.00	112.00	48.00	○
16.000	16.000	172.00	112.00	48.00	○
16.500	20.000	181.00	115.00	50.00	○
17.000	20.000	181.00	115.00	50.00	○
17.500	20.000	184.00	118.00	50.00	○

Twist drills with reinforced shank



Catalog no.	61121
Tool material	HSS-Co
Discount group	115
Cutting direction	right-hand
Surface	TiN

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
18.000	20.000	184.00	118.00	50.00	○
18.500	20.000	188.00	122.00	50.00	○
19.000	20.000	188.00	122.00	50.00	○
19.500	20.000	191.00	125.00	50.00	○
20.000	20.000	191.00	125.00	50.00	○

Straight shank twist drills

Twist drills with reinforced shank

Catalog no. 51132



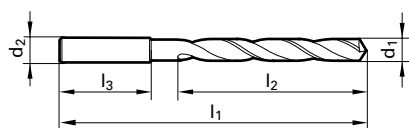
High performance, heat-resistant twist drill with wide flutes for better chip removal. Made from PM-steel the V-PM combines the advantages of both conventional HSS as well as carbide drills. The V-PM is economical and less prone to fractures. Especially suitable for drilling of high alloyed steels, heat treatable and case hardened steel, cast iron, brass and bronze.

Stock std.

Tool material	HSS-E-PM
Surface	TiAIN
Type	V-PM
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h8

Helix angle: normal
 Web thickness: normal
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: special

Twist drills with reinforced shank



Catalog no.	51132
Tool material	HSS-E-PM
Discount group	115
Cutting direction	right-hand
Surface	TiAlN

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
2.000	3.000	56.00	24.00	28.00	○
2.200	3.000	59.00	27.00	28.00	○
2.500	3.000	62.00	30.00	28.00	○
3.000	3.000	65.00	33.00	28.00	○
3.300	4.000	68.00	36.00	28.00	○
3.400	4.000	71.00	39.00	28.00	○
3.500	4.000	71.00	39.00	28.00	○
3.700	4.000	71.00	39.00	28.00	○
3.800	4.000	75.00	43.00	28.00	○
4.000	4.000	75.00	43.00	28.00	○
4.300	6.000	91.00	47.00	36.00	○
4.500	6.000	91.00	47.00	36.00	○
4.600	6.000	91.00	47.00	36.00	○
4.800	6.000	96.00	52.00	36.00	○
5.000	6.000	96.00	52.00	36.00	○
5.100	6.000	96.00	52.00	36.00	○
5.500	6.000	101.00	57.00	36.00	○
5.700	6.000	101.00	57.00	36.00	○
5.800	6.000	101.00	57.00	36.00	○
6.000	6.000	101.00	57.00	36.00	○
6.500	8.000	107.00	63.00	36.00	○
6.800	8.000	113.00	69.00	36.00	○
6.900	8.000	113.00	69.00	36.00	○
7.000	8.000	113.00	69.00	36.00	○
7.400	8.000	113.00	69.00	36.00	○
7.500	8.000	113.00	69.00	36.00	○
7.800	8.000	119.00	75.00	36.00	○
8.000	8.000	119.00	75.00	36.00	○
8.600	10.000	131.00	81.00	40.00	○
8.800	10.000	131.00	81.00	40.00	○
9.300	10.000	131.00	81.00	40.00	○
9.500	10.000	131.00	81.00	40.00	○
10.000	10.000	137.00	87.00	40.00	○
10.200	12.000	144.00	87.00	45.00	○
10.300	12.000	144.00	87.00	45.00	○
10.500	12.000	144.00	87.00	45.00	○
11.000	12.000	151.00	94.00	45.00	○
11.200	12.000	151.00	94.00	45.00	○
11.500	12.000	151.00	94.00	45.00	○
12.000	12.000	158.00	101.00	45.00	○
12.100	14.000	161.00	101.00	45.00	○
12.500	14.000	161.00	101.00	45.00	○
13.000	14.000	161.00	101.00	45.00	○

Straight shank twist drills

Stub drills with 16.0 mm dia. shank

Catalog no. 71168

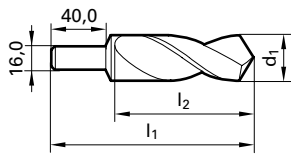


An extremely rigid high heat-resistant twist drill. Suitable for the drilling of difficult-to-machine materials such as stainless steel, non-corrosive steels (VA steels), spring steels, austenitic steels etc. For use primarily in automatic and capstan lathes. These short length drills are supplied with both ends centred and without point relief to allow finishing operations to be carried out, e.g. reduction of diameter, the grinding of steps, special point forms and similar modifications.

Stock std.

Tool material	HSS-Co
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Without point grind
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h8
Helix angle: normal	
Web thickness: normal	
Web taper: normal	
Flute form: normal	
Web thinning: none	

Stub drills with 16.0 mm dia. shank



Catalog no.	71168
Tool material	HSS-Co
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	l1 mm	l2 mm	price per piece
16.000	130.00	88.00	●
16.500	130.00	88.00	●
17.000	130.00	88.00	●
17.500	130.00	88.00	●
18.000	130.00	88.00	●
19.000	130.00	88.00	●
20.000	130.00	88.00	●
20.500	130.00	88.00	●
21.000	130.00	88.00	●
21.500	130.00	88.00	●
22.000	130.00	88.00	●
23.000	130.00	88.00	●
24.000	130.00	88.00	●
24.500	130.00	88.00	●
25.000	130.00	88.00	●
25.500	140.00	98.00	●
26.000	140.00	98.00	●
27.000	140.00	98.00	●
28.000	140.00	98.00	●
28.500	140.00	98.00	●
30.000	140.00	98.00	●

Straight shank twist drills

Stub drills with 25.4 mm dia. shank

Catalog no. 71169

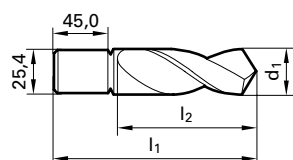


An extremely rigid high heat-resistant twist drill. Suitable for the drilling of difficult-to-machine materials such as stainless steel, non-corrosive steels (VA steels), spring steels, austenitic steels etc. For use primarily in automatic and capstan lathes. These short length drills are supplied with both ends centred and without point relief to allow finishing operations to be carried out, e.g. reduction of diameter, the grinding of steps, special point forms and similar modifications.

Stock std.

Tool material	HSS-Co
Surface	bright
Type	V72
Cutting direction	right-hand
Point grinding	Without point grind
Point angle °	118
Web thinned ≥Ø	
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: none



Catalog no.	71169
Tool material	HSS-Co
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	l1 mm	l2 mm	price per piece
28.000	140.00	93.00	●
30.000	140.00	93.00	●
32.000	140.00	93.00	●
34.000	140.00	93.00	●
36.000	140.00	93.00	●
38.000	140.00	93.00	●
40.000	140.00	93.00	●

Straight shank twist drills

Bushing drills

DIN 339

Catalog no. 71130



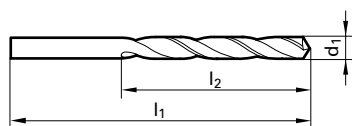
Standard bushing drill. For drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, german silver, graphite.

> Ø 3,00 mm with tang to DIN 1809.

Tool material	HSS
Surface	bright/steam tempered > Ø 2,36 mm
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

Helix angle: normal
 Web thickness: greater than standard
 Web taper: normal
 Flute form: normal
 Web thinning: to DIN 1412, form A

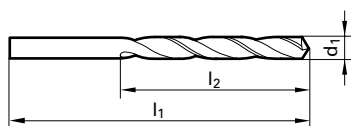
Bushing drills



Catalog no.	71130
Tool material	HSS
Discount group	134
Cutting direction	right-hand
Surface	bright/steam tempered > Ø 2,36 mm

d1 mm	l1 mm	l2 mm	price per piece
1.000	48.00	26.00	○
1.150	50.00	28.00	○
1.200	52.00	30.00	○
1.350	55.00	33.00	○
1.500	55.00	33.00	○
1.850	62.00	38.00	○
2.000	66.00	41.00	○
2.300	70.00	44.00	○
2.500	74.00	47.00	○
2.600	74.00	47.00	○
2.800	79.00	51.00	○
2.850	79.00	51.00	○
2.900	79.00	51.00	○
3.100	84.00	55.00	○
3.200	84.00	55.00	○
3.400	91.00	60.00	○
3.800	96.00	64.00	○
3.900	96.00	64.00	○
4.000	96.00	64.00	○
4.100	96.00	64.00	○
4.300	102.00	69.00	○
4.400	102.00	69.00	○
4.500	102.00	69.00	○
4.600	102.00	69.00	○
4.700	102.00	69.00	○
4.800	108.00	74.00	○
4.900	108.00	74.00	○
5.000	108.00	74.00	○
5.100	108.00	74.00	○
5.400	116.00	80.00	○
5.600	116.00	80.00	○
5.700	116.00	80.00	○
5.800	116.00	80.00	○
5.900	116.00	80.00	○
6.000	116.00	80.00	○
6.100	124.00	86.00	○
6.200	124.00	86.00	○
6.400	124.00	86.00	○
6.500	124.00	86.00	○
6.600	124.00	86.00	○
6.800	133.00	93.00	○
7.000	133.00	93.00	○
7.100	133.00	93.00	○
7.200	133.00	93.00	○
7.300	133.00	93.00	○
7.400	133.00	93.00	○
7.500	133.00	93.00	○
7.600	142.00	100.00	○
7.700	142.00	100.00	○
7.800	142.00	100.00	○
7.900	142.00	100.00	○
8.000	142.00	100.00	○
8.100	142.00	100.00	○
8.200	142.00	100.00	○
8.300	142.00	100.00	○
8.500	142.00	100.00	○
8.700	151.00	107.00	○
8.800	151.00	107.00	○
9.000	151.00	107.00	○
9.100	151.00	107.00	○

Bushing drills



Catalog no.	71130
Tool material	HSS
Discount group	134
Cutting direction	right-hand
Surface	bright/steam tempered > Ø 2,36 mm

d1 mm	l1 mm	l2 mm	price per piece
9.200	151.00	107.00	○
9.300	151.00	107.00	○
9.400	151.00	107.00	○
9.500	151.00	107.00	○
9.600	162.00	116.00	○
9.900	162.00	116.00	○
10.000	162.00	116.00	○
10.200	162.00	116.00	○
10.500	162.00	116.00	○
11.000	173.00	125.00	○
11.200	173.00	125.00	○
11.800	173.00	125.00	○
12.000	184.00	134.00	○
12.200	184.00	134.00	○
12.500	184.00	134.00	○
13.000	184.00	134.00	○
13.500	194.00	142.00	○
14.000	194.00	142.00	○
14.500	202.00	147.00	○
15.000	202.00	147.00	○
16.000	211.00	153.00	○
16.500	218.00	159.00	○
17.000	218.00	159.00	○
17.500	226.00	165.00	○
18.000	226.00	165.00	○
18.500	234.00	171.00	○
19.000	234.00	171.00	○
19.200	242.00	177.00	○
19.500	242.00	177.00	○

Straight shank twist drills

Long series twist drills

Catalog no. 71136



Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.00
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: greater than standard Flute form: normal Web thinning: to DIN 1412, form A	

Long series twist drills

Catalog no. 71135



Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

Tool material	HSS
Surface	bright/steam tempered $> \emptyset 2,36 \text{ mm}$
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	2.00
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: greater than standard Flute form: normal Web thinning: to DIN 1412, form A	

Long series twist drills

Catalog no. 61136

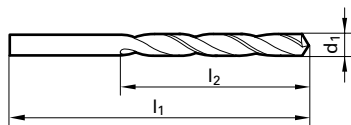


Standard bushing drill for drilling steel and cast steel, alloyed and unalloyed, grey cast iron, malleable cast iron, spheroidal iron, sintered powder metal, German silver, graphite.

DIN 340

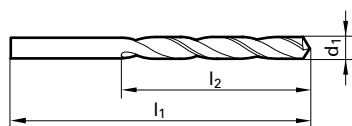
Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.50
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: greater than standard Flute form: normal Web thinning: to DIN 1412, form A	

Long series twist drills



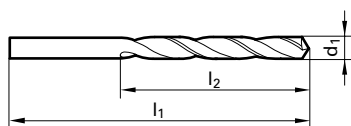
Catalog no.				71136	71135	61136
Tool material				HSS		
Discount group				132	132	133
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	bright/steam tempered > Ø 2,36	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	0.500	32.00	12.00	●		
	0.600	35.00	15.00	●		
	0.700	42.00	21.00	●		
	0.800	46.00	25.00	●		
	0.900	51.00	29.00	●		
	1.000	56.00	33.00	●		●
	1.050	56.00	33.00	○		
	1.100	60.00	37.00	●		●
	1.150	60.00	37.00	○		
	1.200	65.00	41.00	●		●
	1.250	65.00	41.00	○		
	1.300	65.00	41.00	●		●
	1.350	70.00	45.00	○		
	1.400	70.00	45.00	●		●
	1.450	70.00	45.00	○		
	1.500	70.00	45.00	●		●
	1.550	76.00	50.00	○		
	1.600	76.00	50.00	●		●
	1.650	76.00	50.00	○		
	1.700	76.00	50.00	●		●
	1.750	80.00	53.00	○		
	1.800	80.00	53.00	●		●
	1.850	80.00	53.00	○		
	1.900	80.00	53.00	●		●
	1.950	85.00	56.00	○		
	2.000	85.00	56.00	●	●	●
	2.050	85.00	56.00	○	○	
	2.100	85.00	56.00	●	●	●
	2.150	90.00	59.00	○		
	2.200	90.00	59.00	●	●	●
	2.300	90.00	59.00	●	●	●
	2.350	90.00	59.00	○		
	2.400	95.00	62.00	●	●	●
	2.500	95.00	62.00	●	●	●
	2.600	95.00	62.00	●	●	●
	2.700	100.00	66.00	●	●	●
	2.800	100.00	66.00	●	●	●
	2.900	100.00	66.00	●	●	●
	3.000	100.00	66.00	●	●	●
	3.050	106.00	69.00	○	○	
	3.100	106.00	69.00	●	●	●
	3.200	106.00	69.00	●	●	●
	3.250	106.00	69.00	○	○	
	3.300	106.00	69.00	●	●	●
	3.400	112.00	73.00	●	●	●
	3.500	112.00	73.00	●	●	●
	3.550	112.00	73.00		○	
	3.600	112.00	73.00	●	●	●
	3.700	112.00	73.00	●	●	●
	3.800	119.00	78.00	●		●
	3.850	119.00	78.00		○	
	3.900	119.00	78.00	●	●	●
	4.000	119.00	78.00	●	●	●
	4.100	119.00	78.00	●	●	●
	4.200	119.00	78.00	●	●	●
	4.250	119.00	78.00		○	
	4.300	126.00	82.00	●	●	●
	4.350	126.00	82.00		○	
	4.400	126.00	82.00	●	●	●
	4.450	126.00	82.00		○	

Long series twist drills



Catalog no.				71136	71135	61136
Tool material				HSS		
Discount group				132	132	133
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	bright/steam tempered > Ø 2,36	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	4.500	126.00	82.00	●	●	●
	4.600	126.00	82.00	●	●	●
	4.650	126.00	82.00		○	
	4.700	126.00	82.00	●		●
	4.750	126.00	82.00	○	○	
	4.800	132.00	87.00	●	●	●
	4.850	132.00	87.00		○	
	4.900	132.00	87.00	●	●	●
	5.000	132.00	87.00	●	●	●
	5.100	132.00	87.00	●	●	●
	5.200	132.00	87.00	●	●	●
	5.300	132.00	87.00	●	●	●
	5.400	139.00	91.00	●	●	●
	5.500	139.00	91.00	●	●	●
	5.600	139.00	91.00	●	●	●
	5.700	139.00	91.00	●	●	●
	5.800	139.00	91.00	●	●	●
	5.900	139.00	91.00	●	●	●
	6.000	139.00	91.00	●	●	●
	6.100	148.00	97.00	●	●	●
	6.200	148.00	97.00	●	●	●
	6.250	148.00	97.00		○	
	6.300	148.00	97.00	●	●	●
	6.400	148.00	97.00	●	●	●
	6.500	148.00	97.00	●	●	●
	6.600	148.00	97.00	●	●	●
	6.700	148.00	97.00	●	●	●
	6.800	156.00	102.00	●	●	●
	6.900	156.00	102.00	●	●	●
	7.000	156.00	102.00	●	●	●
	7.100	156.00	102.00	●	●	●
	7.200	156.00	102.00	●	●	●
	7.250	156.00	102.00		○	
	7.300	156.00	102.00	●	●	●
	7.400	156.00	102.00	●	●	●
	7.500	156.00	102.00	●	●	●
	7.600	165.00	109.00	●	●	●
	7.700	165.00	109.00		●	●
	7.800	165.00	109.00		●	●
	7.900	165.00	109.00		●	●
	8.000	165.00	109.00	●	●	●
	8.100	165.00	109.00	●	●	●
	8.200	165.00	109.00	●	●	●
	8.300	165.00	109.00	●	●	●
	8.400	165.00	109.00		●	●
	8.500	165.00	109.00	●	●	●
	8.600	175.00	115.00		●	●
	8.700	175.00	115.00	●	○	●
	8.750	175.00	115.00		○	
	8.800	175.00	115.00	●	●	●
	8.900	175.00	115.00	●	●	●
	9.000	175.00	115.00	●	●	●
	9.100	175.00	115.00	●	●	●
	9.200	175.00	115.00	●	●	●
	9.300	175.00	115.00	●	●	●
	9.400	175.00	115.00		●	●
	9.500	175.00	115.00	●	●	●
	9.600	184.00	121.00	●	●	●
	9.700	184.00	121.00	●	●	●
	9.800	184.00	121.00	●	●	●

Long series twist drills



Catalog no.				71136	71135	61136
Tool material				HSS		
Discount group				132	132	133
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	bright/steam tempered > Ø 2,36	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	9.900	184.00	121.00	●	●	●
	10.000	184.00	121.00	●	●	●
	10.100	184.00	121.00		●	
	10.200	184.00	121.00	●	●	●
	10.250	184.00	121.00		○	
	10.300	184.00	121.00		●	
	10.400	184.00	121.00		●	
	10.500	184.00	121.00	●	●	●
	10.600	184.00	121.00		●	
	10.700	195.00	128.00		●	
	10.800	195.00	128.00		●	●
	10.900	195.00	128.00		●	
	11.000	195.00	128.00	●	●	●
	11.500	195.00	128.00	●	●	●
	11.750	195.00	128.00		○	
	12.000	205.00	134.00	●	●	●
	12.500	205.00	134.00	●	●	●
	13.000	205.00	134.00	●	●	●
33/64	13.100	205.00	134.00	●		
	13.500	214.00	140.00	●	●	●
	13.800	214.00	140.00	●		
	14.000	214.00	140.00	●	●	●
	14.500	220.00	144.00	●	●	●
	14.750	220.00	144.00	○		
	15.000	220.00	144.00	●	●	●
	15.500	227.00	149.00	●	●	●
	16.000	227.00	149.00	●	●	●
	16.500	235.00	154.00	●		
	17.000	235.00	154.00		●	
	18.000	241.00	158.00		●	
	20.000	254.00	166.00		●	

Straight shank twist drills

Long series twist drills

Catalog no. 71222



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 340

Tool material	HSS-Co
Surface	bright
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

Helix angle: greater than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Long series twist drills

Catalog no. 61222



Universal application drill with two ground faces per cutting edge. The special web thinning ensures smooth application and low feed forces, resulting in accurate bore holes with good surfaces. Suitable for drilling into alloyed and unalloyed steels with tensile strengths of up to 800 N/mm², especially in cold and hot work steel, bearing steel, also non-ferrous metals, cast and plastics.

DIN 340

Tool material	HSS-Co
Surface	TiN
Type	NX
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

Helix angle: greater than standard
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: special

Long series twist drills

Catalog no. 71225



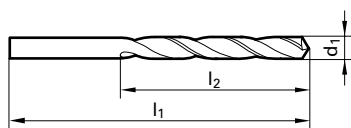
Extra rigid high heat resistant drill for use with drill bushings. Preferential application in titanium and titanium alloys, stainless steels, non-corrosive and heat resistant austenitic steels. Also suitable for high tensile strength steels of approx 900 N/mm², forming short chips (antifriction bearing steel) with shallow drilling depths up to appr. 3 x D. Limited suitability for special alloys such as Hastelloy, Inconel, Nimonic etc.

DIN 340

Tool material	HSS-Co
Surface	bright
Type	V66
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.00
Tolerance on Ø	h8

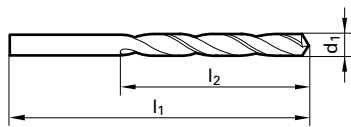
Helix angle: larger than standard
Web thickness: greater than standard
Web taper: normal
Flute form: normal
Web thinning: special

Long series twist drills



Catalog no.				71222	61222	71225
Tool material				HSS-Co		
Discount group				134	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	1.000	56.00	33.00	●	●	●
	1.100	60.00	37.00	●	●	●
	1.200	65.00	41.00	●	●	●
	1.300	65.00	41.00	●	●	●
	1.400	70.00	45.00	●	●	●
	1.500	70.00	45.00	●	●	●
	1.600	76.00	50.00	●	●	●
	1.700	76.00	50.00	●	●	●
	1.800	80.00	53.00	●	●	●
	1.900	80.00	53.00	●	●	●
	2.000	85.00	56.00	●	●	●
	2.100	85.00	56.00	●	●	●
	2.200	90.00	59.00	●	●	●
	2.300	90.00	59.00	●	●	●
	2.400	95.00	62.00	●	●	●
	2.500	95.00	62.00	●	●	●
	2.600	95.00	62.00	●	●	●
	2.700	100.00	66.00	●	●	●
	2.800	100.00	66.00	●	●	●
	2.900	100.00	66.00	●	●	●
	3.000	100.00	66.00	●	●	●
	3.100	106.00	69.00	●	●	●
	3.200	106.00	69.00	●	●	●
	3.300	106.00	69.00	●	●	●
	3.400	112.00	73.00	●	●	●
	3.500	112.00	73.00	●	●	●
	3.600	112.00	73.00	●	●	●
	3.700	112.00	73.00	●	●	●
	3.800	119.00	78.00	●	●	●
	3.900	119.00	78.00	●	●	●
	4.000	119.00	78.00	●	●	●
	4.100	119.00	78.00	●	●	●
	4.200	119.00	78.00	●	●	●
	4.300	126.00	82.00	●	●	●
	4.400	126.00	82.00	●	●	●
	4.500	126.00	82.00	●	●	●
	4.600	126.00	82.00	●	●	●
	4.700	126.00	82.00	●	●	●
	4.800	132.00	87.00	●	●	●
	4.900	132.00	87.00	●	●	●
	5.000	132.00	87.00	●	●	●
	5.100	132.00	87.00	●	●	●
	5.200	132.00	87.00	●	●	●
	5.300	132.00	87.00	●	●	●
	5.400	139.00	91.00	●	●	●
	5.500	139.00	91.00	●	●	●
	5.600	139.00	91.00	●	●	●
	5.700	139.00	91.00	●	●	●
	5.800	139.00	91.00	●	●	●
	5.900	139.00	91.00	●	●	●
	6.000	139.00	91.00	●	●	●
	6.100	148.00	97.00	●	●	●
	6.200	148.00	97.00	●	●	●
	6.300	148.00	97.00	●	●	●
	6.400	148.00	97.00	●	●	●
	6.500	148.00	97.00	●	●	●
	6.600	148.00	97.00	●	●	●
	6.700	148.00	97.00	●	●	●
	6.800	156.00	102.00	●	●	●
	6.900	156.00	102.00	●	●	●

Long series twist drills



Catalog no.				71222	61222	71225
Tool material				HSS-Co		
Discount group				134	135	134
Cutting direction				right-hand	right-hand	right-hand
Surface				bright	TiN	bright
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
	7.000	156.00	102.00	●	●	●
	7.100	156.00	102.00	●	●	●
	7.200	156.00	102.00	●	●	●
	7.300	156.00	102.00	●	●	●
	7.400	156.00	102.00	●	●	●
	7.500	156.00	102.00	●	●	●
	7.600	165.00	109.00	●	●	●
	7.700	165.00	109.00	●	●	●
	7.800	165.00	109.00	●	●	●
	7.900	165.00	109.00	●	●	●
	8.000	165.00	109.00	●	●	●
	8.100	165.00	109.00	●	●	●
	8.200	165.00	109.00	●	●	●
	8.300	165.00	109.00	●	●	●
	8.400	165.00	109.00	●	●	●
	8.500	165.00	109.00	●	●	●
	8.600	175.00	115.00	●	●	●
	8.700	175.00	115.00	●	●	●
	8.800	175.00	115.00	●	●	●
	8.900	175.00	115.00	●	●	●
	9.000	175.00	115.00	●	●	●
	9.100	175.00	115.00	●	●	●
	9.200	175.00	115.00	●	●	●
	9.300	175.00	115.00	●	●	●
	9.400	175.00	115.00	●	●	●
	9.500	175.00	115.00	●	●	●
	9.600	184.00	121.00	●	●	●
	9.700	184.00	121.00	●	●	●
	9.800	184.00	121.00	●	●	●
	9.900	184.00	121.00	●	●	●
	10.000	184.00	121.00	●	●	●
	10.100	184.00	121.00	●	●	●
	10.200	184.00	121.00	●	●	●
	10.300	184.00	121.00	●	●	●
	10.400	184.00	121.00	●	●	●
	10.500	184.00	121.00	●	●	●
	11.000	195.00	128.00	●	●	●
	11.500	195.00	128.00	●	●	●
	12.000	205.00	134.00	●	●	●
	12.500	205.00	134.00	●	●	●
	13.000	205.00	134.00	●	●	●
	13.500	214.00	140.00	●	●	●
	14.000	214.00	140.00	●	●	●

Straight shank twist drills

Long series twist drills

Catalog no. 71150



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: larger than standard Web taper: standard Web thinning: to DIN 1412, form A	

Long series twist drills

Catalog no. 71152



Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	1.50
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: larger than standard Web taper: standard Web thinning: to DIN 1412, form A	

Long series twist drills

Catalog no. 61150

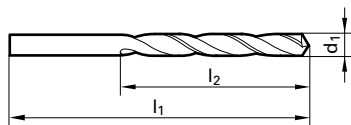


Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 340

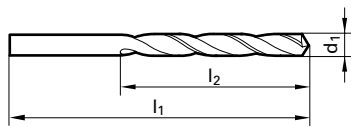
Tool material	HSS
Surface	TiN
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	2.00
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: larger than standard Web taper: standard Web thinning: to DIN 1412, form A	

Long series twist drills



Catalog no.				71150	71152	61150
Tool material				HSS		
Discount group				136	138	137
Cutting direction				right-hand	left-hand	right-hand
Surface				bright	bright	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	1.500	70.00	45.00	●	○	
	1.600	76.00	50.00	●	○	
	1.700	76.00	50.00	●		
	1.750	80.00	53.00	○	○	
	1.800	80.00	53.00	●		
	1.900	80.00	53.00	●	○	
	2.000	85.00	56.00	●		○
	2.050	85.00	56.00	○	○	
	2.100	85.00	56.00	●		
	2.200	90.00	59.00	●		
	2.300	90.00	59.00	●		
	2.400	95.00	62.00	●	○	
	2.500	95.00	62.00	●	○	○
	2.600	95.00	62.00	●		
	2.700	100.00	66.00	●	○	
	2.800	100.00	66.00	●		
	2.900	100.00	66.00	●	○	
	3.000	100.00	66.00	●	○	○
	3.100	106.00	69.00	●		
	3.200	106.00	69.00	●		
	3.300	106.00	69.00	●	○	○
	3.400	112.00	73.00	●	○	
	3.500	112.00	73.00	●	○	○
	3.600	112.00	73.00	●		
	3.700	112.00	73.00	●		
	3.800	119.00	78.00	●		
	3.900	119.00	78.00	●		
	4.000	119.00	78.00	●	○	○
	4.100	119.00	78.00	●		
	4.200	119.00	78.00	●	○	○
	4.300	126.00	82.00	●		
	4.400	126.00	82.00	●		
	4.500	126.00	82.00	●	○	○
	4.600	126.00	82.00	●		
	4.700	126.00	82.00	●		
	4.800	132.00	87.00	●		
	4.900	132.00	87.00	●		
	5.000	132.00	87.00	●	○	○
	5.100	132.00	87.00	●		
	5.200	132.00	87.00	●		
	5.300	132.00	87.00	●		
	5.400	139.00	91.00	●		
	5.500	139.00	91.00	●		○
	5.600	139.00	91.00	●		
	5.700	139.00	91.00	●		
	5.800	139.00	91.00	●		
	5.900	139.00	91.00	●		
	6.000	139.00	91.00	●	○	○
	6.100	148.00	97.00	●		
	6.200	148.00	97.00	●		
	6.300	148.00	97.00	●		
	6.400	148.00	97.00	●		
	6.500	148.00	97.00	●		
	6.600	148.00	97.00	●	○	
	6.700	148.00	97.00	●		
	6.800	156.00	102.00	●	○	
	6.900	156.00	102.00	●		
	7.000	156.00	102.00	●	○	
	7.100	156.00	102.00	●		
	7.200	156.00	102.00	●		

Long series twist drills



Catalog no.				71150	71152	61150
Tool material				HSS		
Discount group				136	138	137
Cutting direction				right-hand	left-hand	right-hand
Surface				bright	bright	TiN
d1 inch	d1 mm	l1 mm	l2 mm	price per piece		
	7.300	156.00	102.00	●		
	7.400	156.00	102.00	●		
	7.500	156.00	102.00	●		
	7.600	165.00	109.00	●		
	7.700	165.00	109.00	●		
	7.800	165.00	109.00	●		
	7.900	165.00	109.00	●		
	8.000	165.00	109.00	●	○	○
	8.100	165.00	109.00	●		
	8.200	165.00	109.00	●		
	8.300	165.00	109.00	●		
	8.400	165.00	109.00	●		
	8.500	165.00	109.00	●		○
	8.600	175.00	115.00	●		
	8.700	175.00	115.00	●		
	8.800	175.00	115.00	●		
	8.900	175.00	115.00	●		
	9.000	175.00	115.00	●	○	
	9.100	175.00	115.00	●		
	9.200	175.00	115.00	●		
	9.300	175.00	115.00	●		
	9.400	175.00	115.00	●		
	9.500	175.00	115.00	●		
	9.600	184.00	121.00	●		
	9.700	184.00	121.00	●		
	9.800	184.00	121.00	●		
	9.900	184.00	121.00	●		
	10.000	184.00	121.00	●	○	○
	10.200	184.00	121.00	●	○	○
	10.500	184.00	121.00	●		
	11.000	195.00	128.00	●	○	
	11.500	195.00	128.00	●		
	12.000	205.00	134.00	●	○	○
	13.000	205.00	134.00		○	

Straight shank twist drills

Long series twist drills

Catalog no. 71154



Multi purpose quick helix drill which has the advantage of the V63-stability and the wide open flutes of the V70. Suitable for alloyed and unalloyed steels (up to 1000 N/mm² tensile strength), Al and Al-alloys, copper, brass, bronze and soft plastics, for holes deeper than 2 x D.

DIN 340

Tool material	HSS
Surface	nitrided lands
Type	V73
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.50
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: standard
 Flute form: extremely wide open flutes
 Web thinning: to DIN 1412, form A

Long series twist drills

Catalog no. 71156



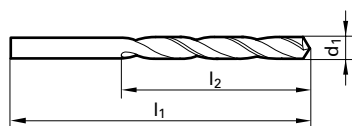
Multi purpose quick helix drill which has the advantage of the V63-stability and the wide open flutes of the V70. Suitable for alloyed and unalloyed steels (for steels of up to 1300 N/mm² tensile strength), Al- and Al-alloys, copper, brass, bronze and soft plastics, for holes deeper than 2 x D.

DIN 340

Tool material	HSS-Co
Surface	nitrided lands
Type	V73
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	1.50
Tolerance on Ø	h8

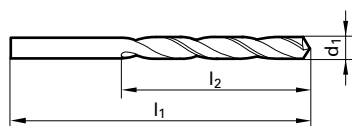
Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: standard
 Flute form: extremely wide open flutes
 Web thinning: to DIN 1412, form A

Long series twist drills



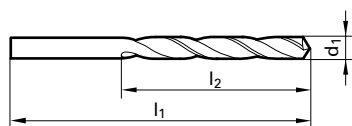
Catalog no.				71154	71156
Tool material				HSS	HSS-Co
Discount group				136	136
Cutting direction				right-hand	right-hand
Surface				nitrided lands	nitrided lands
d1	d1	l1	l2	price per piece	
inch	mm	mm	mm		
1/16	1.500	70.00	45.00	●	●
	1.590	76.00	50.00	○	○
	1.600	76.00	50.00	●	●
	1.610	76.00	50.00	○	
	1.700	76.00	50.00	●	●
	1.750	80.00	53.00	○	
	1.780	80.00	53.00	○	
	1.800	80.00	53.00	●	●
5/64	1.850	80.00	53.00	○	
	1.900	80.00	53.00	●	●
	1.930	85.00	56.00	○	
	1.980	85.00	56.00	○	
	1.990	85.00	56.00	○	
	2.000	85.00	56.00	●	●
	2.050	85.00	56.00	○	
	2.060	85.00	56.00	○	
3/32	2.080	85.00	56.00	○	
	2.100	85.00	56.00	●	●
	2.180	90.00	59.00	○	
	2.200	90.00	59.00	●	●
	2.260	90.00	59.00	○	
	2.300	90.00	59.00	○	●
	2.370	95.00	62.00	○	
	2.380	95.00	62.00	○	○
7/64	2.400	95.00	62.00	●	●
	2.440	95.00	62.00	○	
	2.490	95.00	62.00	○	
	2.500	95.00	62.00	●	●
	2.580	95.00	62.00	○	
	2.600	95.00	62.00	●	●
	2.700	100.00	66.00	●	●
	2.710	100.00	66.00	○	
1/8	2.780	100.00	66.00	○	
	2.800	100.00	66.00	●	●
	2.870	100.00	66.00	○	
	2.900	100.00	66.00	●	●
	2.950	100.00	66.00	○	
	3.000	100.00	66.00	●	●
	3.100	106.00	69.00	●	●
	3.170	106.00	69.00	○	○
9/64	3.180	106.00	69.00	○	○
	3.200	106.00	69.00	●	●
	3.260	106.00	69.00	○	
	3.300	106.00	69.00	●	●
	3.400	112.00	73.00	●	●
	3.450	112.00	73.00	○	
	3.500	112.00	73.00	●	●
	3.570	112.00	73.00	○	
5/32	3.600	112.00	73.00	●	●
	3.660	112.00	73.00	○	
	3.700	112.00	73.00	●	●
	3.730	112.00	73.00	○	
	3.800	119.00	78.00	●	●
	3.860	119.00	78.00	○	
	3.900	119.00	78.00	●	●
	3.910	119.00	78.00	○	
5/32	3.970	119.00	78.00	○	○
	3.990	119.00	78.00	○	
	4.000	119.00	78.00	●	●
	4.040	119.00	78.00	○	

Long series twist drills



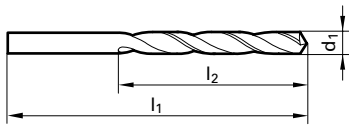
				Catalog no.	71154	71156
				Tool material	HSS	HSS-Co
				Discount group	136	136
				Cutting direction	right-hand	right-hand
				Surface	nitrided lands	nitrided lands
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
11/64	4.090	119.00	78.00	○		
	4.100	119.00	78.00	●		●
	4.200	119.00	78.00	●		●
	4.300	126.00	82.00	●		●
	4.310	126.00	82.00	○		
	4.370	126.00	82.00	○		
	4.390	126.00	82.00	○		
	4.400	126.00	82.00	●		●
3/16	4.500	126.00	82.00	●		●
	4.570	126.00	82.00	○		
	4.600	126.00	82.00	●		●
	4.700	126.00	82.00	●		●
	4.760	132.00	87.00	○		○
	4.800	132.00	87.00	●		●
	4.850	132.00	87.00	○		
	4.900	132.00	87.00	●		●
7/32	4.920	132.00	87.00	○		
	4.980	132.00	87.00	○		
	5.000	132.00	87.00	●		●
	5.060	132.00	87.00	○		
	5.100	132.00	87.00	●		●
	5.110	132.00	87.00	○		
	5.180	132.00	87.00	○		
	5.200	132.00	87.00	●		●
15/64	5.220	132.00	87.00	○		
	5.300	132.00	87.00	●		●
	5.310	139.00	91.00	○		
	5.400	139.00	91.00	●		●
	5.410	139.00	91.00	○		
	5.500	139.00	91.00	●		●
	5.560	139.00	91.00	○		
	5.600	139.00	91.00	●		●
1/4	5.610	139.00	91.00	○		
	5.700	139.00	91.00	●		●
	5.790	139.00	91.00	○		
	5.800	139.00	91.00	●		●
	5.900	139.00	91.00	●		●
	5.940	139.00	91.00	○		
	5.950	139.00	91.00	○		
	6.000	139.00	91.00	●		●
17/64	6.040	148.00	97.00	○		
	6.100	148.00	97.00	●		●
	6.150	148.00	97.00	○		
	6.200	148.00	97.00	●		●
	6.250	148.00	97.00	○		
	6.300	148.00	97.00	●		●
	6.350	148.00	97.00	○		○
	6.400	148.00	97.00	●		●
7/16	6.500	148.00	97.00	●		●
	6.530	148.00	97.00	○		
	6.600	148.00	97.00	●		●
	6.700	148.00	97.00	●		●
	6.750	156.00	102.00	○		
	6.760	156.00	102.00	○		
	6.800	156.00	102.00	●		●
	6.900	156.00	102.00	●		●
1/2	6.910	156.00	102.00	○		
	7.000	156.00	102.00	●		●
	7.040	156.00	102.00	○		
9/16	7.100	156.00	102.00	●		●

Long series twist drills



Catalog no.				71154	71156
Tool material				HSS	HSS-Co
Discount group				136	136
Cutting direction				right-hand	right-hand
Surface				nitrided lands	nitrided lands
d1	d1	l1	l2	price per piece	
inch	mm	mm	mm		
9/32	7.140	156.00	102.00	○	○
	7.200	156.00	102.00	●	●
	7.300	156.00	102.00	●	●
	7.370	156.00	102.00	○	
	7.400	156.00	102.00	●	●
19/64	7.490	156.00	102.00	○	
	7.500	156.00	102.00	●	●
	7.540	165.00	109.00	○	
	7.600	165.00	109.00	●	●
	7.670	165.00	109.00	○	
5/16	7.700	165.00	109.00	●	●
	7.800	165.00	109.00	●	●
	7.900	165.00	109.00	●	●
	7.940	165.00	109.00	○	○
	8.000	165.00	109.00	●	●
21/64	8.030	165.00	109.00	○	
	8.100	165.00	109.00	●	●
	8.200	165.00	109.00	●	●
	8.300	165.00	109.00	●	●
	8.330	165.00	109.00	○	
11/32	8.400	165.00	109.00	●	●
	8.430	165.00	109.00	○	
	8.500	165.00	109.00	●	●
	8.600	175.00	115.00	●	●
	8.610	175.00	115.00	○	
23/64	8.700	175.00	115.00	●	●
	8.730	175.00	115.00	○	○
	8.800	175.00	115.00	●	●
	8.840	175.00	115.00	○	
	8.900	175.00	115.00	●	●
3/8	9.000	175.00	115.00	●	●
	9.090	175.00	115.00	○	
	9.100	175.00	115.00	●	●
	9.130	175.00	115.00	○	
	9.200	175.00	115.00	●	●
25/64	9.300	175.00	115.00	●	●
	9.400	175.00	115.00	●	●
	9.500	175.00	115.00	●	●
	9.520	184.00	121.00	○	○
	9.530	184.00	121.00	○	○
7/16	9.580	184.00	121.00	○	
	9.600	184.00	121.00	●	●
	9.700	184.00	121.00	●	●
	9.800	184.00	121.00	●	●
	9.900	184.00	121.00	●	●
27/64	9.920	184.00	121.00	○	
	10.000	184.00	121.00	●	●
	10.080	184.00	121.00	○	
	10.200	184.00	121.00	●	●
	10.260	184.00	121.00	○	
13/32	10.320	184.00	121.00	○	○
	10.490	184.00	121.00	○	
	10.500	184.00	121.00	●	●
	10.720	195.00	128.00	○	
	10.800	195.00	128.00	●	●
29/64	11.000	195.00	128.00	●	●
	11.110	195.00	128.00	○	○
	11.500	195.00	128.00	●	●
	11.510	195.00	128.00	○	
	11.910	205.00	134.00	○	○

Long series twist drills



Catalog no.	71154	71156
Tool material	HSS	HSS-Co
Discount group	136	136
Cutting direction	right-hand	right-hand
Surface	nitrided lands	nitrided lands

d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	12.000	205.00	134.00	●	●
31/64	12.300	205.00	134.00	●	
	12.500	205.00	134.00		●
1/2	12.700	205.00	134.00	●	●
	13.000	205.00	134.00		●

Straight shank twist drills

Extra long twist drills, series 1

Catalog no. 71145



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	bright/nitr. lands > Ø 2,36 mm
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	2.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 1

Catalog no. 71192



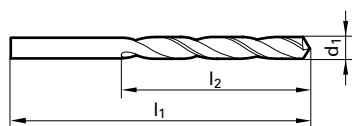
High heat-resistant drill with wide chip space for very deep holes in difficult conditions, when swarf congestion hinders the flow of coolant to the drill point or when tool over-heating arises from other causes (Not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast steels of high tensile strengths, cast iron, malleable iron, spheroidal iron, etc.

DIN 1869

Tool material	HSS-Co
Surface	nitrided lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	3.00
Tolerance on Ø	h8

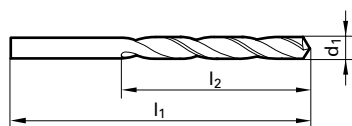
Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 1



Catalog no.				71145	71192
Tool material				HSS	HSS-Co
Discount group				136	136
Cutting direction				right-hand	right-hand
Surface				bright/nitr. lands > Ø 2,36 mm	nitrided lands
d1 inch	d1 mm	l1 mm	l2 mm	price per piece	
	2.000	125.00	85.00	●	
	2.100	125.00	85.00	●	
	2.200	135.00	90.00	●	
	2.300	135.00	90.00	●	
	2.400	140.00	95.00	●	
	2.500	140.00	95.00	●	
	2.600	140.00	95.00	●	
	2.700	150.00	100.00	●	
	2.800	150.00	100.00	●	
	2.900	150.00	100.00	●	
	3.000	150.00	100.00	●	●
	3.100	155.00	105.00	●	○
1/8	3.170	155.00	105.00		○
	3.200	155.00	105.00	●	●
	3.300	155.00	105.00	●	●
	3.400	165.00	115.00	●	●
	3.500	165.00	115.00	●	●
	3.600	165.00	115.00	●	●
	3.700	165.00	115.00	●	●
	3.800	175.00	120.00	●	●
	3.900	175.00	120.00	●	●
5/32	3.970	175.00	120.00	○	○
	4.000	175.00	120.00	●	●
	4.100	175.00	120.00	●	●
	4.200	175.00	120.00	●	●
	4.300	185.00	125.00	●	●
	4.400	185.00	125.00	●	●
	4.500	185.00	125.00	●	●
	4.600	185.00	125.00	●	●
	4.700	185.00	125.00	●	●
3/16	4.760	195.00	135.00	○	○
	4.800	195.00	135.00	●	●
	4.900	195.00	135.00	●	●
	5.000	195.00	135.00	●	●
	5.100	195.00	135.00	○	●
	5.200	195.00	135.00	●	●
	5.300	195.00	135.00	●	●
	5.400	205.00	140.00	●	●
	5.500	205.00	140.00	●	●
7/32	5.560	205.00	140.00		○
	5.600	205.00	140.00	●	●
	5.700	205.00	140.00	●	●
	5.800	205.00	140.00	●	●
	5.900	205.00	140.00	●	●
15/64	5.950	205.00	140.00	○	
	6.000	205.00	140.00	●	●
	6.100	215.00	150.00	●	●
	6.200	215.00	150.00	●	●
	6.300	215.00	150.00	●	●
1/4	6.350	215.00	150.00	○	○
	6.400	215.00	150.00	●	●
	6.500	215.00	150.00	●	●
	6.600	215.00	150.00	●	●
	6.700	215.00	150.00	●	●
17/64	6.750	225.00	155.00	○	
	6.800	225.00	155.00	●	●
	6.900	225.00	155.00	●	●
	7.000	225.00	155.00	●	●
	7.100	225.00	155.00	●	●
	7.200	225.00	155.00	●	●

Extra long twist drills, series 1



				Catalog no.	71145	71192
				Tool material	HSS	HSS-Co
				Discount group	136	136
				Cutting direction	right-hand	right-hand
				Surface	bright/nitr. lands > Ø 2,36 mm	nitrided lands
d1	d1	l1	l2	price per piece		
inch	mm	mm	mm			
19/64	7.300	225.00	155.00	●	●	●
	7.400	225.00	155.00	●	●	●
	7.500	225.00	155.00	●	●	●
	7.540	240.00	165.00	●	●	●
5/16	7.600	240.00	165.00	●	●	●
	7.700	240.00	165.00	●	●	●
	7.800	240.00	165.00	●	●	●
	7.900	240.00	165.00	●	●	●
11/32	7.940	240.00	165.00	○	○	○
	8.000	240.00	165.00	●	●	●
	8.100	240.00	165.00	●	●	●
	8.200	240.00	165.00	●	●	●
3/8	8.300	240.00	165.00	●	●	●
	8.400	240.00	165.00	○	●	●
	8.500	240.00	165.00	●	●	●
	8.600	250.00	175.00	●	●	●
13/32	8.700	250.00	175.00	●	●	●
	8.730	250.00	175.00	●	●	○
	8.800	250.00	175.00	●	●	●
	8.900	250.00	175.00	●	●	●
7/16	9.000	250.00	175.00	●	●	●
	9.100	250.00	175.00	●	●	●
	9.200	250.00	175.00	●	●	●
	9.300	250.00	175.00	●	●	●
27/64	9.400	250.00	175.00	●	●	●
	9.500	250.00	175.00	●	●	●
	9.520	265.00	185.00	○	●	○
	9.530	265.00	185.00	●	●	○
15/32	9.600	265.00	185.00	●	●	●
	9.700	265.00	185.00	●	●	●
	9.800	265.00	185.00	●	●	●
	9.900	265.00	185.00	●	●	●
1/2	10.000	265.00	185.00	●	●	●
	10.100	265.00	185.00	●	●	●
	10.200	265.00	185.00	●	●	●
	10.320	265.00	185.00	●	●	○
9/16	10.500	265.00	185.00	●	●	●
	10.720	280.00	195.00	○	●	●
	10.800	280.00	195.00	●	●	●
	11.000	280.00	195.00	●	●	●
5/8	11.110	280.00	195.00	○	●	●
	11.200	280.00	195.00	●	●	●
	11.500	280.00	195.00	●	●	●
	11.510	280.00	195.00	○	●	●
3/4	11.800	280.00	195.00	●	●	●
	11.910	295.00	205.00	○	●	○
	12.000	295.00	205.00	●	●	●
	12.300	295.00	205.00	●	●	●
1 1/4	12.700	295.00	205.00	●	●	●
	13.000	295.00	205.00	●	●	●

Straight shank twist drills

Extra long twist drills, series 2

Catalog no. 71146



A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

DIN 1869

Tool material	HSS
Surface	nitrided lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	3.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 2

Catalog no. 71193



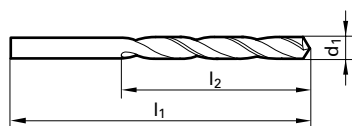
High heat-resistant drill with wide chip space for very deep holes in difficult conditions, when swarf congestion hinders the flow of coolant to the drill point or when tool over-heating arises from other causes (Not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast steels of high tensile strengths, cast iron, malleable iron, spheroidal iron, etc.

DIN 1869

Tool material	HSS-Co
Surface	nitrided lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	3.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 2



Catalog no.				71146	71193
Tool material				HSS	HSS-Co
Discount group				136	138
Cutting direction				right-hand	right-hand
Surface				nitrided lands	nitrided lands
d1	d1	l1	l2	price per piece	
inch	mm	mm	mm		
1/8	3.000	190.00	130.00	●	●
	3.170	200.00	135.00	○	
	3.500	210.00	145.00	●	●
5/32	3.970	220.00	150.00	○	
	4.000	220.00	150.00	●	●
	4.500	235.00	160.00	●	●
3/16	4.760	245.00	170.00	○	
	5.000	245.00	170.00	●	●
	5.500	260.00	180.00	●	●
15/64	5.950	260.00	180.00	○	
	6.000	260.00	180.00	●	●
	6.500	275.00	190.00	●	●
17/64	6.750	290.00	200.00	○	
	7.000	290.00	200.00	●	●
	7.500	290.00	200.00	●	●
5/16	7.940	305.00	210.00	○	
	8.000	305.00	210.00	●	●
	8.500	305.00	210.00	●	●
11/32	8.730	320.00	220.00	○	
	9.000	320.00	220.00	●	●
	9.500	320.00	220.00	●	●
3/8	9.520	340.00	235.00	○	
	9.920	340.00	235.00	○	
	10.000	340.00	235.00	●	●
25/64	10.720	365.00	250.00	○	
	11.000	365.00	250.00	●	●
	11.910	375.00	260.00	○	
15/32	12.000	375.00	260.00	●	●
	12.700	375.00	260.00	○	
	13.000	375.00	260.00	●	

Straight shank twist drills

Extra long twist drills series 3

DIN 1869

Catalog no. 71147

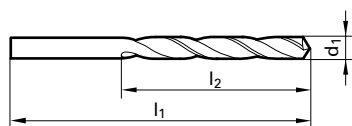


A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.

Tool material	HSS
Surface	nitrided lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	3.50
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills series 3



Catalog no. 71147
Tool material HSS
Discount group 136
Cutting direction right-hand
Surface nitrided lands

d1 inch	d1 mm	l1 mm	l2 mm	price per piece
	3.500	265.00	180.00	●
	4.000	280.00	190.00	●
	4.500	295.00	200.00	●
	5.000	315.00	210.00	●
	5.500	330.00	225.00	●
	6.000	330.00	225.00	●
1/4	6.350	350.00	235.00	○
	6.500	350.00	235.00	●
	7.000	370.00	250.00	●
	7.500	370.00	250.00	●
5/16	7.940	390.00	265.00	○
	8.000	390.00	265.00	●
	8.500	390.00	265.00	●
	9.000	410.00	280.00	●
23/64	9.130	410.00	280.00	○
	9.500	410.00	280.00	●
	9.530	430.00	295.00	○
25/64	9.920	430.00	295.00	○
	10.000	430.00	295.00	●
27/64	10.720	455.00	310.00	○
	11.000	455.00	310.00	●
15/32	11.910	480.00	330.00	○
	12.000	480.00	330.00	●
	13.000	480.00	330.00	●

Straight shank twist drills

Extra long twist drills

Catalog no. 71195

Total length 500 or 600 mm

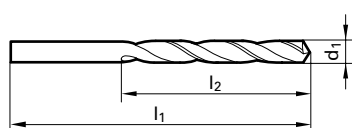
A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.



Stock std.

Tool material	HSS
Surface	nitrided lands
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	6.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: smaller than standard
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A



Catalog no.	71195
Tool material	HSS
Discount group	136
Cutting direction	right-hand
Surface	nitrided lands

d1	l1	l2	price per piece
mm	mm	mm	
6.000	500.00	400.00	●
8.000	500.00	400.00	●
10.000	600.00	500.00	●
12.000	600.00	500.00	●

Straight shank twist drills

Extra long twist drills

Catalog no. 71196

Total length 750 mm

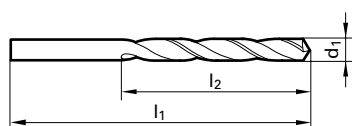
A robust tool for use in difficult drilling conditions in extremely deep holes when swarf congestion prevents a good coolant flow. For use in steels and cast iron with tensile strengths of up to 1000 N/mm². Not recommended for nickel-chrome steels or similar materials.



Stock std.

Tool material	HSS
Surface	bright
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥ Ø	8.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: smaller than standard
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A



Catalog no.	71196
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	l1 mm	l2 mm	price per piece
8.000	750.00	650.00	●
10.000	750.00	650.00	●
12.000	750.00	650.00	●

Straight shank twist drills

Twist drills with internal coolant

Catalog no. 71584



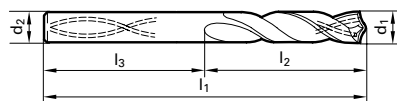
For horizontal and vertical drilling operations, especially for hole depths exceeding 5 times the drill diameter. For drilling laminated sheet metal, steel and cast steel, grey iron, austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance, the tool life is increased since the coolant, delivered directly to the cutting edge, provides optimum cooling and lubricating conditions and assists in the rapid evacuation of swarf.

Stock std.

Tool material	HSS
Surface	bright
Type	V73-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	3.00
Tolerance on \emptyset	h8

Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: normal
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Twist drills with internal coolant



Catalog no.	71584
Tool material	HSS
Discount group	136
Cutting direction	right-hand
Surface	bright

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
3.000	3.000	100.00	66.00	34.00	●
3.300	3.300	106.00	69.00	37.00	●
3.500	3.500	112.00	73.00	39.00	●
4.000	4.000	119.00	78.00	41.00	●
4.200	4.200	119.00	78.00	41.00	●
4.500	4.500	126.00	82.00	44.00	●
5.000	5.000	132.00	87.00	45.00	●
5.500	5.500	139.00	91.00	48.00	●
6.000	6.000	139.00	91.00	48.00	●
6.500	6.500	148.00	97.00	51.00	●
6.800	6.800	156.00	102.00	54.00	●
7.000	7.000	156.00	102.00	54.00	●
7.500	7.500	156.00	102.00	54.00	●
8.000	8.000	165.00	109.00	56.00	●
8.500	8.500	165.00	109.00	56.00	●
9.000	9.000	175.00	115.00	60.00	●
9.500	9.500	175.00	115.00	60.00	●
10.000	10.000	184.00	121.00	63.00	●
10.200	10.200	184.00	121.00	63.00	●
10.500	10.500	184.00	121.00	63.00	●
11.000	11.000	195.00	128.00	67.00	●
11.500	11.500	195.00	128.00	67.00	●
12.000	12.000	205.00	134.00	71.00	●
13.000	13.000	205.00	134.00	71.00	●

Straight shank twist drills

Micro-precision drills

Catalog no. 71187



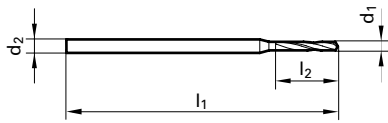
A special purpose drill with over size shank for use in the instrument and clock making industries and for general precision engineering. Specially designed for drilling high alloyed steels.

DIN 1899

Tool material	HSS-E-PM
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Facet point grind
Point angle °	118
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	-0,004

Shank tolerance: h8
Helix angle: normal
Web tickness: normal
Web taper: normal
Flute form: normal

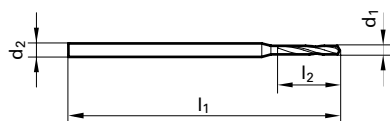
Micro-precision drills



Catalog no.	71187
Tool material	HSS-E-PM
Discount group	134
Cutting direction	right-hand
Surface	bright

d1	d2	l1	l2	price per piece
mm	mm	mm	mm	
0.050	1.000	25.00	0.40	●
0.060	1.000	25.00	0.40	●
0.070	1.000	25.00	0.50	●
0.080	1.000	25.00	0.50	●
0.090	1.000	25.00	0.50	●
0.100	1.000	25.00	0.50	●
0.110	1.000	25.00	0.50	●
0.120	1.000	25.00	0.50	●
0.130	1.000	25.00	0.80	●
0.140	1.000	25.00	0.80	●
0.150	1.000	25.00	0.80	●
0.160	1.000	25.00	1.10	●
0.170	1.000	25.00	1.10	●
0.180	1.000	25.00	1.10	●
0.190	1.000	25.00	1.10	●
0.200	1.000	25.00	1.50	●
0.210	1.000	25.00	1.50	●
0.220	1.000	25.00	1.50	●
0.230	1.000	25.00	1.50	●
0.240	1.000	25.00	1.50	●
0.250	1.000	25.00	1.90	●
0.260	1.000	25.00	1.90	●
0.270	1.000	25.00	1.90	●
0.280	1.000	25.00	1.90	●
0.290	1.000	25.00	1.90	●
0.300	1.000	25.00	1.90	●
0.310	1.000	25.00	2.40	●
0.320	1.000	25.00	2.40	●
0.330	1.000	25.00	2.40	●
0.340	1.000	25.00	2.40	●
0.350	1.000	25.00	2.40	●
0.360	1.000	25.00	2.40	●
0.370	1.000	25.00	2.40	●
0.380	1.000	25.00	2.40	●
0.390	1.000	25.00	3.00	●
0.400	1.000	25.00	3.00	●
0.410	1.000	25.00	3.00	●
0.420	1.000	25.00	3.00	●
0.430	1.000	25.00	3.00	●
0.440	1.000	25.00	3.00	●
0.450	1.000	25.00	3.00	●
0.460	1.000	25.00	3.00	●
0.470	1.000	25.00	3.00	●
0.480	1.000	25.00	3.00	●
0.490	1.000	25.00	3.40	●
0.500	1.000	25.00	3.40	●
0.510	1.000	25.00	3.40	●
0.520	1.000	25.00	3.40	●
0.530	1.000	25.00	3.40	●
0.540	1.000	25.00	3.90	●
0.550	1.000	25.00	3.90	●
0.560	1.000	25.00	3.90	●
0.570	1.000	25.00	3.90	●
0.580	1.000	25.00	3.90	●
0.590	1.000	25.00	3.90	●
0.600	1.000	25.00	3.90	●
0.610	1.000	25.00	4.20	●
0.620	1.000	25.00	4.20	●
0.630	1.000	25.00	4.20	●
0.640	1.000	25.00	4.20	●

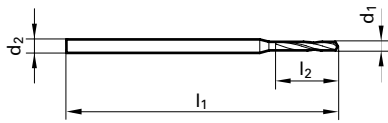
Micro-precision drills



Catalog no.	71187
Tool material	HSS-E-PM
Discount group	134
Cutting direction	right-hand
Surface	bright

d1	d2	l1	l2	price per piece
mm	mm	mm	mm	
0.650	1.000	25.00	4.20	●
0.660	1.000	25.00	4.20	●
0.670	1.000	25.00	4.20	●
0.680	1.000	25.00	4.80	●
0.690	1.000	25.00	4.80	●
0.700	1.000	25.00	4.80	●
0.710	1.000	25.00	4.80	●
0.720	1.000	25.00	4.80	●
0.730	1.000	25.00	4.80	●
0.740	1.000	25.00	4.80	●
0.750	1.000	25.00	4.80	●
0.760	1.000	25.00	5.30	●
0.770	1.000	25.00	5.30	●
0.780	1.000	25.00	5.30	●
0.790	1.000	25.00	5.30	●
0.800	1.500	25.00	5.30	●
0.810	1.500	25.00	5.30	●
0.820	1.500	25.00	5.30	●
0.830	1.500	25.00	5.30	●
0.840	1.500	25.00	5.30	●
0.850	1.500	25.00	5.30	●
0.860	1.500	25.00	6.00	●
0.870	1.500	25.00	6.00	●
0.880	1.500	25.00	6.00	●
0.890	1.500	25.00	6.00	●
0.900	1.500	25.00	6.00	●
0.910	1.500	25.00	6.00	●
0.920	1.500	25.00	6.00	●
0.930	1.500	25.00	6.00	●
0.940	1.500	25.00	6.00	●
0.950	1.500	25.00	6.00	●
0.960	1.500	25.00	6.80	●
0.970	1.500	25.00	6.80	●
0.980	1.500	25.00	6.80	●
0.990	1.500	25.00	6.80	●
1.000	1.500	25.00	6.80	●
1.010	1.500	25.00	6.80	●
1.020	1.500	25.00	6.80	●
1.030	1.500	25.00	6.80	●
1.040	1.500	25.00	6.80	●
1.050	1.500	25.00	6.80	●
1.060	1.500	25.00	6.80	●
1.070	1.500	25.00	7.60	●
1.080	1.500	25.00	7.60	●
1.090	1.500	25.00	7.60	●
1.100	1.500	25.00	7.60	●
1.110	1.500	25.00	7.60	●
1.120	1.500	25.00	7.60	●
1.130	1.500	25.00	7.60	●
1.140	1.500	25.00	7.60	●
1.150	1.500	25.00	7.60	●
1.160	1.500	25.00	7.60	●
1.170	1.500	25.00	7.60	●
1.180	1.500	25.00	7.60	●
1.190	1.500	25.00	8.50	●
1.200	1.500	25.00	8.50	●
1.210	1.500	25.00	8.50	●
1.220	1.500	25.00	8.50	●
1.230	1.500	25.00	8.50	●
1.240	1.500	25.00	8.50	●

Micro-precision drills



Catalog no.	71187
Tool material	HSS-E-PM
Discount group	134
Cutting direction	right-hand
Surface	bright

d1	d2	l1	l2	price per piece
mm	mm	mm	mm	
1.250	1.500	25.00	8.50	●
1.260	1.500	25.00	8.50	●
1.270	1.500	25.00	8.50	●
1.280	1.500	25.00	8.50	●
1.290	1.500	25.00	8.50	●
1.300	1.500	25.00	8.50	●
1.310	1.500	25.00	8.50	●
1.320	1.500	25.00	8.50	●
1.330	1.500	25.00	9.50	●
1.340	1.500	25.00	9.50	●
1.350	1.500	25.00	9.50	●
1.360	1.500	25.00	9.50	●
1.370	1.500	25.00	9.50	●
1.380	1.500	25.00	9.50	●
1.390	1.500	25.00	9.50	●
1.400	1.500	25.00	9.50	●
1.410	1.500	25.00	9.50	●
1.420	1.500	25.00	9.50	●
1.430	1.500	25.00	9.50	●
1.440	1.500	25.00	9.50	●
1.450	1.500	25.00	9.50	●

Straight shank twist drills

NC-spotting drills

Catalog no. 71175



Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	90
Web thinned ≥Ø	
Tolerance on Ø	h6

Helix angle: smaller than normal
Web thickness: considerably smaller than normal
Web taper: normal
Flute form: normal
Web thinning: none

NC-spotting drills

Catalog no. 61175



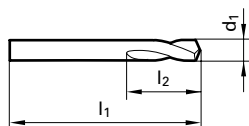
Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation. Especially suitable for spotting in high tensile steels, cast steels, grey cast iron, chilled cast iron, austenitic and manganese steel, CrNi- steels, bronzes, light metals and non-ferrous metals.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	HSS
Surface	TiN
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	90
Web thinned ≥Ø	
Tolerance on Ø	h6

Helix angle: smaller than normal
Web thickness: considerably smaller than normal
Flute form: normal
Web thinning: none



Catalog no.			71175	61175
Tool material			HSS	HSS
Discount group			134	135
Cutting direction			right-hand	right-hand
Surface			bright	TiN
d1	l1	l2	price per piece	price per piece
mm	mm	mm		
3.000	46.00	12.00	●	●
4.000	55.00	12.00	●	●
5.000	62.00	14.00	●	●
6.000	66.00	16.00	●	●
8.000	79.00	21.00	●	●
10.000	89.00	25.00	●	●
12.000	102.00	30.00	●	●
16.000	115.00	37.50	●	●
20.000	131.00	45.00	●	●
25.000	151.00	53.00	●	●
25.400	156.00	53.00	●	

Straight shank twist drills

NC-spotting drills

Catalog no. 71176



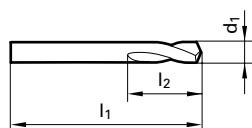
Special drill for accurate and fast spotting on NC-machines, jig drills and other capital- intensive boring machines. For centring and chamfering tapping holes in one operation.

Please note: Only suitable for shallow drilling depth.

Stock std.

Tool material	HSS
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned ≥Ø	
Tolerance on Ø	h6

Helix angle: smaller than normal
 Web thickness: considerably smaller than normal
 Web taper: normal
 Flute form: normal
 Web thinning: none



Catalog no.	71176
Tool material	HSS
Discount group	134
Cutting direction	right-hand
Surface	bright

d1	l1	l2	price per piece
mm	mm	mm	
3.000	46.00	12.00	●
4.000	55.00	12.00	●
5.000	62.00	14.00	●
6.000	66.00	16.00	●
8.000	79.00	21.00	●
10.000	89.00	25.00	●
12.000	102.00	30.00	●
16.000	115.00	37.50	●
20.000	131.00	45.00	●
25.400	156.00	53.00	●

Taper shank twist drills

Short lengths drills

Catalog no. 71303



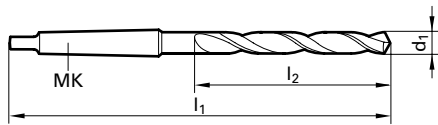
Special strong and resistant short twist drill made of cobalt alloyed high speed steel. For highest stress and extreme conditions. Suitable for steel and cast steel with high tensile strength, stainless steels, CrNi-alloys (Hastelloy, Nimonic, Inconel).

Stock std.

Tool material	HSS-Co8
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	10.00
Tolerance on \emptyset	h8

Helix angle: normal
 Web thickness: larger than standard
 Web taper: larger than standard
 Flute form: normal
 Web thinning: to DIN 1412, form A

Short lengths drills



Catalog no.	71303
Tool material	HSS-Co8
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	MT	l1 mm	l2 mm	price per piece
10.000	1	138.00	57.00	○
10.200	1	138.00	57.00	○
10.500	1	138.00	57.00	○
10.800	1	142.00	61.00	○
11.000	1	142.00	61.00	○
11.500	1	142.00	61.00	○
12.000	1	147.00	66.00	○
12.500	1	147.00	66.00	○
13.000	1	147.00	66.00	○
14.500	2	172.00	74.00	○
15.000	2	172.00	74.00	○
15.500	2	178.00	80.00	○
16.000	2	176.00	78.00	○
16.500	2	179.00	81.00	○
17.000	2	179.00	81.00	○
17.500	2	183.00	85.00	○
18.000	2	183.00	85.00	○
18.500	2	186.00	88.00	○
23.500	3	222.00	101.00	○
24.000	3	225.00	104.00	○
24.500	3	225.00	104.00	○
25.000	3	225.00	104.00	○
25.500	4	256.00	107.00	○

Taper shank twist drills

Short lengths drills

Catalog no. 71304



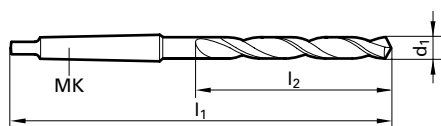
Special strong and resistant short twist drill made of cobalt alloyed high speed steel. For highest stress and extreme conditions. Suitable for steel and cast steel with high tensile strength, stainless steels, CrNi-alloys (Hastelloy, Nimonic, Inconel).

Stock std.

Tool material	HSS-Co8
Surface	bright
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	12.00
Tolerance on \emptyset	h8

Helix angle: normal
 Web thickness: larger than standard
 Web taper: larger than standard
 Flute form: normal
 Web thinning: to DIN 1412, form A

Short lengths drills



Catalog no.	71304
Tool material	HSS-Co8
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	MT	l1 mm	l2 mm	price per piece
12.000	2	164.00	66.00	○
12.500	2	164.00	66.00	○
12.800	2	164.00	66.00	○
13.000	2	164.00	66.00	○
13.500	2	169.00	70.00	○
14.000	2	169.00	70.00	○
19.000	3	211.00	88.00	○
19.500	3	214.00	91.00	○
20.000	3	214.00	91.00	○
20.500	3	217.00	95.00	○
21.000	3	217.00	95.00	○
21.500	3	221.00	98.00	○
22.000	3	221.00	98.00	○
22.500	3	224.00	101.00	○
23.000	3	224.00	101.00	○
26.000	4	256.00	107.00	○
26.500	4	261.00	107.00	○
27.000	4	261.00	110.00	○
27.500	4	261.00	110.00	○
28.000	4	261.00	110.00	○
28.500	4	265.00	114.00	○
29.000	4	265.00	114.00	○
29.500	4	265.00	114.00	○
30.000	4	265.00	114.00	○

Taper shank twist drills

Standard length

Catalog no. 71300



Standard drill for drilling steel and cast steel, alloyed and unalloyed, grey castiron, spheroidal iron, sintered powder metal, German silver and graphite.

DIN 345

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: normal Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Standard length

Catalog no. 71416



A standard, high heat-resistant drill. Suitable for drilling alloyed and unalloyed steels and castings with tensile strengths of over 800 N/mm², particularly suitable for drilling hot and coldrolled steels, anti-friction bearing steels, high-alloyed steels as well as case hardened and heat-treatable steels.

DIN 345

Tool material	HSS-Co
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	5.00
Tolerance on \emptyset	h8
Helix angle: normal Web thickness: greater than standard Web taper: normal Flute form: normal Web thinning: to DIN 1412, form A	

Standard length

Catalog no. 71305

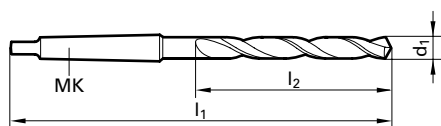


Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels up to approx. 1000 N/mm² tensile strength, free cutting, stainless and non-corrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drill holes deeper than 2 x D. Large helix angle and wide open flutes guarantee a good cooling of the flutes and less lifting to remove the swarf. In standard cases the drilling is possible without lifting up to flute length.

DIN 345

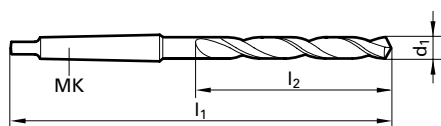
Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance on \emptyset	h8
Helix angle: larger than standard Web thickness: larger than standard Web taper: standard Web thinning: to DIN 1412, form A	

Standard length



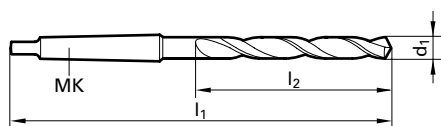
Catalog no.				71300	71416	71305
Tool material				HSS	HSS-Co	HSS
Discount group				132	134	136
Cutting direction				right-hand	right-hand	right-hand
Surface				steam tempered	steam tempered	bright
d1	MT	l1	l2	price per piece		
mm		mm	mm			
3.750	1	120.00	39.00	○		
4.000	1	124.00	43.00	○		
4.100	1	124.00	43.00	○		
4.200	1	124.00	43.00	○		
4.250	1	124.00	43.00	○		
4.600	1	128.00	47.00	○		
4.900	1	133.00	52.00	○		
5.000	1	133.00	52.00	○	●	
5.500	1	138.00	57.00	○		
5.800	1	138.00	57.00	○		
6.000	1	138.00	57.00	○	●	
6.200	1	144.00	63.00	○		
6.500	1	144.00	63.00	○		
6.700	1	144.00	63.00	○		
6.750	1	150.00	69.00	○		
6.800	1	150.00	69.00	○	●	
7.000	1	150.00	69.00	○		
7.200	1	150.00	69.00	○		
7.250	1	150.00	69.00	○		
7.400	1	150.00	69.00	○		
7.500	1	150.00	69.00	○		
7.800	1	156.00	75.00	○		
7.900	1	156.00	75.00	○		
7.940	1	156.00	75.00			○
8.000	1	156.00	75.00	○	●	○
8.100	1	156.00	75.00	○		
8.200	1	156.00	75.00	○		
8.250	1	156.00	75.00	○		○
8.300	1	156.00	75.00	○		
8.500	1	156.00	75.00	○		○
8.600	1	162.00	81.00	○		
8.700	1	162.00	81.00	○		
8.750	1	162.00	81.00	○		○
8.800	1	162.00	81.00		●	
8.900	1	162.00	81.00	○		
9.000	1	162.00	81.00	○	●	○
9.200	1	162.00	81.00	○		
9.250	1	162.00	81.00			○
9.400	1	162.00	81.00	○		
9.500	1	162.00	81.00	○	●	○
9.520	1	168.00	87.00			○
9.530	1	168.00	87.00			○
9.750	1	168.00	87.00	○		
9.800	1	168.00	87.00	○		
9.900	1	168.00	87.00	○		
10.000	1	168.00	87.00	●	●	○
10.100	1	168.00	87.00	●		
10.200	1	168.00	87.00	●	○	○
10.250	1	168.00	87.00		○	○
10.300	1	168.00	87.00	●		
10.400	1	168.00	87.00	●		
10.500	1	168.00	87.00	●	●	○
10.600	1	168.00	87.00	●	○	
10.700	1	175.00	94.00	●		
10.750	1	175.00	94.00			○
10.800	1	175.00	94.00	●		
10.900	1	175.00	94.00	●		
11.000	1	175.00	94.00	●	○	○
11.100	1	175.00	94.00	●		
11.200	1	175.00	94.00	●		

Standard length



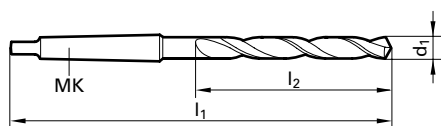
Catalog no.				71300	71416	71305
Tool material				HSS	HSS-Co	HSS
Discount group				132	134	136
Cutting direction				right-hand	right-hand	right-hand
Surface				steam tempered	steam tempered	bright
d1	MT	l1	l2	price per piece		
mm		mm	mm			
11.300	1	175.00	94.00	●		
11.400	1	175.00	94.00	●		
11.500	1	175.00	94.00	●	●	○
11.600	1	175.00	94.00	●		
11.700	1	175.00	94.00	●	○	
11.750	1	175.00	94.00	○		○
11.800	1	175.00	94.00	●		
11.900	1	182.00	101.00	●		
12.000	1	182.00	101.00	●	●	○
12.100	1	182.00	101.00	●		
12.200	1	182.00	101.00	●		
12.250	1	182.00	101.00	○	○	○
12.300	1	182.00	101.00	●		
12.400	1	182.00	101.00	●		
12.500	1	182.00	101.00	●	●	
12.600	1	182.00	101.00	●		
12.700	1	182.00	101.00	●		○
12.800	1	182.00	101.00	●	○	
12.900	1	182.00	101.00	●		
13.000	1	182.00	101.00	●	●	○
13.100	1	182.00	101.00	●		
13.200	1	182.00	101.00	●		
13.300	1	189.00	108.00	●		
13.400	1	189.00	108.00	●		
13.500	1	189.00	108.00	●	●	○
13.600	1	189.00	108.00	●		
13.700	1	189.00	108.00	●		
13.800	1	189.00	108.00	●	○	
13.900	1	189.00	108.00	●	○	
14.000	1	189.00	108.00	●	●	○
14.100	2	212.00	114.00	●		
14.200	2	212.00	114.00	●		
14.250	2	212.00	114.00	○	○	
14.300	2	212.00	114.00	●		
14.400	2	212.00	114.00	●		
14.500	2	212.00	114.00	●	●	○
14.600	2	212.00	114.00	●		
14.700	2	212.00	114.00	●		
14.750	2	212.00	114.00	○		
14.800	2	212.00	114.00	●		
14.900	2	212.00	114.00	●		
15.000	2	212.00	114.00	●	●	○
15.100	2	218.00	120.00	●		
15.200	2	218.00	120.00	●		
15.250	2	218.00	120.00	○		
15.300	2	218.00	120.00	●		
15.400	2	218.00	120.00	●		
15.500	2	218.00	120.00	●	●	○
15.600	2	218.00	120.00	●		
15.700	2	218.00	120.00	●		
15.750	2	218.00	120.00	○		
15.800	2	218.00	120.00	●		
15.900	2	218.00	120.00	●		
16.000	2	218.00	120.00	●	●	○
16.100	2	223.00	125.00	●		
16.200	2	223.00	125.00	●		
16.250	2	223.00	125.00	○		
16.300	2	223.00	125.00	●		
16.400	2	223.00	125.00	●		
16.500	2	223.00	125.00	●	●	○

Standard length



Catalog no.				71300	71416	71305
Tool material				HSS	HSS-Co	HSS
Discount group				132	134	136
Cutting direction				right-hand	right-hand	right-hand
Surface				steam tempered	steam tempered	bright
d1	MT	l1	l2	price per piece		
mm		mm	mm			
16.600	2	223.00	125.00	●		
16.700	2	223.00	125.00	●		
16.750	2	223.00	125.00	○		
16.800	2	223.00	125.00	●		
16.900	2	223.00	125.00	●		
17.000	2	223.00	125.00	●	●	○
17.100	2	228.00	130.00	●		
17.200	2	228.00	130.00	●		
17.300	2	228.00	130.00	●		
17.400	2	228.00	130.00	●		
17.500	2	228.00	130.00	●	●	○
17.600	2	228.00	130.00	●		
17.700	2	228.00	130.00	●		
17.750	2	228.00	130.00	○		
17.800	2	228.00	130.00	●		
17.900	2	228.00	130.00	●		
18.000	2	228.00	130.00	●	●	○
18.100	2	233.00	135.00	●		
18.200	2	233.00	135.00	●		
18.250	2	233.00	135.00	○		
18.300	2	233.00	135.00	●		
18.500	2	233.00	135.00	●	●	○
18.600	2	233.00	135.00	●		
19.000	2	233.00	135.00	●	●	○
19.250	2	238.00	140.00	○	○	
19.500	2	238.00	140.00	●	●	
19.750	2	238.00	140.00	○		
20.000	2	238.00	140.00	●	●	○
20.100	2	243.00	145.00	●		
20.250	2	243.00	145.00	○		
20.500	2	243.00	145.00	●	●	○
20.750	2	243.00	145.00	○	○	
21.000	2	243.00	145.00	●	●	○
21.500	2	248.00	150.00	●	●	
22.000	2	248.00	150.00	●	●	○
22.250	2	248.00	150.00	○		
22.500	2	253.00	155.00	●		
23.000	2	253.00	155.00	●	●	○
23.500	3	276.00	155.00	●	●	
23.750	3	281.00	160.00	○		
24.000	3	281.00	160.00	●	●	○
24.500	3	281.00	160.00	●	●	
24.750	3	281.00	160.00	○		
25.000	3	281.00	160.00	●	●	○
25.250	3	286.00	165.00	○		
25.500	3	286.00	165.00	●	●	○
25.750	3	286.00	165.00	○		
26.000	3	286.00	165.00	●	●	○
26.500	3	286.00	165.00	●	●	○
26.990	3	291.00	170.00			○
27.000	3	291.00	170.00	●	●	○
27.500	3	291.00	170.00	●		○
27.750	3	291.00	170.00	○		
28.000	3	291.00	170.00	●	●	○
28.250	3	296.00	175.00	○		
28.500	3	296.00	175.00	●	●	
28.570	3	296.00	175.00			○
28.580	3	296.00	175.00			○
29.000	3	296.00	175.00	●	●	○
29.250	3	296.00	175.00	○		

Standard length



Catalog no.				71300	71416	71305
Tool material				HSS	HSS-Co	HSS
Discount group				132	134	136
Cutting direction				right-hand	right-hand	right-hand
Surface				steam tempered	steam tempered	bright
d1	MT	l1	l2	price per piece		
mm		mm	mm			
29.500	3	296.00	175.00	●	●	○
30.000	3	296.00	175.00	●	●	
30.250	3	301.00	180.00	○		
30.500	3	301.00	180.00	●	●	
30.750	3	301.00	180.00	○		
31.000	3	301.00	180.00	●		○
31.500	3	301.00	180.00	●		○
31.750	3	306.00	185.00	○		
32.000	4	334.00	185.00	●	●	○
32.500	4	334.00	185.00	●		
33.000	4	334.00	185.00	●	●	
33.500	4	334.00	185.00	●		
34.000	4	339.00	190.00	●		
34.500	4	339.00	190.00	●		
35.000	4	339.00	190.00	●	●	
35.500	4	339.00	190.00	●		
36.000	4	344.00	195.00	●		
36.500	4	344.00	195.00	●		
37.000	4	344.00	195.00	●		
37.500	4	344.00	195.00	●		
38.000	4	349.00	200.00	●		
38.500	4	349.00	200.00	●		
39.000	4	349.00	200.00	●		
39.500	4	349.00	200.00	●		
40.000	4	349.00	200.00	●		
40.500	4	354.00	205.00	●		
41.000	4	354.00	205.00	●		
41.500	4	354.00	205.00	●		
42.000	4	354.00	205.00	●		
43.000	4	359.00	210.00	●		
43.500	4	359.00	210.00	●		
44.000	4	359.00	210.00	●		
44.500	4	359.00	210.00	●		
45.000	4	359.00	210.00	●		
45.500	4	364.00	215.00	●		
46.000	4	364.00	215.00	●		
48.000	4	369.00	220.00	●		
48.500	4	369.00	220.00	●		
49.000	4	369.00	220.00	●		
49.500	4	369.00	220.00	●		
50.000	4	369.00	220.00	●		
50.500	4	374.00	225.00	●		
50.800	4	374.00	225.00	●		
51.000	5	412.00	225.00	●		
52.000	5	412.00	225.00	●		
53.500	5	417.00	230.00	●		
60.000	5	422.00	235.00	●		

Taper shank twist drills

Standard length

DIN 345

Catalog no. 71312

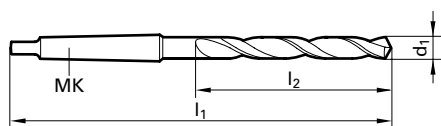


Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable for stainless, non-corrosive and heat-resistant steels, chilled cast iron, titanium and similar materials.

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	8.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: normal
 Flute form: normal
 Web thinning: special

Standard length



Catalog no.	71312
Tool material	HSS-Co
Discount group	134
Cutting direction	right-hand
Surface	bright

d1 mm	MT	l1 mm	l2 mm	price per piece
8.000	1	156.00	75.00	●
8.500	1	156.00	75.00	●
9.000	1	162.00	81.00	●
9.500	1	162.00	81.00	●
10.000	1	168.00	87.00	●
10.200	1	168.00	87.00	●
10.500	1	168.00	87.00	●
11.000	1	175.00	94.00	●
11.250	1	175.00	94.00	○
11.500	1	175.00	94.00	●
11.750	1	175.00	94.00	○
12.000	1	182.00	101.00	●
12.500	1	182.00	101.00	●
13.000	1	182.00	101.00	●
13.500	1	189.00	108.00	●
14.000	1	189.00	108.00	●
14.500	2	212.00	114.00	●
15.000	2	212.00	114.00	●
15.500	2	218.00	120.00	●
16.000	2	218.00	120.00	●
16.250	2	223.00	125.00	○
16.500	2	223.00	125.00	●
17.000	2	223.00	125.00	●
17.500	2	228.00	130.00	●
18.000	2	228.00	130.00	●
18.250	2	233.00	135.00	○
18.500	2	233.00	135.00	●
19.000	2	233.00	135.00	●
19.500	2	238.00	140.00	●
20.000	2	238.00	140.00	●
20.250	2	243.00	145.00	○
21.000	2	243.00	145.00	●
22.000	2	248.00	150.00	●
23.000	2	253.00	155.00	●
24.000	3	281.00	160.00	●
25.000	3	281.00	160.00	●
26.000	3	286.00	165.00	●
27.000	3	291.00	170.00	○
27.500	3	291.00	170.00	●
28.000	3	291.00	170.00	●
30.000	3	296.00	175.00	●
32.000	4	334.00	185.00	●

Taper shank twist drills

Standard length

DIN 346

Catalog no. 71313



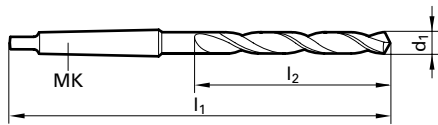
With oversize taper shank

Twist drill made of cobalt alloyed high speed steel with very strong resistance to high-temperature conditions. Can also be used with little or no coolant. Normally at over 3 times dia. depth lifting is necessary. Suitable for materials which need a tool with very good resistance to high temperatures, e.g. stainless, non-corrosive and heat-resistant steels, chilled cast iron, titanium and special alloyed materials.

Tool material	HSS-Co
Surface	bright
Type	V66 Ti
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	11.00
Tolerance on \emptyset	h8

Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: normal
 Flute form: normal
 Web thinning: special

Standard length



Catalog no.	71313
Tool material	HSS-Co
Discount group	138
Cutting direction	right-hand
Surface	bright

d1 mm	MT	l1 mm	l2 mm	price per piece
11.000	2	192.00	94.00	○
12.000	2	199.00	101.00	○
12.500	2	199.00	101.00	○
12.800	2	199.00	101.00	○
13.000	2	199.00	101.00	○
13.500	2	206.00	108.00	○
14.000	2	206.00	108.00	○
18.500	3	256.00	135.00	○
20.000	3	261.00	140.00	○
20.500	3	266.00	145.00	○
21.500	3	271.00	150.00	○
23.000	3	276.00	155.00	○
26.000	4	314.00	165.00	○
27.000	4	319.00	170.00	○
29.000	4	324.00	175.00	○

Taper shank twist drills

Bushing drills

Catalog no. 71320



Standard drill for use with drill bushing sand for deep hole drilling in alloyed and unalloyed steel and cast steel, grey cast iron, malleable cast iron, spheroidal cast iron, sintered powder metals, German silver, graphite.

DIN 341

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	14.01
Tolerance on \emptyset	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A

Bushing drills

Catalog no. 71322



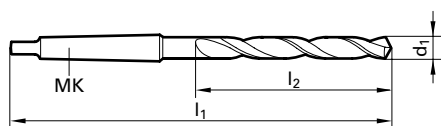
Most suitable for drilling a wide range of materials such as alloyed and unalloyed steels of up to approx 1000 N/mm² tensile strength, free cutting, stainless and noncorrosive steels and titanium, aluminium and aluminium alloys, copper, brass, bronze and soft plastics. For drilling over 2 x D. Large helix angle and wide opened flutes guarantee a good cooling of the flutes and less with drawing. Usually drilling of up to flute length is possible without the need for lifting to remove the chips.

DIN 341

Tool material	HSS
Surface	bright
Type	V70
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	7.94
Tolerance on \emptyset	h8

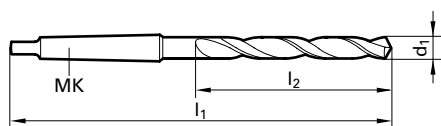
Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V70
Web thinning: to DIN 1412, form A

Bushing drills



Catalog no.				71320	71322
Tool material				HSS	
Discount group				132	136
Cutting direction				right-hand	right-hand
Surface				steam tempered	bright
d1	MT	l1	l2	price per piece	
mm		mm	mm		
6.000	1	161.00	80.00	○	
6.500	1	167.00	86.00	○	
6.800	1	174.00	93.00	○	
7.000	1	174.00	93.00	○	
7.940	1	181.00	100.00		○
8.000	1	181.00	100.00	○	○
8.200	1	181.00	100.00	○	
8.500	1	181.00	100.00	○	○
8.730	1	188.00	107.00		○
8.750	1	188.00	107.00		○
8.800	1	188.00	107.00	○	
9.000	1	188.00	107.00		○
9.500	1	188.00	107.00	○	○
9.750	1	197.00	116.00	○	
9.920	1	197.00	116.00		○
10.000	1	197.00	116.00	○	○
10.100	1	197.00	116.00	○	
10.250	1	197.00	116.00		○
10.320	1	197.00	116.00		○
10.500	1	197.00	116.00		○
10.720	1	206.00	125.00		○
10.750	1	206.00	125.00		○
11.000	1	206.00	125.00	○	○
11.500	1	206.00	125.00		○
11.750	1	206.00	125.00		○
12.000	1	215.00	134.00		○
12.500	1	215.00	134.00	○	○
12.700	1	215.00	134.00		○
12.750	1	215.00	134.00	○	○
13.000	1	215.00	134.00		○
13.500	1	223.00	142.00	○	○
13.750	1	223.00	142.00	○	○
13.900	1	223.00	142.00	○	
14.000	1	223.00	142.00	○	○
14.500	2	245.00	147.00	○	○
15.000	2	245.00	147.00	○	○
16.000	2	251.00	153.00	○	○
16.250	2	257.00	159.00	○	
16.500	2	257.00	159.00	○	○
16.750	2	257.00	159.00	○	
17.000	2	257.00	159.00	○	○
17.500	2	263.00	165.00	○	○
17.750	2	263.00	165.00		○
18.000	2	263.00	165.00	○	○
18.260	2	269.00	171.00		○
18.500	2	269.00	171.00	○	
18.650	2	269.00	171.00		○
19.000	2	269.00	171.00	○	○
19.450	2	275.00	177.00		○
19.500	2	275.00	177.00	○	
20.000	2	275.00	177.00	○	
20.640	2	282.00	184.00		○
21.000	2	282.00	184.00	○	○
21.250	2	289.00	191.00		○
21.430	2	289.00	191.00		○
21.750	2	289.00	191.00		○
21.830	2	289.00	191.00		○
22.000	2	289.00	191.00	○	○
22.220	2	289.00	191.00		○
22.250	2	289.00	191.00		○

Bushing drills



Catalog no.	71320	71322
Tool material	HSS	
Discount group	132	136
Cutting direction	right-hand	right-hand
Surface	steam tempered	bright

d1 mm	MT	l1 mm	l2 mm	price per piece	
22.620	2	296.00	198.00		○
22.750	2	296.00	198.00		○
23.000	2	296.00	198.00	○	
23.020	2	296.00	198.00		○
23.420	3	319.00	198.00		○
23.500	3	319.00	198.00		○
23.810	3	327.00	206.00		○
24.000	3	327.00	206.00	○	○
25.000	3	327.00	206.00		○
26.000	3	335.00	214.00	○	○
27.000	3	343.00	222.00	○	○
28.000	3	343.00	222.00	○	○
28.500	3	351.00	230.00		○
28.580	3	351.00	230.00		○
29.500	3	351.00	230.00		○
30.000	3	351.00	230.00	○	○
31.000	3	360.00	239.00	○	
31.500	3	360.00	239.00		○
31.750	3	369.00	248.00		○
32.000	4	397.00	248.00	○	○
33.000	4	397.00	248.00		○
34.000	4	406.00	257.00	○	
36.000	4	416.00	267.00	○	
37.000	4	416.00	267.00		○
37.500	4	416.00	267.00		○
39.000	4	426.00	277.00	○	○
40.000	4	426.00	277.00	○	○
44.000	4	447.00	298.00		○

Taper shank twist drills

Extra long twist drills, series 1

Catalog no. 71325



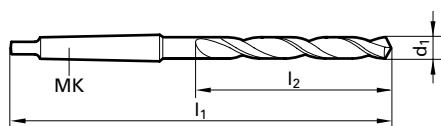
A robust tool for drilling very deep holes in difficult conditions, when swarf congestion prevents an sufficient flow of coolant to the drill point (not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast iron with tensile strengths of up to 1000 N/mm².

DIN 1870

Tool material	HSS
Surface	nitrided lands/steam tempered > Ø 16,0
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	7.94
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 1



Catalog no.	71325
Tool material	HSS
Discount group	136
Cutting direction	right-hand
Surface	nitrided lands/steam tempered > Ø 16,0 mm

d1 mm	MT	l1 mm	l2 mm	price per piece
7.940	1	265.00	165.00	○
8.000	1	265.00	165.00	●
8.330	1	265.00	165.00	○
8.500	1	265.00	165.00	●
9.000	1	275.00	175.00	●
9.530	1	285.00	185.00	○
10.000	1	285.00	185.00	●
10.500	1	285.00	185.00	●
11.000	1	300.00	195.00	●
11.500	1	300.00	195.00	●
12.000	1	310.00	205.00	●
12.300	1	310.00	205.00	●
12.500	1	310.00	205.00	●
13.000	1	310.00	205.00	●
13.500	1	325.00	220.00	●
14.000	1	325.00	220.00	●
15.000	2	340.00	220.00	●
15.500	2	355.00	230.00	●
16.000	2	355.00	230.00	●
17.000	2	355.00	230.00	●
17.500	2	370.00	245.00	●
18.000	2	370.00	245.00	●
18.500	2	370.00	245.00	●
19.000	2	370.00	245.00	●
19.500	2	385.00	260.00	●
20.000	2	385.00	260.00	●
21.000	2	385.00	260.00	●
22.000	2	405.00	270.00	●
23.000	2	405.00	270.00	●
24.000	3	440.00	290.00	●
25.000	3	440.00	290.00	●
26.000	3	440.00	290.00	●
26.190	3	440.00	290.00	○
26.990	3	460.00	305.00	○
28.000	3	460.00	305.00	●
29.000	3	460.00	305.00	●
30.000	3	460.00	305.00	●

Taper shank twist drills

Extra long twist drills, series 2

Catalog no. 71326



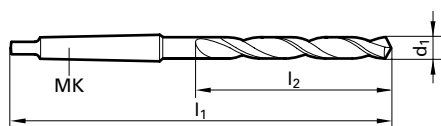
A robust tool for drilling very deep holes in difficult conditions, when swarf congestion prevents an sufficient flow of coolant to the drill point (not suitable for lubrication holes in crank shafts - use special purpose drill for this application). For use in steels and cast iron with tensile strengths of up to 1000 N/mm².

DIN 1870

Tool material	HSS
Surface	nitrided lands/steam tempered > Ø 16,0
Type	V63
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	7.94
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: considerably greater than standard
 Web taper: none
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Extra long twist drills, series 2



Catalog no.	71326
Tool material	HSS
Discount group	136
Cutting direction	right-hand
Surface	nitrided lands/steam tempered > Ø 16,0 mm

d1 mm	MT	l1 mm	l2 mm	price per piece
7.940	1	330.00	210.00	○
8.000	1	330.00	210.00	●
8.730	1	345.00	220.00	●
9.000	1	345.00	220.00	●
9.520	1	360.00	235.00	○
9.530	1	360.00	235.00	○
10.000	1	360.00	235.00	●
11.000	1	375.00	250.00	●
11.500	1	375.00	250.00	●
12.000	1	395.00	260.00	●
12.700	1	395.00	260.00	●
13.000	1	395.00	260.00	●
13.500	1	410.00	275.00	●
14.000	1	410.00	275.00	●
15.000	2	425.00	275.00	●
15.500	2	445.00	295.00	●
16.000	2	445.00	295.00	●
16.500	2	445.00	295.00	●
17.000	2	445.00	295.00	●
17.500	2	465.00	310.00	●
17.860	2	465.00	310.00	○
18.000	2	465.00	310.00	●
19.000	2	465.00	310.00	●
19.500	2	490.00	325.00	●
20.000	2	490.00	325.00	●
21.000	2	490.00	325.00	●
22.000	2	515.00	345.00	●
23.000	2	515.00	345.00	●
23.810	3	555.00	365.00	○
25.000	3	555.00	365.00	●
26.000	3	555.00	365.00	●
27.780	3	580.00	385.00	○
28.000	3	580.00	385.00	●
29.500	3	580.00	385.00	●
30.000	3	580.00	385.00	●
31.750	3	610.00	410.00	○
37.000	4	665.00	430.00	●
43.000	4	735.00	490.00	●

Taper shank twist drills

Twist drills with internal coolant

Catalog no. 71554



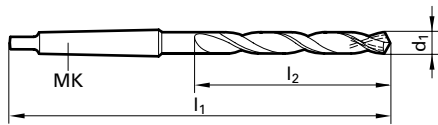
For horizontal and vertical drilling operations, especially for hole depths exceeding 5 times the drill diameter. For drilling laminated sheet metal, steel and cast steel, grey iron, austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance, the tool life is increased since the coolant, delivered directly to the cutting edge, provides optimum cooling and lubricating conditions and assists in the rapid evacuation of swarf.

Stock std.

Tool material	HSS
Surface	steam tempered
Type	<i>N-1K</i>
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	10.00
Tolerance on Ø	h8

Helix angle: larger than standard
 Web thickness: larger than standard
 Web taper: normal
 Flute form: wide flutes with „rounded“ heels
 Web thinning: to DIN 1412, form A

Twist drills with internal coolant



Catalog no. 71554
Tool material HSS
Discount group 138
Cutting direction right-hand
Surface steam tempered

d1 mm	MT	l1 mm	l2 mm	price per piece
10.000	2	233.00	116.00	●
11.000	2	242.00	125.00	●
12.000	2	251.00	134.00	●
13.000	2	251.00	134.00	●
14.000	2	259.00	142.00	●
15.000	2	264.00	147.00	●
16.000	2	270.00	153.00	●
17.000	2	276.00	159.00	●
18.000	2	282.00	165.00	●
19.000	3	307.00	171.00	●
20.000	3	313.00	177.00	●
21.000	3	320.00	184.00	●
22.000	3	327.00	191.00	●
23.000	3	334.00	198.00	●
24.000	3	342.00	206.00	●
25.000	3	342.00	206.00	●
26.000	3	350.00	214.00	●
27.000	4	385.00	222.00	●
28.000	4	385.00	222.00	●
29.000	4	393.00	230.00	●
30.000	4	393.00	230.00	●
32.000	4	421.00	248.00	●
33.000	4	421.00	248.00	●
34.000	4	430.00	257.00	●
35.000	4	430.00	257.00	●
40.000	4	450.00	277.00	●

Taper shank twist drills

Twist drills with internal coolant, long

Catalog no. 71550



Multi-purpose quick helix drill with through coolant. Trouble-free drilling and long tool life, multi diameters. Special design type V73-IK on request. Suitable for steels of low to medium tensile strengths, tough hard steels and other metals.

Oil feed adaptor catalog no. 71560 necessary!

Stock std.

Tool material	HSS-Co
Surface	steam tempered
Type	V70-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	14.50
Tolerance on \emptyset	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V70
Web thinning: to DIN 1412, form A

Twist drills with internal coolant, long

Catalog no. 71553



With oversize taper shank

Multi-purpose quick helix drill with through coolant. Trouble-free drilling and long tool life, multi diameters with reinforced Morse taper shanks compared to DIN 341. Suitable for steels of low to medium tensile strengths, tough hard steels and other metals.

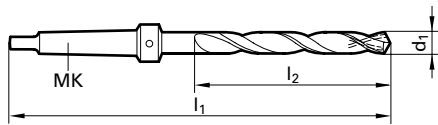
Oil feed adaptor catalog no. 71560 necessary!

Stock std.

Tool material	HSS-Co
Surface	steam tempered
Type	V70-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned $\geq \emptyset$	8.00
Tolerance on \emptyset	h8

Helix angle: larger than standard
Web thickness: larger than standard
Web taper: standard
Flute form: STOCK-V70
Web thinning: to DIN 1412, form A

Twist drills with internal coolant, long



Catalog no.				71550	71553
Tool material				HSS-Co	
Discount group				138	138
Cutting direction				right-hand	right-hand
Surface				steam tempered	steam tempered
d1	MT	l1	l2	price per piece	
mm		mm	mm		
8.000	2	250.00	100.00		○
8.500	2	250.00	100.00		○
9.000	2	257.00	107.00		○
9.500	2	257.00	107.00		○
10.000	2	266.00	116.00		○
10.500	2	266.00	116.00		○
11.500	2	275.00	125.00		○
12.000	2	284.00	134.00		○
12.500	2	284.00	134.00		○
13.000	2	284.00	134.00		○
14.000	2	292.00	142.00		○
14.500	2	297.00	147.00	○	
15.000	2	297.00	147.00	○	
15.500	2	303.00	153.00	○	
16.000	2	303.00	153.00	○	
17.000	2	309.00	159.00	○	
18.000	2	315.00	165.00	○	
19.000	3	339.00	171.00		○
19.500	3	345.00	177.00		○
20.000	3	345.00	177.00		○
20.500	3	352.00	184.00		○
21.000	3	352.00	184.00		○
21.500	3	359.00	191.00		○
22.000	3	359.00	191.00		○
23.000	3	366.00	198.00		○
24.000	3	374.00	206.00	○	
24.500	3	374.00	206.00	○	
25.000	3	374.00	206.00	○	
26.000	3	382.00	214.00	○	
27.000	4	435.00	222.00		○
27.500	4	435.00	222.00		○
28.500	4	443.00	230.00		○
29.000	4	443.00	230.00		○
29.500	4	443.00	230.00		○
31.500	4	452.00	239.00		○
32.000	4	461.00	248.00	○	

Taper shank twist drills

Extra-long spiral flute deep hole drill with internal coolant

Catalog no. 71565



For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Oil feed adaptor catalog no. 71560 necessary!

Stock std.	series 1
Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	14.29
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: considerably larger than standard Web taper: standard Flute form: STOCK-V-63 Web thinning: to DIN 1412, form A	

Extra-long spiral flute deep hole drill with internal coolant

Catalog no. 71567

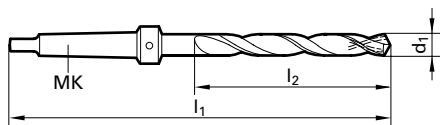


For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Oil feed adaptor catalog no. 71560 necessary!

Stock std.	series 1
Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	8.00
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: considerably larger than standard Web taper: standard Flute form: STOCK-V-63 Web thinning: to DIN 1412, form A	

Extra-long spiral flute deep hole drill with internal coolant



Catalog no.	71565	71567
Tool material	HSS-Co	
Discount group	136	136
Cutting direction	right-hand	right-hand
Surface	steam tempered	steam tempered

d1 mm	MT	l1 mm	l2 mm	price per piece
8.000	2	315.00	165.00	○
8.730	2	325.00	175.00	○
9.000	2	325.00	175.00	○
9.500	2	325.00	175.00	○
10.000	2	335.00	185.00	○
10.320	2	335.00	185.00	○
10.500	2	335.00	185.00	○
10.720	2	345.00	195.00	○
11.000	2	345.00	195.00	○
11.110	2	345.00	195.00	○
11.500	2	345.00	195.00	○
11.510	2	345.00	195.00	○
12.000	2	355.00	205.00	○
12.500	2	355.00	205.00	○
13.000	2	355.00	205.00	○
13.100	2	355.00	205.00	○
13.490	2	370.00	220.00	○
14.000	2	370.00	220.00	○
14.290	2	370.00	220.00	○
14.500	2	370.00	220.00	○
15.000	2	370.00	220.00	○
15.480	2	380.00	230.00	○
15.500	2	380.00	230.00	○
16.000	2	380.00	230.00	○
17.860	2	395.00	245.00	○
18.000	2	395.00	245.00	○
19.000	2	395.00	245.00	○
19.840	2	410.00	260.00	○
20.000	2	410.00	260.00	○
20.500	2	410.00	260.00	○
20.640	2	410.00	260.00	○
21.430	2	420.00	270.00	○
21.500	2	420.00	270.00	○
22.000	2	420.00	270.00	○
22.220	2	420.00	270.00	○
22.500	2	420.00	270.00	○
23.500	3	438.00	270.00	○
23.810	3	458.00	290.00	○
25.000	3	458.00	290.00	○
25.500	3	458.00	290.00	○
26.000	3	458.00	290.00	○
27.780	3	473.00	305.00	○
28.500	3	473.00	305.00	○
28.570	3	473.00	305.00	○
29.000	3	473.00	305.00	○
29.370	3	473.00	305.00	○
29.500	3	473.00	305.00	○
30.000	3	473.00	305.00	○
31.000	3	488.00	320.00	○
31.500	3	488.00	320.00	○

Taper shank twist drills

Extra-long spiral flute deep hole drill with internal coolant

Catalog no. 71566



For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Oil feed adaptor catalog no. 71560 necessary!

Stock std.	series 2
Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	14.50
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: considerably larger than standard Web taper: standard Flute form: STOCK-V-63 Web thinning: to DIN 1412, form A	

Extra-long spiral flute deep hole drill with internal coolant

Catalog no. 71568

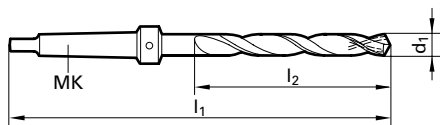


For horizontal and vertical drilling operations, especially for hole depths exceeding 5 x D. For drilling laminated sheet metal, steel and cast steel, grey cast iron austenitic steels of normal machinability up to a tensile strength of 800 N/mm². Compared with conventional drill performance the tool life increases due to the through coolant supply. It provides optimum cooling and lubrication and assists in the rapid evacuation of chips. Suitable for drilling with drill bushes.

Oil feed adaptor catalog no. 71560 necessary!

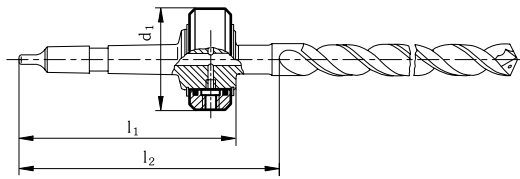
Stock std.	series 2
Tool material	HSS-Co
Surface	steam tempered
Type	V63-IK
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	130
Web thinned ≥Ø	8.00
Tolerance on Ø	h8
Helix angle: larger than standard Web thickness: considerably larger than standard Web taper: standard Flute form: STOCK-V-63 Web thinning: to DIN 1412, form A	

Extra-long spiral flute deep hole drill with internal coolant



Catalog no.				71566	71568
Tool material				HSS-Co	
Discount group				136	136
Cutting direction				right-hand	right-hand
Surface				steam tempered	steam tempered
d1	MT	l1	l2	price per piece	
mm		mm	mm		
8.000	2	360.00	210.00		○
8.500	2	360.00	210.00		○
9.000	2	370.00	220.00		○
9.500	2	370.00	220.00		○
10.000	2	385.00	235.00		○
10.500	2	385.00	235.00		○
11.000	2	400.00	250.00		○
11.500	2	400.00	250.00		○
12.000	2	410.00	260.00		○
13.000	2	410.00	260.00		○
13.500	2	425.00	275.00		○
14.000	2	425.00	275.00		○
14.500	2	425.00	275.00	○	
15.000	2	425.00	275.00	○	
15.500	2	445.00	295.00	○	
16.000	2	445.00	295.00	○	
16.500	2	445.00	295.00	○	
17.000	2	445.00	295.00	○	
17.500	2	460.00	310.00	○	
18.000	2	460.00	310.00	○	
18.500	3	478.00	310.00		○
19.000	3	478.00	310.00		○
19.500	3	493.00	325.00		○
20.000	3	493.00	325.00		○
20.500	3	493.00	325.00		○
21.000	3	493.00	325.00		○
21.500	3	513.00	345.00		○
23.500	3	513.00	345.00	○	
24.000	3	533.00	365.00	○	
25.000	3	533.00	365.00	○	
25.500	3	533.00	365.00	○	
26.000	3	533.00	365.00	○	
27.000	4	553.00	385.00	○	
27.500	4	598.00	385.00		○
28.000	4	598.00	385.00		○
29.000	4	598.00	385.00		○
29.500	4	598.00	385.00		○
30.000	4	598.00	385.00		○
31.000	4	623.00	410.00		○
31.500	4	623.00	410.00		○
32.000	4	623.00	410.00	○	

Oil feed adaptors



Catalog no. 71560

Tool material

Discount group

138

Cutting direction

Surface

sleeve size	d1 mm	for drills with std. taper	for drills with oversize taper	MT	distance l1	distance l2	Code no.	price per piece
1	58	14.00-18.00	8.00-14.00	2	125	150	1.000	●
2	58	23.02-31.75	18.00-23.02	3	143	168	2.000	●
3	80	32.00	27.00-32.00	4	188	213	3.000	●

Subland drills

Straight shank subland drills

Catalog no. 71501



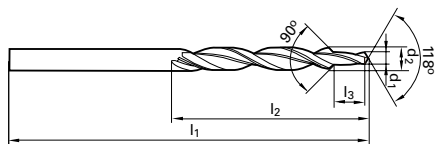
Standard drill for the efficient production of clearance holes to DIN EN 20 273 and screw head angles of 90°, form A and B, to DIN 74, section 1. For screws to DIN 963 and DIN 964.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8374 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	6.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71501
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d2 h8 mm	d1 mm	l1 mm	l2 mm	l3 mm	thread	price per piece
6.000	3.200	93.00	57.00	9.00	M 3	●
8.000	4.300	117.00	75.00	11.00	M 4	●
10.000	5.300	133.00	87.00	13.00	M 5	●
11.500	6.400	142.00	94.00	15.00	M 6	●
15.000	8.400	169.00	114.00	19.00	M 8	●
19.000	10.500	198.00	135.00	23.00	M10	●

Subland drills

Straight shank subland drills

Catalog no. 71503



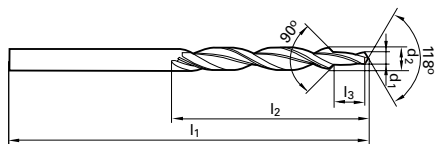
Standard drill for the efficient production of tapping-size holes to DIN 336, section 1, and 90° screw head countersinks corresponding to the clearance holes of DIN EN20 273.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8378 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	3.40
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71503
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d2 h8	d1	l1	l2	l3	thread	price per piece
mm	mm	mm	mm	mm		
3.400	2.500	70.00	39.00	8.80	M 3	●
4.500	3.300	80.00	47.00	11.40	M 4	●
5.500	4.200	93.00	57.00	13.60	M 5	●
6.600	5.000	101.00	63.00	16.50	M 6	●
9.000	6.800	125.00	81.00	21.00	M 8	●
11.000	8.500	142.00	94.00	25.50	M10	●
13.500	10.200	160.00	108.00	30.00	M12	●

Subland drills

Straight shank subland drills

Catalog no. 71500



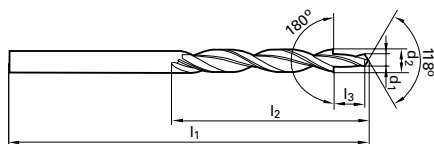
A standard drill for the production of clearance holes to DIN EN 20 273 and 180° screw head countersinks, form H, J and K, to DIN 74, section 2. For screws to DIN 84, DIN 912, DIN 6912, DIN 7513 and DIN 7984.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8376 180°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	6.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71500
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d2 h8	d1	l1	l2	l3	thread	price per piece
mm	mm	mm	mm	mm		
6.000	3.400	93.00	57.00	9.00	M 3	●
8.000	4.500	117.00	75.00	11.00	M 4	●
10.000	5.500	133.00	87.00	13.00	M 5	●
11.000	6.600	142.00	94.00	15.00	M 6	●
15.000	9.000	169.00	114.00	19.00	M 8	●
18.000	11.000	191.00	130.00	23.00	M10	●

Subland drills

Taper shank subland drills

Catalog no. 71523



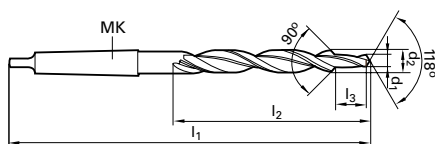
Standard drill for the efficient production of tapping-size holes to DIN 336, section 1, and 90° screw head countersinks corresponding to the clearance holes of DIN EN20 273.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8379 90°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	9.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71523
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d2 h8 mm	d1 mm	MT	l1 mm	l2 mm	l3 mm	thread	price per piece
9.000	6.800	1	162.00	81.00	21.00	M 8	●
11.000	8.500	1	175.00	94.00	25.50	M10	●
13.500	10.200	1	189.00	108.00	30.00	M12	●
15.500	12.000	2	218.00	120.00	34.50	M14	●
17.500	14.000	2	228.00	130.00	38.50	M16	●
20.000	15.500	2	238.00	140.00	43.50	M18	○
22.000	17.500	2	248.00	150.00	47.50	M20	●

Subland drills

Taper shank subland drills

Catalog no. 71520



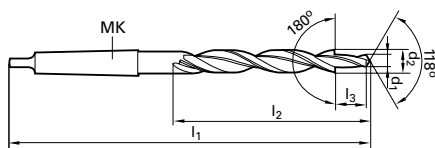
A standard drill for the production of clearance holes to DIN EN 20 273 and 180° screw head countersinks, form H, J and K, to DIN 74, section 2. For screws to DIN 84, DIN 912, DIN 6912, DIN 7513 and DIN 7984.

Note: Cutting speed should be selected according to the large (body) diameter and feed rate according to the small (pilot) diameter.

DIN 8377 180°

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥ Ø	10.00
Tolerance on Ø	h8

Helix angle: normal
Web thickness: normal
Web taper: normal
Flute form: normal
Web thinning: to DIN 1412, form A



Catalog no.	71520
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d2 h8 mm	d1 mm	MT	l1 mm	l2 mm	l3 mm	thread	price per piece
11.000	6.600	1	175.00	94.00	15.00	M 6	●
15.000	9.000	2	212.00	114.00	19.00	M 8	●
18.000	11.000	2	228.00	130.00	23.00	M10	●
20.000	13.500	2	238.00	140.00	27.00	M12	●
24.000	15.500	3	281.00	160.00	31.00	M14	○
26.000	17.500	3	286.00	165.00	35.00	M16	●

Center drills

Center drills without flat

Catalog no. 71600



Standard drill for producing centre holes acc. to DIN 332, Sheet 1, form A (without protecting chamfer).
Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on Ø	
tol. on body Ø: h7 (to DIN h9)	
tol. on pilot Ø (to new standard):	
Ø 0,50 – 2,50	= + 0,14 mm
Ø 3,15 – 5,00	= + 0,18 mm
Ø 6,30 – 10,0	= + 0,22 mm
Ø 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	

Center drills without flat

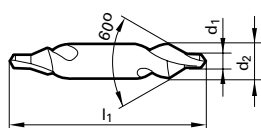
Catalog no. 71601



Standard drill for producing centre holes acc. to DIN 332, Sheet 1, form A (without protecting chamfer).
Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	A
Cutting direction	left-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on Ø	
tol. on body Ø: h7 (to DIN h9)	
tol. on pilot Ø (to new standard):	
Ø 0,50 – 2,50	= + 0,14 mm
Ø 3,15 – 5,00	= + 0,18 mm
Ø 6,30 – 10,0	= + 0,22 mm
Ø 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	



Catalog no.			71600	71601
Tool material			HSS	HSS
Discount group			132	138
Cutting direction			right-hand	left-hand
Surface			bright	bright
d1	d2	l1	price per piece	
mm	mm	mm		
0.500	3.150	25.00	●	●
0.800	3.150	25.00	●	●
1.000	3.150	31.50	●	●
1.250	3.150	31.50	●	●
1.600	4.000	35.50	●	●
2.000	5.000	40.00	●	●
2.500	6.300	45.00	●	●
3.150	8.000	50.00	●	●
4.000	10.000	56.00	●	●
5.000	12.500	63.00	●	●
6.300	16.000	71.00	●	●
8.000	20.000	80.00	●	●
10.000	25.000	100.00	●	
12.500	31.500	125.00	●	

Center drills

Center drills without flat

Catalog no. 71602



Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). Special features of these tools are: 1. high fracture-resistant properties. 2. precise concentricity of the point in relation to the body. 3. radiused form providing a protected centre hole.

Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	bright
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	1.60
Tolerance on Ø	
tol. on body Ø: h7 (to DIN h9)	
tol. on pilot Ø (to new standard):	
Ø 0,50 – 2,50	= + 0,14 mm
Ø 3,15 – 5,00	= + 0,18 mm
Ø 6,30 – 10,0	= + 0,22 mm
Ø 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	

Center drills without flat

Catalog no. 61602

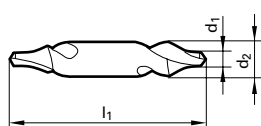


Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). Special features of these tools are: 1. high fracture-resistant properties. 2. precise concentricity of the point in relation to the body. 3. radiused form providing a protected centre hole.

Center drills with Ø 0.5 and 0.8 mm are only single-sided.

DIN 333

Tool material	HSS
Surface	TiN
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned ≥Ø	1.60
Tolerance on Ø	
tol. on body Ø: h7 (to DIN h9)	
tol. on pilot Ø (to new standard):	
Ø 0,50 – 2,50	= + 0,14 mm
Ø 3,15 – 5,00	= + 0,18 mm
Ø 6,30 – 10,0	= + 0,22 mm
Ø 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	



			Catalog no.	71602	61602
			Tool material	HSS	HSS
			Discount group	138	139
			Cutting direction	right-hand	right-hand
			Surface	bright	TiN
d1	d2	l1	price per piece		
mm	mm	mm			
0.500	3.150	25.00	●		
0.800	3.150	25.00	●		
1.000	3.150	31.50	●		
1.250	3.150	31.50	●		
1.600	4.000	35.50	●		
2.000	5.000	40.00	●		
2.500	6.300	45.00	●		
3.150	8.000	50.00	●		
4.000	10.000	56.00	●		
5.000	12.500	63.00	●		
6.300	16.000	71.00	●		
8.000	20.000	80.00	●		
10.000	25.000	100.00	●		

Center drills

Center drills without flat

Catalog no. 71605

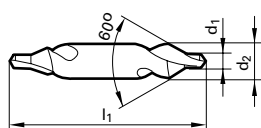


Special purpose drill for producing centre holes to DIN 332, sheet 1, form A (without protecting chamfer), except for an annular groove at the junction of the countersink and the drilled hole. Special features of these tools are: high fracture-resistant properties, specially strengthened form at the junction of the pilot and body which permits high metal removal rates, special form cuts annular groove which acts as a reservoir for the lubricant.

Stock std. reinf. neck

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on \emptyset	

tol. on body \emptyset : h7 (to DIN h9)
 tol. on pilot \emptyset (to new standard):
 \emptyset 0,50 – 2,50 = + 0,14 mm
 \emptyset 3,15 – 5,00 = + 0,18 mm
 \emptyset 6,30 – 10,0 = + 0,22 mm
 \emptyset 12,50 = + 0,27 mm
 Web thinning: to DIN 1412, form A



Catalog no.	71605
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	bright

d1	d2	l1	price per piece
mm	mm	mm	
1.000	3.150	31.50	●
1.250	3.150	31.50	●
1.600	4.000	35.50	●
2.000	5.000	40.00	●
2.500	6.300	45.00	●
3.150	8.000	50.00	●
4.000	10.000	56.00	●
5.000	12.500	63.00	●
6.300	16.000	71.00	●

Center drills

Center drills without flat

Catalog no. 71604

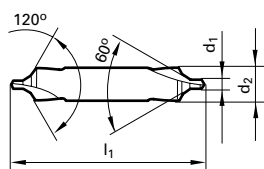


Special purpose drill for producing centre holes to DIN 332, Sheet 1, form B (with protecting countersink of 120°).

DIN 333

Tool material	HSS
Surface	bright
Form	B
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on \emptyset	

tol. on body \emptyset : h7 (to DIN h9)
 tol. on pilot \emptyset (to new standard):
 \emptyset 0,50 – 2,50 = + 0,14 mm
 \emptyset 3,15 – 5,00 = + 0,18 mm
 \emptyset 6,30 – 10,0 = + 0,22 mm
 \emptyset 12,50 = + 0,27 mm
 Web thinning: to DIN 1412, form A



Catalog no.	71604
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	bright

d1	d2	l1	price per piece
mm	mm	mm	
1.000	4.000	35.50	●
1.250	5.000	40.00	●
1.600	6.300	45.00	●
2.000	8.000	50.00	●
2.500	10.000	56.00	●
3.150	11.200	60.00	●
4.000	14.000	67.00	●
5.000	18.000	75.00	●
6.300	20.000	80.00	●

Center drills

Center drills with flat

Catalog no. 71607



Special purpose drill for producing centre holes to DIN 332, sheet 1, form A (without protecting chamfer). For centering and facing machines where the end face is required to be dressed and centred in the same operation.

Stock std.

Tool material	HSS
Surface	bright
Form	A
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on \emptyset	
tol. on body \emptyset : h7 (to DIN h9)	
tol. on pilot \emptyset (to new standard):	
\emptyset 0,50 – 2,50	= + 0,14 mm
\emptyset 3,15 – 5,00	= + 0,18 mm
\emptyset 6,30 – 10,0	= + 0,22 mm
\emptyset 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	

Center drills with flat

Catalog no. 71609

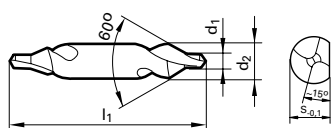


Special purpose drill for producing centre holes to DIN 332, sheet 1, form R (radiused). For centering and facing machines where the end face is required to be dressed and centered in the same operation. Special features of these tools are:

1. high fracture-resistant properties.
2. precise concentricity of the point in relation to the body.
3. radiused form providing a protected centre hole.

Stock std.

Tool material	HSS
Surface	bright
Form	R
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	118
Web thinned $\geq \emptyset$	1.60
Tolerance on \emptyset	
tol. on body \emptyset : h7 (to DIN h9)	
tol. on pilot \emptyset (to new standard):	
\emptyset 0,50 – 2,50	= + 0,14 mm
\emptyset 3,15 – 5,00	= + 0,18 mm
\emptyset 6,30 – 10,0	= + 0,22 mm
\emptyset 12,50	= + 0,27 mm
Web thinning: to DIN 1412, form A	



Catalog no.	71607	71609
Tool material	HSS	HSS
Discount group	138	138
Cutting direction	right-hand	right-hand
Surface	bright	bright

d1	d2	l1	price per piece	
mm	mm	mm		
1.600	4.000	35.50	●	●
2.000	5.000	40.00	●	●
2.500	6.300	45.00	●	●
3.150	8.000	50.00	●	●
4.000	10.000	56.00	●	●
5.000	12.500	63.00	●	●
6.300	16.000	71.00	●	●
8.000	20.000	80.00		●

Core drills

Taper shank core drills

DIN 343

Catalog no. 72210

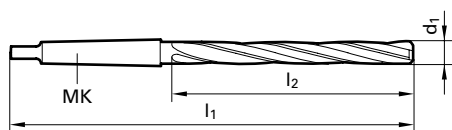


Core drills are used for enlarging punched, drilled or cored holes. The extremely rigid, 3-flute design serves to correct both the alignment and the concentricity of existing holes. In addition, the finish of the hole is improved, creating, where required, the best conditions for final reaming.

Note: It must be kept in mind that the hole to be enlarged must have a diameter larger than the diameter of the core drill measured across the inner corners of the cutting edges. See the column headed „Min. hole size“ in the size table.

Tool material	HSS
Surface	steam tempered
Type	N
Cutting direction	right-hand
Point grinding	Relieved cone
Point angle °	120
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h8
Helix angle: normal	
Web thickness: normal	
Web taper: none	
Flute form: normal	

Taper shank core drills



Catalog no.	72210
Tool material	HSS
Discount group	138
Cutting direction	right-hand
Surface	steam tempered

d1 mm	d0 mm	MT	l1 mm	l2 mm	price per piece
8.000	5.600	1	156.00	75.00	○
9.000	6.300	1	162.00	81.00	○
10.000	7.000	1	168.00	87.00	○
11.750	8.400	1	182.00	101.00	○
12.000	8.400	1	182.00	101.00	○
13.750	9.800	1	189.00	108.00	○
14.000	9.800	1	189.00	108.00	○
14.750	10.500	2	212.00	114.00	○
15.000	10.500	2	212.00	114.00	○
15.750	11.200	2	218.00	120.00	○
16.000	11.200	2	218.00	120.00	○
16.750	11.900	2	223.00	125.00	○
17.750	12.600	2	228.00	130.00	○
18.000	12.600	2	228.00	130.00	○
19.000	13.300	2	233.00	135.00	○
19.700	14.000	2	238.00	140.00	○
20.000	14.000	2	238.00	140.00	○
20.700	14.700	2	243.00	145.00	○
22.500	16.000	2	253.00	155.00	○
25.000	17.300	3	281.00	160.00	○
25.500	18.000	3	286.00	165.00	○
26.000	18.000	3	286.00	165.00	○
27.000	18.600	3	291.00	170.00	○
29.700	20.500	3	296.00	175.00	○
30.000	20.500	3	296.00	175.00	○
32.000	22.000	4	334.00	185.00	○
34.600	25.000	4	339.00	190.00	○
35.000	25.000	4	339.00	190.00	○
45.000	31.000	4	359.00	210.00	○
47.600	33.000	4	369.00	220.00	○
48.600	34.000	4	369.00	220.00	○



Chip – by Chip – to the Top

ENERGY INDUSTRY








GUN DRILLS







Gun drills

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Gun drill, Type SuperT-AL

	SuperT-AL	right-hand	25xD	Solid Carbide	AlTiN nano	Stock std.	1,000 - 12,000	55027	123	386
	SuperT-AL	right-hand	50xD	Solid Carbide	AlTiN nano	Stock std.	1,000 - 8,000	55028	123	388
	SuperT-AL	right-hand	75xD	Solid Carbide	AlTiN nano	Stock std.	1,000 - 6,000	55029	123	390

Gun drill, Type SuperT-N

	SuperT-N	right-hand	20xD	Carbide	TiN	Stock std.	4,000 - 12,000	75018	123	392
	SuperT-N	right-hand	30xD	Carbide	TiN	Stock std.	4,000 - 12,000	75017	123	393
	SuperT-N	right-hand	40xD	Carbide	TiN	Stock std.	4,000 - 12,000	75022	123	394
	SuperT-N	right-hand	80xD	Carbide	TiN	Stock std.	4,950 - 11,950	75023	123	395

Gun drill, Type SuperT-NX

	SuperT-NX	right-hand	20xD	Carbide	TiCN	Stock std.	3,970 - 12,700	55018	123	396
	SuperT-NX	right-hand	30xD	Carbide	TiCN	Stock std.	3,970 - 12,700	55017	123	397
	SuperT-NX	right-hand	40xD	Carbide	TiCN	Stock std.	3,970 - 12,700	55022	123	398
	SuperT-NX	right-hand	80xD	Carbide	TiCN	Stock std.	4,950 - 12,650	55023	123	399

Gun drills

Type	Cutting direction	Flute length (mm)	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Gun drills TBE-VHM



TBE-VHM	right-hand	45.00	Solid Carbide	bright	Stock std.	1,200 - 3,200	75024	123	400
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TBE-VHM	right-hand	45.00	Solid Carbide	AlTiN+	Stock std.	2,000 - 3,200	55024	123	400
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TBE-VHM	right-hand	80.00	Solid Carbide	bright	Stock std.	1,200 - 5,000	75020	123	401
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TBE-VHM	right-hand	80.00	Solid Carbide	AlTiN+	Stock std.	2,000 - 5,000	55020	123	401
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TBE-VHM	right-hand	120.00	Solid Carbide	bright	Stock std.	1,500 - 5,000	75026	123	402
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TBE-VHM	right-hand	120.00	Solid Carbide	AlTiN+	Stock std.	2,000 - 5,000	55026	123	402
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TBE-VHM	right-hand	160.00	Solid Carbide	bright	Stock std.	1,500 - 8,000	75021	123	403
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TBE-VHM	right-hand	160.00	Solid Carbide	AlTiN+	Stock std.	2,000 - 8,000	55021	123	403
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Gun drills with 2 cutting lips

Type	Cutting direction	Drilling depth	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Two-fluted gun drill, Type SuperT-GG



SuperT-GG	right-hand	30xD	Carbide	bright	Stock std.	8,000 - 12,000	75030	123	404
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Application

by materials

Type	Catalogue no.	Surface finish	Non-ferrous metals, Aluminium	Steels	Cast iron	Stainless and acid-resistant steels	Nickel, Ti-alloys	Hardened steels
SuperT-AL	55027 55028 55029	AlTiN nano	Pilot 71998 51776					
SuperT-N	75018 75023 75070 75022	TiN		Pilot 71998 51776				
SuperT-NX	55018 55023 55070 55022	TiCN		Pilot 51776		Pilot 51770		
SuperT-GG	75030	bright			Pilot 51776			
TBE-VHM	75024 75020 75026 75021	bright					Pilot 71998 51752	
TBE-VHM	55024 55020 55026 55021	AlTiN+			Pilot 51776 71998 51770			

by tensile strength

Type	Catalogue no.	Surface finish	< 800 N/mm ²	800 N/mm ²	1000 N/mm ²	1200 N/mm ²	1400 N/mm ²	> 1400 N/mm ²	tough	hard
SuperT-AL	55027 55028 55029	AlTiN nano								
SuperT-N	75018 75023 75070 75022	TiN								
SuperT-NX	55018 55023 55070 55022	TiCN								up to 50 HRc
SuperT-GG	75030	bright								
TBE-VHM	75024 75020 75026 75021	bright								
TBE-VHM	55024 55020 55026 55021	AlTiN+								up to 50 HRc

■ optimal ■ well suited

Single-fluted gun drills SuperT-N/SuperT-NX

Questionnaire for special solution

Inquiry

 **Order**☐ Repeat order, no. of initial order _____

Deep hole gun drill:

 SuperT-N

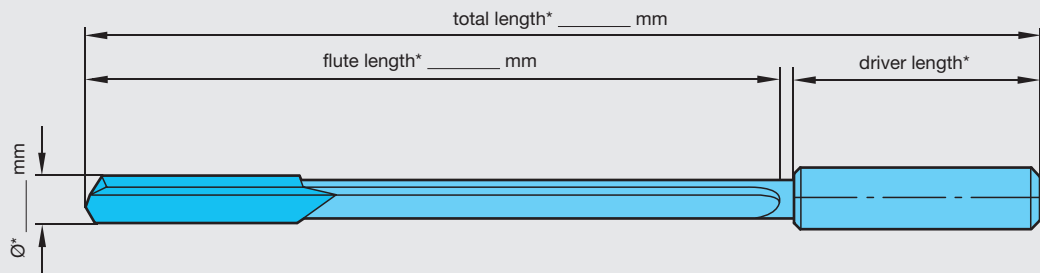
 SuperT-NX

Required no. of pieces: _____

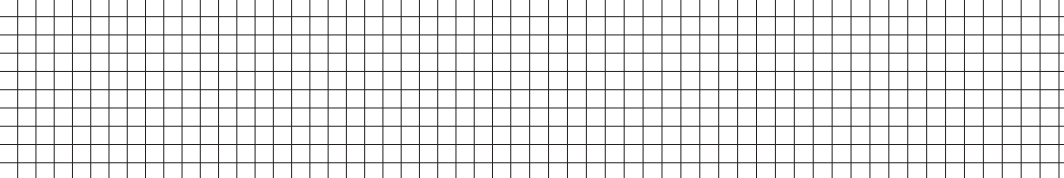
* Ø 2,0 - 40,0 mm

Total length max. 3000 mm

Total length, flute length and driver length are dependent on the driver selected.



Drawing of lay-out required in special cases only

A large grid of graph paper, consisting of 20 columns and 10 rows of small squares, intended for drawing a picture.

Driver:

☐ no

 Code no. _____

 to enclosed drawing

Coating:

TiN

 TiCN

bright

Workpiece:

Drilling depth: _____ **Hole tolerance:** _____

Hole tolerance:

Material/designation:_____

Tens. str./Hardness: _____

Machine type:

☐ Deep hole drilling machine

 conventional machine tool

Coolant:

☐ **Deep hole drilling oil**

Pressure bar

☐ Soluble oil

Quantity	l/min
----------	-------

Company:

Company stamp:

Telephone/fax:

Contact:

Signature:

Two-fluted gun drills SuperT-GG

Questionnaire for special solution

Inquiry

Order

☐ Repeat order, no. of initial order _____

Deep hole gun drill:

❑ **SuperT-GG**

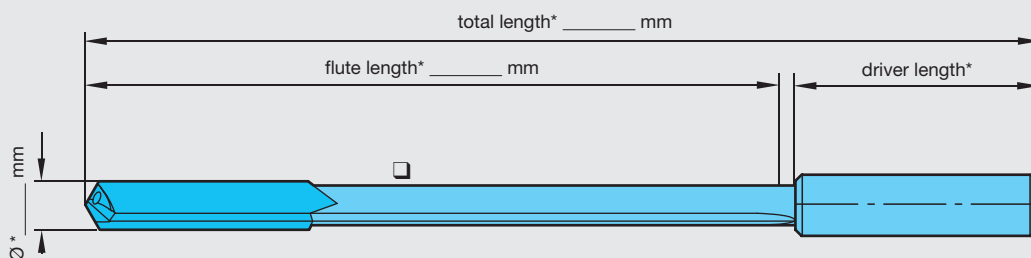


Required no. of pieces: _____

* Ø 6,0 - 27,0 mm

Total length max. 1000 mm

Total length, flute length and driver length are dependent on the driver selected.



Drawing of lay-out required in special cases only

A full-page sheet of white graph paper with a light gray grid. The grid consists of small squares, approximately 10 units wide by 10 units high. There are no margins or additional markings on the page.

required in special cases only

Driver:

☐ no

 Code no. _____

 to enclosed drawing

Coating:

MoS₂

 TiN

 TiCN

 bright

Workpiece:

Drilling depth: _____ **Hole tolerance:** _____ **Material/designation:** _____

Tens. str./Hardness: _____

Machine type:

❑ Deep hole drilling machine

☐ conventional machine tool

Coolant:

❑ Deep hole drilling oil

Pressure bar

☐ Soluble oil

Quantity	l/min
----------	-------

Company:

Company stamp:

Telephone/fax:

Contact:

Signature:

Single-fluted gun drills TBE-VHM

Questionnaire for special solution

Inquiry

 **Order**

Repeat order, no. of initial order _____

Deep hole gun drill:

EB 100

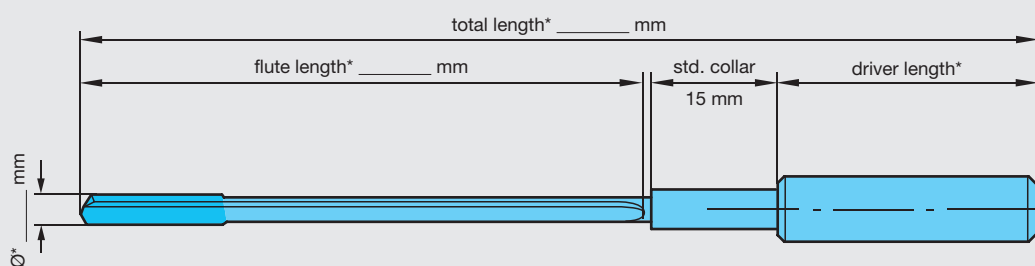


Required no. of pieces: _____

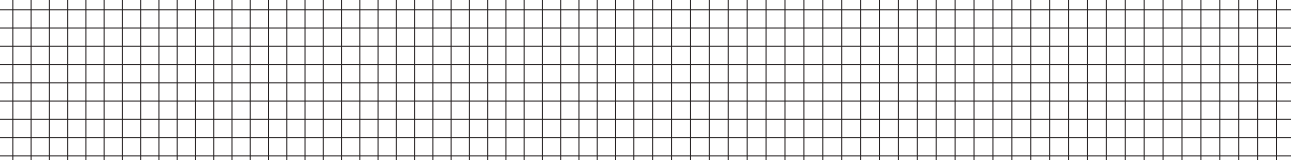
* Ø 0,9 - 12,0 mm

Flute length max. 500 mm

Total length and driver length are dependent on the driver selected



Drawing of lay-out required in special cases only



Driver:

☐ no

 Code no.

 to enclosed drawing


Coating:

TiN

 **TiAIN**

AlTiN nano

□ AlTiN+

 **bright**

Page 10 of 10

Workpiece:

Drilling depth: _____

Hole tolerance: _____

Material/designation: _____

Tens. str./Hardness:_____

Machine type:

☐ Deep hole drilling machine

☐ conventional machine tool

Coolant:

- ❑ **Deep hole drilling oil**

Pressure _____ bar

☐ Soluble oil

Quantity _____ l/min

Company:

Company stamp:

Telephone/fax:

Contact:

Signature:

Recommendation for deep hole gun drills

Feed column no.									
Code-Letter	K	L	M	N	O	P	Q	R	
Drill Ø mm	1.50	0.002	0.004	0.006	0.008	0.012	0.020	0.032	0.045
	2.00	0.003	0.005	0.007	0.010	0.016	0.028	0.046	0.055
	2.50	0.004	0.006	0.008	0.012	0.018	0.030	0.054	0.070
	4.00	0.005	0.007	0.010	0.016	0.025	0.043	0.065	0.085
	6.00	0.007	0.009	0.013	0.024	0.035	0.061	0.085	0.120
	8.00	0.010	0.014	0.022	0.032	0.045	0.068	0.100	0.150
	10.00	0.012	0.016	0.028	0.040	0.055	0.075	0.120	0.160
	14.00	0.020	0.025	0.035	0.050	0.065	0.085	0.130	0.180
	18.00	0.025	0.030	0.040	0.055	0.070	0.095	0.145	0.200
	20.00	0.026	0.035	0.045	0.060	0.080	0.110	0.180	0.250
	24.00	0.027	0.036	0.047	0.065	0.085	0.130	0.185	0.300
	28.00	0.028	0.038	0.049	0.068	0.090	0.140	0.195	0.350
	30.00	0.030	0.040	0.050	0.070	0.100	0.150	0.200	0.400
	35.00	0.035	0.045	0.055	0.075	0.120	0.180	0.250	0.450
	40.00	0.040	0.050	0.060	0.080	0.150	0.200	0.300	0.500

*The feed rates always relate to tools with the recommended coating. In some cases the successful application of un-coated tools cannot be guaranteed.



Gun drills must be guided during spot-drilling.
Gun drills must never operate at full speed without support in the machine shop.

Please consider the additional information on page 385!

Lubricants:

- cutting oil, highly activated, surface active lubricant with effective additives which chemically react and result in a special adhesive and abrasion reducing lubricant film. ☒
- soluble oil (emulsion) ☐
- without lubricant ☐
- air only ☐

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/>
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/>
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/>
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		<input checked="" type="checkbox"/>
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		<input checked="" type="checkbox"/>
martensitic	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		<input checked="" type="checkbox"/>
Hardened steels	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Chilled cast iron	-		≤350 HB	<input checked="" type="checkbox"/>
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		<input checked="" type="checkbox"/>
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		<input checked="" type="checkbox"/>
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		<input checked="" type="checkbox"/>
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		<input checked="" type="checkbox"/>
	2.0790 CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		<input type="checkbox"/>
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		<input type="checkbox"/>
Kevlar	Kevlar	-		<input type="checkbox"/>
Glass/carbon-concentr. plastics	GFK/CFK	-		<input type="checkbox"/>

TBE-solid carbide/SuperT-AL



single-fluted gun drill

solid carbide

1.2 ... 8.0 mm

$\leq 35 \times D$ $> 35 \times D$

recom.
coating*

recom. coating*	v _c m/min	Feed col. no.	v _c m/min	Feed col. no.
A1TiN	100	O	95	N
	85	O	80	N
	90	O	85	N
	80	O	75	N
	90	N	85	M
	80	N	75	M
	75	N	70	M
	75	N	70	M
	65	N	60	M
	A1TiN	80	O	75
A1TiN	75	N	70	M
	65	N	60	M
	75	N	60	M
A1TiN	75	N	70	M
	65	N	60	M
A1TiN	75	M	70	L
A1TiN	65	M	60	L
A1TiN	55	L	50	K
A1TiN	65	M	60	L
A1TiN	55	N	50	M
	45	N	40	M
	35	N	35	M
A1TiN	30	M	25	L
	25	K	20	K
	35	L	30	K
	85	P	80	O
	80	P	75	O
	80	O	75	N
	70	O	65	N
	55	N	50	M
	35	L	30	K
	30	L	25	K
A1TiN	150	Q	140	P
	120	Q	115	P
	150	R	140	Q
	130	R	120	Q
	110	Q		P
	75	O	70	N
	120	R	115	Q
A1TiN	90	R	85	Q
	95	Q	90	P
	75	Q	70	P
	70	Q	65	P
	60	Q	55	P
	75	O	70	N
	70	O	65	N
	60	N	55	M
	50	N	45	M

SuperT-N/SuperT-NX



single-fluted gun drill

solid carbide head

2.0 ... 40.0 mm

$\leq 35 \times D$ $> 35 \times D$

recom.
coating*

recom. coating*	v _c m/min	Feed col. no.	v _c m/min	Feed col. no.
TiN	100	N	95	M
	85	N	80	M
TiN	90	N	85	M
	80	N	75	M
TiN	90	M	85	L
	80	M	75	L
	75	M	70	L
TiN	75	M	70	L
	65	M	60	L
TiN	80	N	75	M
	75	M	70	L
TiN	65	M	60	L
	75	M	70	L
TiCN	65	M	60	L
	75	L	70	K
TiCN	65	L	60	K
	55	K	50	K
TiCN	65	L	60	L
	55	M	50	L
TiCN	45	M	40	L
	35	M	35	L
	30	L	25	K
TiCN	25	K	20	K
	35	K	30	K
	85	O	80	N
TiCN	80	O	75	N
	80	N	75	M
	70	N	65	M
	55	M	50	L
	35	K	30	K
	30	K	25	K
	150	P	140	N
	120	P	115	N
	150	Q	140	P
	130	Q	120	P
TiCN	110	P		O
	75	N	70	M
	120	Q	115	P
	90	Q	85	P
	95	P	90	O
	75	P	70	O
	70	P	65	O
	60	P	55	O
	75	N	70	M
	70	N	65	M
TiCN	60	M	55	L
	50	M	45	L

SuperT-GG



two-fluted gun drill

solid carbide head

6.0 ... 27.0 mm

$\leq 35_{\times D}$ $> 35_{\times D}$

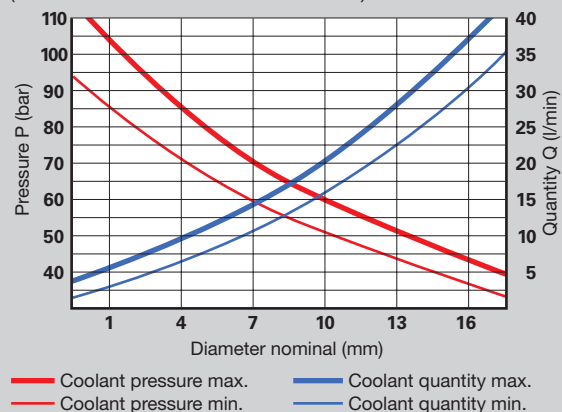
V _c m/min	Feed col. no.	V _c m/min	Feed col. no.
85	R	80	Q
80	R	75	Q
75	Q	70	P
70	Q	65	P
65	P	60	O
120	R	115	Q
110	R	105	Q
135	R	130	Q
120	Q	115	P
130	R	125	Q
120	R	115	Q
110	Q	105	P
110	Q	105	P
95	Q	90	P
95	Q	90	P

Stock Gun Drills

Coolant values recommendations

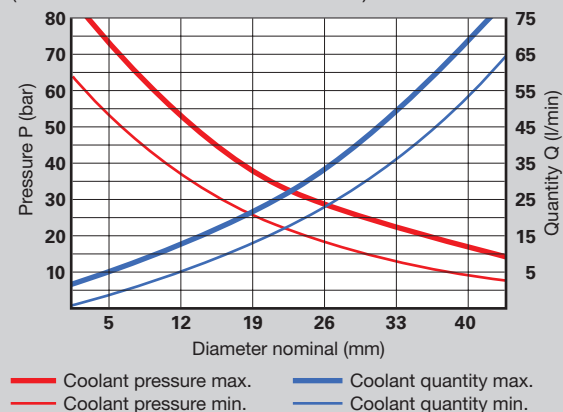
Coolant values TBE-VHM/SuperT-AL

(Recommended values for soluble oil)



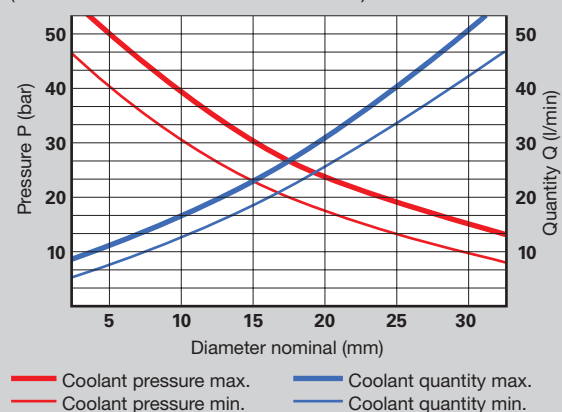
Coolant values SuperT-N/-NX

(Recommended values for soluble oil)



Coolant values SuperT-GG

(Recommended values for soluble oil)



Stock Gun Drills

Procedure

Recommendations

- For drilling depths in excess than $40 \times D$ we recommend the use of two or more gun drills, e.g. dia.10x400mm and dia.9,95x800mm.
- For machining of long-chipping materials we recommend the use of gun drills with polished flutes.
- Generally we recommend the use of soluble oil with a minimum oil content of 10%.
- When drilling in aluminium with a Si-content of less than 1% with the recommended cutting rates of i.e. $V_c 160 \text{ m/min}$ we advise to advance to the final speed in several steps.

Cutting parameters can be reduced if cooling parameters are insufficient. Pressure increase systems are also an option.

The sequence of operations

In order to achieve optimal machining results when producing deep holes with type SuperV-T especially spotting on radii or on an uneven surface structure, we recommend the following machining steps:

1. Initial milling of surface, i.e. with our SuperF-UT-N. The surface must be machined at right angles to the entry angle of the drilling operation.
2. Production of a cylindrical pilot hole (tolerance H8) with a minimum drilling depth of $3 \times D$. For this operation we recommend our SuperV drills respectively. Thanks to a 140° point angle and a m7 tolerance on diameter these drills are especially suitable for this machining task.
3. Entry of gun drill in the pilot hole at a speed of approx. 200 rev./min and with a feed rate of approx. 500 mm/min.
4. Setting of coolant pressure and speed.
5. Continuous drilling to complete hole depth without pecking.
6. For through holes with plain - i.e. 90° - exit, reduce feed rate v_f to 50 % approx. 1 mm prior to break-through.
7. For through holes with oblique exit, reduce the feed rate v_f to 40% approx. 1 mm prior to break-through.
8. When applying gun drills with increased length-diameter-ratio (e.g. TBE-Solid Carbide from flute length 160 mm), we recommend machining with reduced cutting parameters (approx. 75% of the optimal cutting speed) up to a drilling depth of approx. 25 mm.
9. After reaching hole depth stop machine spindle and coolant supply, withdrawal in top gear.

Gun drills

Gun drill, Type SuperT-AL

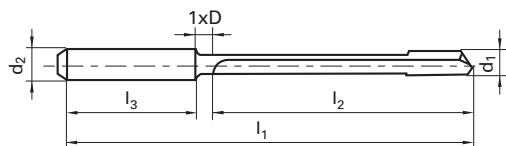
Catalog no. 55027



AlTiN nano-coated gun drills are especially suitable for the machining of aluminium as well as Al-alloys. Also suitable for some applications in steels and castings as well as for MQL

Stock std.	25xD
Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperT-AL
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h5

Gun drill, Type SuperT-AL



Catalog no.	55027
Tool material	Solid Carbide
Carbide grade	K30/K40
Discount group	123
Surface	AlTiN nano
Type	SuperT-AL
Drilling depth	25xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
1.000	3.000	60.00	30.00	28.00	●
1.500	4.000	80.00	50.00	28.00	●
1.590	4.000	80.00	50.00	28.00	●
1.980	4.000	100.00	70.00	28.00	●
2.000	4.000	100.00	70.00	28.00	●
2.380	4.000	100.00	70.00	28.00	●
2.500	4.000	115.00	85.00	28.00	●
2.780	4.000	115.00	85.00	28.00	●
3.000	6.000	145.00	105.00	36.00	●
3.170	6.000	145.00	105.00	36.00	●
3.500	6.000	145.00	105.00	36.00	●
3.970	6.000	160.00	120.00	36.00	●
4.000	6.000	160.00	120.00	36.00	●
5.000	6.000	220.00	180.00	36.00	●
5.560	6.000	220.00	180.00	36.00	●
6.000	6.000	220.00	180.00	36.00	●
6.350	8.000	260.00	210.00	36.00	●
7.000	8.000	260.00	210.00	36.00	●
7.140	8.000	285.00	240.00	36.00	●
8.000	8.000	285.00	240.00	36.00	●
9.000	10.000	350.00	300.00	40.00	●
10.000	10.000	350.00	300.00	40.00	●
11.000	12.000	420.00	360.00	45.00	●
12.000	12.000	420.00	360.00	45.00	●

Gun drills

Gun drill, Type SuperT-AL

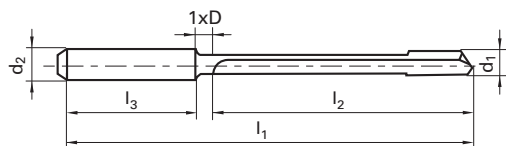
Catalog no. 55028



AlTiN nano-coated gun drills are especially suitable for the machining of aluminium as well as Al-alloys. Also suitable for some applications in steels and castings as well as for MQL

Stock std.	50xD
Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperT-AL
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned $\geq \emptyset$	
Tolerance on \emptyset	h5

Gun drill, Type SuperT-AL



Catalog no.	55028
Tool material	Solid Carbide
Carbide grade	K30/K40
Discount group	123
Surface	AlTiN nano
Type	SuperT-AL
Drilling depth	50xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
1.000	3.000	85.00	55.00	28.00	●
1.500	4.000	120.00	85.00	28.00	●
1.590	4.000	120.00	85.00	28.00	●
1.980	4.000	160.00	130.00	28.00	●
2.000	4.000	160.00	130.00	28.00	●
2.380	4.000	160.00	130.00	28.00	●
2.500	4.000	185.00	155.00	28.00	●
2.780	4.000	185.00	155.00	28.00	●
3.000	6.000	230.00	190.00	36.00	●
3.170	6.000	230.00	190.00	36.00	●
3.500	6.000	230.00	190.00	36.00	●
3.970	6.000	260.00	220.00	36.00	●
4.000	6.000	260.00	220.00	36.00	●
5.000	6.000	370.00	330.00	36.00	●
5.560	6.000	370.00	330.00	36.00	●
6.000	6.000	370.00	330.00	36.00	●
6.350	8.000	430.00	385.00	36.00	●
7.000	8.000	430.00	385.00	36.00	●
7.140	8.000	485.00	440.00	36.00	●
8.000	8.000	485.00	440.00	36.00	●

Gun drills

Gun drill, Type SuperT-AL

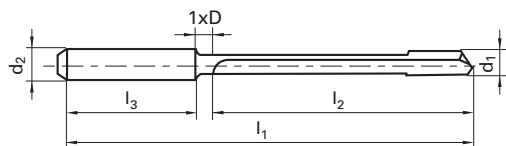
Catalog no. 55029



AlTiN nano-coated gun drills are especially suitable for the machining of aluminium as well as Al-alloys. Also suitable for some applications in steels and castings as well as for MQL

Stock std.	75xD
Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperT-AL
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5

Gun drill, Type SuperT-AL



Catalog no.	55029
Tool material	Solid Carbide
Carbide grade	K30/K40
Discount group	123
Surface	AlTiN nano
Type	SuperT-AL
Drilling depth	75xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
1.000	3.000	110.00	80.00	28.00	●
1.500	4.000	155.00	125.00	28.00	●
1.590	4.000	155.00	125.00	28.00	●
1.980	4.000	220.00	190.00	28.00	●
2.000	4.000	220.00	190.00	28.00	●
2.380	4.000	220.00	190.00	28.00	●
2.500	4.000	255.00	220.00	28.00	●
2.780	4.000	255.00	220.00	28.00	●
3.000	6.000	320.00	280.00	36.00	●
3.170	6.000	320.00	280.00	36.00	●
3.500	6.000	320.00	280.00	36.00	●
3.970	6.000	360.00	320.00	36.00	●
4.000	6.000	360.00	320.00	36.00	●
5.000	6.000	525.00	485.00	36.00	●
5.560	6.000	525.00	485.00	36.00	●
6.000	6.000	525.00	485.00	36.00	●

Gun drills

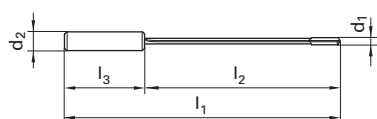
Gun drill, Type SuperT-N

Catalog no. 75018



This TiN-coated, single fluted gun drill is especially suitable for machining long-chipping steels upto 1000 N/mm². With chipbreaker for better chip removal.

Stock std.	20xD
Tool material	Carbide
Surface	TiN
Type	SuperT-N
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75018
Tool material	Carbide
Carbide grade	K15
Discount group	123
Surface	TiN
Type	SuperT-N
Drilling depth	20xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
4.000	12.000	150.00	100.00	45.00	●
4.200	12.000	160.00	110.00	45.00	●
4.500	12.000	170.00	120.00	45.00	●
5.000	16.000	180.00	130.00	48.00	●
5.500	16.000	190.00	140.00	48.00	●
6.000	16.000	210.00	160.00	48.00	●
6.500	16.000	220.00	170.00	48.00	●
7.000	16.000	235.00	185.00	48.00	●
8.000	16.000	260.00	210.00	48.00	●
9.000	16.000	280.00	230.00	48.00	●
10.000	20.000	320.00	260.00	50.00	●
12.000	20.000	370.00	310.00	50.00	●

Gun drills

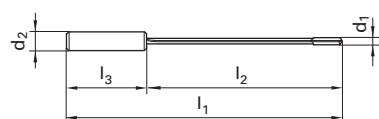
Gun drill, Type SuperT-N

Catalog no. 75017

This TiN-coated, single fluted gun drill is especially suitable for machining long-chipping steels upto 1000 N/mm². With chipbreaker for better chip removal.



Stock std.	30xD
Tool material	Carbide
Surface	TiN
Type	SuperT-N
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75017
Tool material	Carbide
Carbide grade	K15
Discount group	123
Surface	TiN
Type	SuperT-N
Drilling depth	30xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
4.000	12.000	200.00	155.00	45.00	●
4.200	12.000	210.00	165.00	45.00	●
4.500	12.000	220.00	175.00	45.00	●
5.000	16.000	230.00	182.00	48.00	●
5.500	16.000	245.00	197.00	48.00	●
6.000	16.000	260.00	212.00	48.00	●
6.500	16.000	275.00	227.00	48.00	●
7.000	16.000	290.00	242.00	48.00	●
8.000	16.000	320.00	272.00	48.00	●
9.000	16.000	350.00	302.00	48.00	●
10.000	20.000	400.00	350.00	50.00	●
12.000	20.000	450.00	400.00	50.00	●

Gun drills

Gun drill, Type SuperT-N

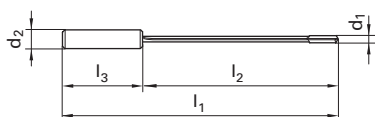
Catalog no. 75022



This TiN-coated, single fluted gun drill is especially suitable for machining long-chipping steels upto 1000 N/mm². With chipbreaker for better chip removal.

Stock std. 40xD

Tool material	Carbide
Surface	TiN
Type	SuperT-N
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75022
Tool material	Carbide
Carbide grade	K15
Discount group	123
Surface	TiN
Type	SuperT-N
Drilling depth	40xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
4.000	12.000	230.00	185.00	45.00	●
4.200	12.000	240.00	195.00	45.00	●
4.500	12.000	250.00	205.00	45.00	●
5.000	16.000	280.00	232.00	48.00	●
5.500	16.000	300.00	252.00	48.00	●
6.000	16.000	320.00	272.00	48.00	●
6.500	16.000	340.00	292.00	48.00	●
7.000	16.000	370.00	322.00	48.00	●
8.000	16.000	420.00	372.00	48.00	●
9.000	16.000	450.00	402.00	48.00	●
10.000	20.000	510.00	460.00	50.00	●
12.000	20.000	600.00	550.00	50.00	●

Gun drills

Gun drill, Type SuperT-N

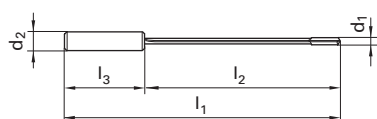
Catalog no. 75023



This TiN-coated, single fluted gun drill is especially suitable for machining long-chipping steels upto 1000 N/mm². With chipbreaker for better chip removal.

Stock std. 80xD

Tool material	Carbide
Surface	TiN
Type	SuperT-N
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75023
Tool material	Carbide
Carbide grade	K15
Discount group	123
Surface	TiN
Type	SuperT-N
Drilling depth	80xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
4.950	16.000	480.00	432.00	48.00	●
5.950	16.000	560.00	512.00	48.00	●
7.950	16.000	740.00	692.00	48.00	●
9.950	20.000	910.00	860.00	50.00	●
11.950	20.000	1080.00	1030.00	50.00	●

Gun drills

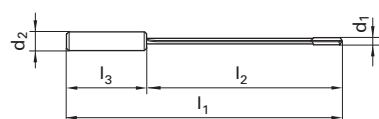
Gun drill, Type SuperT-NX

Catalog no. 55018



TiCN-coated gun drills with single flute are especially suitable for machining (high) alloyed as well as acid- / heat-resistant steels upto a tensile strength of 1400 N/mm² or 50 HRC

Stock std.	20xD
Tool material	Carbide
Surface	TiCN
Type	SuperT-NX
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	55018
Tool material	Carbide
Carbide grade	K30/K40
Discount group	123
Surface	TiCN
Type	SuperT-NX
Drilling depth	20xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
3.970	10.000	150.00	100.00	40.00	●
4.000	12.000	150.00	100.00	45.00	●
5.000	16.000	180.00	130.00	48.00	●
5.156	16.000	180.00	130.00	48.00	●
6.000	16.000	210.00	160.00	48.00	●
6.350	16.000	220.00	170.00	48.00	●
7.000	16.000	235.00	185.00	48.00	●
7.938	16.000	260.00	210.00	48.00	●
8.000	16.000	260.00	210.00	48.00	●
9.000	16.000	280.00	230.00	48.00	●
9.525	16.000	290.00	240.00	48.00	●
10.000	20.000	320.00	260.00	50.00	●
11.000	20.000	340.00	290.00	50.00	●
11.113	20.000	340.00	290.00	50.00	●
12.000	20.000	370.00	310.00	50.00	●
12.700	20.000	385.00	330.00	50.00	●

Gun drills

Gun drill, Type SuperT-NX

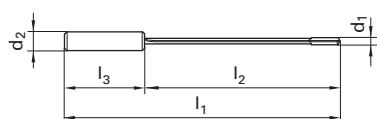
Catalog no. 55017



TiCN-coated gun drills with single flute are especially suitable for machining (high) alloyed as well as acid- / heat-resistant steels upto a tensile strength of 1400 N/mm² or 50 HRC

Stock std. 30xD

Tool material	Carbide
Surface	TiCN
Type	SuperT-NX
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	55017
Tool material	Carbide
Carbide grade	K30/K40
Discount group	123
Surface	TiCN
Type	SuperT-NX
Drilling depth	30xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
3.970	10.000	200.00	155.00	40.00	●
4.000	12.000	200.00	155.00	45.00	●
5.000	16.000	230.00	182.00	48.00	●
5.156	16.000	230.00	182.00	48.00	●
6.000	16.000	260.00	212.00	48.00	●
6.350	16.000	275.00	227.00	48.00	●
7.000	16.000	290.00	242.00	48.00	●
7.938	16.000	320.00	272.00	48.00	●
8.000	16.000	320.00	272.00	48.00	●
9.000	16.000	350.00	302.00	48.00	●
9.525	16.000	380.00	330.00	48.00	●
10.000	20.000	400.00	350.00	50.00	●
11.000	20.000	430.00	380.00	50.00	●
11.113	20.000	430.00	380.00	50.00	●
12.000	20.000	450.00	400.00	50.00	●
12.700	20.000	500.00	450.00	50.00	●

Gun drills

Gun drill, Type SuperT-NX

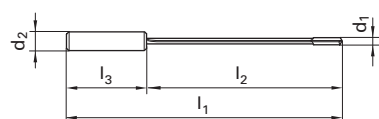
Catalog no. 55022



TiCN-coated gun drills with single flute are especially suitable for machining (high) alloyed as well as acid- / heat-resistant steels upto a tensile strength of 1400 N/mm² or 50 HRC

Stock std. 40xD

Tool material	Carbide
Surface	TiCN
Type	SuperT-NX
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	55022
Tool material	Carbide
Carbide grade	K30/K40
Discount group	123
Surface	TiCN
Type	SuperT-NX
Drilling depth	40xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
3.970	10.000	230.00	185.00	40.00	●
4.000	12.000	230.00	185.00	45.00	●
5.000	16.000	280.00	232.00	48.00	●
5.156	16.000	280.00	232.00	48.00	●
6.000	16.000	320.00	272.00	48.00	●
6.350	16.000	340.00	292.00	48.00	●
7.000	16.000	370.00	322.00	48.00	●
7.938	16.000	420.00	372.00	48.00	●
8.000	16.000	420.00	372.00	48.00	●
9.000	16.000	450.00	402.00	48.00	●
9.525	16.000	480.00	432.00	48.00	●
10.000	20.000	510.00	460.00	50.00	●
11.000	20.000	550.00	500.00	50.00	●
11.113	20.000	550.00	500.00	50.00	●
12.000	20.000	600.00	550.00	50.00	●
12.700	20.000	635.00	585.00	50.00	●

Gun drills

Gun drill, Type SuperT-NX

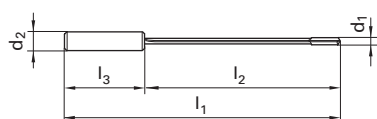
Catalog no. 55023



TiCN-coated gun drills with single flute are especially suitable for machining (high) alloyed as well as acid- / heat-resistant steels upto a tensile strength of 1400 N/mm² or 50 HRC

Stock std. 80xD

Tool material	Carbide
Surface	TiCN
Type	SuperT-NX
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	55023
Tool material	Carbide
Carbide grade	K30/K40
Discount group	123
Surface	TiCN
Type	SuperT-NX
Drilling depth	80xD

d1	d2	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	
4.950	16.000	480.00	432.00	48.00	●
5.106	16.000	480.00	432.00	48.00	●
5.950	16.000	560.00	512.00	48.00	●
6.300	16.000	590.00	542.00	48.00	●
6.950	16.000	650.00	602.00	48.00	●
7.888	16.000	740.00	692.00	48.00	●
7.950	16.000	740.00	692.00	48.00	●
8.950	16.000	820.00	772.00	48.00	●
9.475	16.000	870.00	822.00	48.00	●
9.950	20.000	910.00	860.00	50.00	●
10.950	20.000	995.00	945.00	50.00	●
11.063	20.000	995.00	945.00	50.00	●
11.950	20.000	1080.00	1030.00	50.00	●
12.650	20.000	1140.00	1090.00	50.00	●

Gun drills

Gun drills TBE-VHM

Catalog no. 75024



These gun drills are suitable for nearly all materials upto 1200 N/mm². Also for Ti, Ti-alloys and Ni-based alloys

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5

Gun drills TBE-VHM

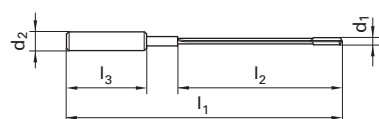
Catalog no. 55024



AlTiN-coated STC gun drills are especially suitable for drilling alloyed and high-alloyed steels upto a tensile strength of 1200 N/mm² or upto max. 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN+
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75024	55024
Tool material	Solid Carbide	
Carbide grade	K30/K40	K30/K40
Discount group	123	123
Surface	bright	AlTiN+
Type	TBE-VHM	TBE-VHM
Flute length (mm)	45.00	45.00

d1	d2	l1	l2	l3	price per piece	
mm	mm	mm	mm	mm		
1.200	4.000	90.00	45.00	28.00	●	
1.500	4.000	90.00	45.00	28.00	●	
1.600	4.000	90.00	45.00	28.00	●	
2.000	4.000	90.00	45.00	28.00	●	●
2.500	10.000	100.00	45.00	40.00	●	●
2.700	10.000	100.00	45.00	40.00	●	●
3.000	10.000	100.00	45.00	40.00	●	●
3.200	10.000	100.00	45.00	40.00	●	●

Gun drills

Gun drills TBE-VHM

Catalog no. 75020



These gun drills are suitable for nearly all materials upto 1200 N/mm². Also for Ti, Ti-alloys and Ni-based alloys

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5

Gun drills TBE-VHM

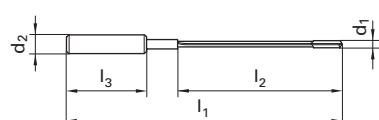
Catalog no. 55020



AlTiN-coated STC gun drills are especially suitable for drilling alloyed and high-alloyed steels upto a tensile strength of 1200 N/mm² or upto max. 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN+
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75020	55020
Tool material	Solid Carbide	
Carbide grade	K30/K40	K30/K40
Discount group	123	123
Surface	bright	AlTiN+
Type	TBE-VHM	TBE-VHM
Flute length (mm)	80.00	80.00

d1	d2	l1	l2	l3	price per piece	
mm	mm	mm	mm	mm		
1.200	4.000	125.00	80.00	28.00	●	
1.500	4.000	125.00	80.00	28.00	●	
1.600	4.000	125.00	80.00	28.00	●	
2.000	4.000	125.00	80.00	28.00	●	●
2.500	10.000	135.00	80.00	40.00	●	●
2.700	10.000	135.00	80.00	40.00	●	●
3.000	10.000	135.00	80.00	40.00	●	●
3.200	10.000	135.00	80.00	40.00	●	●
3.500	10.000	135.00	80.00	40.00	●	●
4.000	10.000	135.00	80.00	40.00	●	●
4.200	10.000	135.00	80.00	40.00	●	●
4.500	10.000	135.00	80.00	40.00	●	●
5.000	10.000	135.00	80.00	40.00	●	●

Gun drills

Gun drills TBE-VHM

Catalog no. 75026



These gun drills are suitable for nearly all materials upto 1200 N/mm². Also for Ti, Ti-alloys and Ni-based alloys

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5

Gun drills TBE-VHM

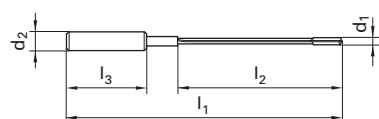
Catalog no. 55026



AlTiN-coated STC gun drills are especially suitable for drilling alloyed and high-alloyed steels upto a tensile strength of 1200 N/mm² or upto max. 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN+
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75026	55026
Tool material	Solid Carbide	
Carbide grade	K30/K40	K30/K40
Discount group	123	123
Surface	bright	AlTiN+
Type	TBE-VHM	TBE-VHM
Flute length (mm)	120.00	120.00

d1	d2	l1	l2	l3	price per piece	
mm	mm	mm	mm	mm		
1.500	4.000	165.00	120.00	28.00	●	
1.600	4.000	165.00	120.00	28.00	●	
2.000	4.000	165.00	120.00	28.00	●	●
2.500	10.000	175.00	120.00	40.00	●	●
2.700	10.000	175.00	120.00	40.00	●	●
3.000	10.000	175.00	120.00	40.00	●	●
3.200	10.000	175.00	120.00	40.00	●	●
3.500	10.000	175.00	120.00	40.00	●	●
4.000	10.000	175.00	120.00	40.00	●	●
4.200	10.000	175.00	120.00	40.00	●	●
4.500	10.000	175.00	120.00	40.00	●	●
5.000	10.000	175.00	120.00	40.00	●	●

Gun drills

Gun drills TBE-VHM

Catalog no. 75021



These gun drills are suitable for nearly all materials upto 1200 N/mm². Also for Ti, Ti-alloys and Ni-based alloys

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5

Gun drills TBE-VHM

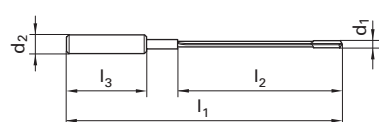
Catalog no. 55021



AlTiN-coated STC gun drills are especially suitable for drilling alloyed and high-alloyed steels upto a tensile strength of 1200 N/mm² or upto max. 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN+
Type	TBE-VHM
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75021	55021
Tool material	Solid Carbide	
Carbide grade	K30/K40	K30/K40
Discount group	123	123
Surface	bright	AlTiN+
Type	TBE-VHM	TBE-VHM
Flute length (mm)	160.00	160.00

d1	d2	l1	l2	l3	price per piece	
mm	mm	mm	mm	mm		
1.500	4.000	205.00	160.00	28.00	●	
1.600	4.000	205.00	160.00	28.00	●	
2.000	4.000	205.00	160.00	28.00	●	
2.500	10.000	215.00	160.00	40.00	●	●
2.700	10.000	215.00	160.00	40.00	●	●
3.000	10.000	215.00	160.00	40.00	●	●
3.200	10.000	215.00	160.00	40.00	●	●
3.500	10.000	215.00	160.00	40.00	●	●
4.000	10.000	215.00	160.00	40.00	●	●
4.200	10.000	215.00	160.00	40.00	●	●
4.500	10.000	215.00	160.00	40.00	●	●
5.000	10.000	215.00	160.00	40.00	●	●
6.000	16.000	225.00	160.00	48.00	●	●
8.000	16.000	225.00	160.00	48.00	●	●

Gun drills with 2 cutting lips

Two-fluted gun drill, Type SuperT-GG

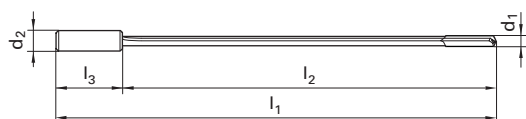
Catalog no. 75030



Two-fluted gun drill for machining cast iron (GG), spheroidal graphite iron and malleable cast iron (GGG), cast iron with vermicular graphite (GJV) upto a hardness of 44 HRC. Also for non-ferrous metals. For drilling depths upto 10xD we recommend our Type SuperV-GG.

Stock std. 30xD

Tool material	Carbide
Surface	bright
Type	SuperT-GG
Cutting direction	right-hand
Point grinding	
Point angle °	
Web thinned ≥Ø	
Tolerance on Ø	h5



Catalog no.	75030
Tool material	Carbide
Carbide grade	K15
Discount group	123
Surface	bright
Type	SuperT-GG
Drilling depth	30xD

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	price per piece
8.000	16.000	330.00	280.00	48.00	●
10.000	20.000	390.00	340.00	50.00	●
12.000	20.000	450.00	400.00	50.00	●

THREADING TOOLS



Our Threading Tool Range

STOCK threading tools are together with STOCK drills and milling cutters the most important types of tools in our range of precision cutting tools. The variety of design, together with different thread forms, manufactured in diverse tolerances according to DIN standard or special made, offers a large choice for solving threading problems.

The quality of the drilled hole in respect of correct size, roundness, straightness and surface roughness has an eminent influence on the produced thread. To be on the safe

side, it is recommended to use STOCK drills for better results. Request the STOCK catalogue or ask us for our recommendation for the most suitable tool.



STOCK-

Threading Tools

Machine Taps
Thread Forming Taps
Hand Taps
Circular Dies
Thread Milling Cutters

STOCK-

Cutting Material

HSS
HSS-E
HSS-E-PM
Solid Carbide

STOCK-

Thread Standards

Metric, Metric Fine
UNC, UNF
BSW, G
PG, NPT

STOCK-

Standard Types

PRODUKTIV

Type N, W, H, HD, HDX, HX and Synchro
Machine taps with straight flutes and spiral point for machine tapping of through holes

INTENSIV

Type N, W, H, HD, HDX, HX, HCX and Synchro
Machine taps with spiral flutes 10°, 15°, 25°, 40°, 45° and 50° for blind holes

MASSIV

Type N
Spiral point taps for machine tapping of through holes in sheet metal, punched or drilled

DURATIV

Typ N
Cold forming taps, with and without lubrication flutes







STOCK-

Solutions

We manufacture special threading tools, like taps, cold forming taps or thread milling cutters, with or without coolant through supply, also for dry machining, minimal lubrication and for threads into hardened material. For best results the tools are bright finish, steam tempered, nitrided or coated with e.g. TiN, TiCN, TiAlN or/and MoS₂ for better lubrication.

STOCK-














Coloured band indication

-  General steels up to 800 N/mm²
-  High tens. mat. up to 800...1200 N/mm²
-  Stainless and acid-resisting steel
-  Universal applications
-  Aluminium and Al-alloys
-  Cast materials

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	Produktiv Synchro	B	ISO2/6H	HSS-E-PM	TiCN	DIN 371	M 2 - M10	53053	103	436
	Produktiv Synchro	B	ISO2/6H	HSS-E-PM	TiCN	DIN 376	M12 - M20	53054	103	437
	Intensiv Synchro	C	6HX	HSS-E-PM	TiCN	DIN 371	M 5 - M10	53050	103	438
	Intensiv Synchro	C	6HX	HSS-E-PM	TiCN	DIN 376	M12 - M20	53051	103	439
	Produktiv N	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 371	M 3 - M10	73033	103	440
	Produktiv N	B	ISO 2 / 6H	HSS-E	TiN	DIN 371	M 3 - M10	63033	103	440
	Produktiv N	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 376	M12 - M16	73038	103	441
	Intensiv N	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 371	M 3 - M10	73046	103	442
	Intensiv N	C	ISO 2 / 6H	HSS-E	TiN	DIN 371	M 3 - M10	63046	103	442
	Intensiv N	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 376	M12 - M20	73048	103	443
	Intensiv N	C	ISO 2 / 6H	HSS-E	TiN	DIN 376	M12 - M20	63048	103	443
	Intensiv N	E	ISO 2 / 6H	HSS-E	bright	DIN 371	M 4 - M10	73047	103	444
	Massiv N	B	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2,3 - M10	73126	103	445

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	N	C	ISO 2 / 6H	HSS-E	bright	DIN 371	M 1 - M10	73185	103	446
	N	C	ISO 2 / 6H	HSS-E	bright	DIN 376	M 6 - M18	73191	103	447
	Produktiv N	B	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2 - M10	73133	103	448
	Produktiv N	B	ISO 2 / 6H	HSS-E	TiN	DIN 371	M 3 - M10	63133	103	448
	Produktiv N	B	ISO 3 / 6G	HSS-E	bright	DIN 371	M 2,5 - M10	73132	103	449
	Produktiv N	B	ISO 2 / 6H	HSS-E	bright	DIN 376	M 2 - M24	73138	103	450
	Produktiv N	B	ISO 2 / 6H	HSS-E	TiN	DIN 376	M12 - M20	63138	103	450
	Intensiv N	C	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2 - M10	73221	103	451
	Intensiv N	C	ISO 2 / 6H	HSS-E	bright	DIN 376	M 3 - M18	73227	103	452
	Intensiv N	C	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2 - M10	73146	103	453
	Intensiv N	C	ISO 2 / 6H	HSS-E	TiN	DIN 371	M 3 - M10	63146	103	453
	Intensiv N	C	ISO 3 / 6G	HSS-E	bright	DIN 371	M 3 - M10	73145	103	454
	Intensiv N	C	ISO 2 / 6H	HSS-E	bright	DIN 376	M 3 - M30	73148	103	455

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	Intensiv N	C	ISO 2 / 6H	HSS-E	TiN	DIN 376	M12 - M20	63148	103	455
	Produktiv H	B	ISO 2 / 6H	HSS-E	nitrided	DIN 371	M 2 - M10	73642	103	456
	Produktiv H	B	ISO 2 / 6H	HSS-E	TiCN	DIN 371	M 2 - M10	53642	103	456
	Produktiv H	B	ISO 2 / 6H	HSS-E	nitrided	DIN 376	M12 - M20	73645	103	457
	Produktiv H	B	ISO 2 / 6H	HSS-E-PM	bright	DIN 371	M 3 - M10	73640	103	458
	Produktiv H	B	ISO2/6H	HSS-E-PM	TiN	DIN 371	M 3 - M10	63641	103	458
	Produktiv H	B	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 371	M 3 - M10	53640	103	459
	Produktiv H	B	ISO 2 / 6H	HSS-E-PM	TiN	DIN 376	M12 - M20	63643	103	460
	Intensiv H	C	ISO 2 / 6H	HSS-E	bright	DIN 371	M 3 - M10	73661	103	461
	Intensiv H	C	ISO 2 / 6H	HSS-E	TiCN	DIN 371	M 2 - M10	53661	103	461
	Intensiv H	C	ISO 2 / 6H	HSS-E	bright	DIN 376	M12 - M20	73664	103	462
	Intensiv H	C	ISO 2 / 6H	HSS-E-PM	bright	DIN 371	M 3 - M10	73619	103	463
	H R15	C	ISO 2 / 6H	HSS-E-PM	bright	DIN 376	M12 - M20	73666	103	464

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	H	D	ISO 2 / 6H	Solid Carbide	TiCN	~ DIN 371	M 3 - M12	63010	103	465
	Produktiv HX	B	6HX	HSS-E-PM	AlTiN	DIN 371/376	M 3 - M12	53669	103	466
	Intensiv HX	C	6HX	HSS-E-PM	AlTiN	DIN 371/376	M 3 - M16	53668	103	466
	HCX	C	6HX	HSS-E-PM	TiCN	DIN 371	M 5 - M10	53670	103	467
	Produktiv HD	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 371	M 3 - M10	73176	103	468
	Produktiv HD	B	ISO 2 / 6H	HSS-E	TiN	DIN 371	M 3 - M10	63176	103	468
	Produktiv HD	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 376	M12 - M20	73177	103	469
	Produktiv HD	B	ISO 2 / 6H	HSS-E	TiN	DIN 376	M12 - M16	63177	103	469
	Produktiv HD	B	ISO 2 / 6H	HSS-E-PM	bright	DIN 371	M 3 - M10	73641	103	470
	Produktiv HD	B	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 371	M 3 - M10	53641	103	470
	Produktiv HD	B	ISO 2 / 6H	HSS-E-PM	bright	DIN 376	M12 - M22	73643	103	471
	Produktiv HD	B	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 376	M12 - M16	53643	103	471
	Intensiv HD	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 371	M 3 - M10	73660	103	472

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	Intensiv HD	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 376	M12 - M20	73659	103	473
	Intensiv HD	C	ISO 2 / 6H	HSS-E-PM	bright	DIN 371	M 3 - M10	73662	103	474
	Intensiv HD	C	ISO 2 / 6H	HSS-E-PM	TiN	DIN 371	M 3 - M10	63662	103	474
	Intensiv HD	C	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 371	M 3 - M10	53662	103	475
	Intensiv HD	C	ISO 2 / 6H	HSS-E-PM	bright	DIN 376	M12 - M24	73665	103	476
	Intensiv HD	C	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 376	M12 - M16	53665	103	476
	Produktiv HDX	B	6HX	HSS-E-PM	TiCN	DIN 371/376	M 3 - M16	53667	103	477
	Intensiv HDX	C	6HX	HSS-E-PM	TiCN	DIN 371/376	M 3 - M16	53666	103	477
	Produktiv W	B	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2 - M10	73131	103	478
	Produktiv W	B	ISO 2 / 6H	HSS-E	bright	DIN 376	M12 - M20	73189	103	479
	Intensiv W	C	ISO 2 / 6H	HSS-E	bright	DIN 371	M 2 - M10	73156	103	480
	Intensiv W	C	ISO 2 / 6H	HSS-E	bright	DIN 376	M12 - M 20	73136	103	481
	H	C	6HX	Solid Carbide	bright	DIN 371	M 3 - M10	73011	103	482

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric threads

	G	C	6HX	HSS-E	nitrided	DIN 371	M 3 - M10	73201	103	483
	G	C	6HX	HSS-E	AlTiN	DIN 371	M 3 - M10	63201	103	483
	G	C	6HX	HSS-E	nitrided	DIN 376	M12 - M22	73211	103	484





Machine taps for ISO metric fine threads

	Intensiv Synchro	B	ISO 2 / 6H	HSS-E-PM	TiCN	DIN 374	M 8 X1 - M16 X1,5	53055	103	485
	Intensiv Synchro	C	6HX	HSS-E-PM	TiCN	DIN 374	M 8 X1 - M20 X1,5	53052	103	486
	Produktiv N	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 374	M 6 X0,75 - M20 X1,5	73183	103	487
	Produktiv N	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 374	M 6 X0,75 - M20 X1,5	73187	103	488
	N	C	ISO 2 / 6H	HSS-E	bright	DIN 374	M 8 X0,75 - M24 X1,5	73237	103	489
	Produktiv N	B	ISO 2 / 6H	HSS-E	bright	DIN 374	M 4 X0,5 - M24 X2	73250	103	491
	Produktiv N	B	ISO 2 / 6H	HSS-E	TiN	DIN 374	M 8 X1 - M20 X1,5	63250	103	491
	Intensiv N	C	ISO 2 / 6H	HSS-E	bright	DIN 374	M 3 X0,35 - M20 X1,5	73173	103	493
	Intensiv N	C	ISO 2 / 6H	HSS-E	TiN	DIN 374	M 8 X1 - M20 X1,5	63173	103	493









Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for ISO metric fine threads

	Produktiv H	B	ISO 2 / 6H	HSS-E	nitrided	DIN 374	M 3 X0,35 - M22 X1,5	73646	103	495
	Produktiv HD	B	ISO 2 / 6H	HSS-E	steam tempered	DIN 374	M 5 X0,5 - M20 X1,5	73178	103	496
	Intensiv HD	C	ISO 2 / 6H	HSS-E	steam tempered	DIN 374	M 8 X1 - M20 X1,5	73180	103	497
	G	C	6HX	HSS-E	nitrided	DIN 374	M 8 X1 - M20 X1,5	73194	103	498



Machine taps for UNC-threads

	Produktiv N	B	2B	HSS-E	steam tempered	~ DIN 371	NR. 4 -40 - 3/8 -16	73308	103	499
	Produktiv N	B	2B	HSS-E	steam tempered	~ DIN 376	1/2 -13 - 3/4 -10	73309	103	500
	Intensiv N	C	2B	HSS-E	steam tempered	~ DIN 371	NR. 4 -40 - 3/8 -16	73322	103	501
	Intensiv N	C	2B	HSS-E	steam tempered	~ DIN 376	1/2 -13 - 3/4 -10	73323	103	502
	Produktiv HD	B	2B	HSS-E	steam tempered	~ DIN 371	NR. 4 -40 - 3/8 -16	73297	103	503
	Produktiv HD	B	2B	HSS-E	steam tempered	~ DIN 376	1/2 -13 - 1 - 8	73298	103	504
	Intensiv HD	C	2B	HSS-E	steam tempered	~ DIN 371	NR. 4 -40 - 3/8 -16	73304	103	505
	Intensiv HD	C	2B	HSS-E	steam tempered	~ DIN 376	1/2 -13 - 3/4 -10	73305	103	506





Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for UNC-threads

	G	C	2B	HSS-E	nitrided	~ DIN 371	NR. 8 - 32 - 3/8 - 16	73326	103	507
	G	C	2B	HSS-E	nitrided	~ DIN 376	1/2 - 13 - 1 - 8	73327	103	508




Machine taps for UNF-threads

	Produktiv N	B	2B	HSS-E	steam tempered	~ DIN 374	NR.10 - 32 - 5/8 - 18	73310	103	509
	Intensiv N	C	2B	HSS-E	steam tempered	~ DIN 374	NR.10 - 32 - 5/8 - 18	73324	103	510
	Produktiv HD	B	2B	HSS-E	steam tempered	~ DIN 374	NR.10 - 32 - 5/8 - 18	73299	103	511
	Intensiv HD	C	2B	HSS-E	steam tempered	~ DIN 374	NR.10 - 32 - 3/4 - 16	73306	103	512

Machine taps for NPT-threads

	CVA	C		HSS-E	steam tempered	Stock std.	1/8 - 3/4	73293	103	513
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Machine taps for BSP-threads

	Produktiv N	B		HSS-E	steam tempered	DIN 5156	G 1/8 - G1	73321	103	514
	Intensiv N	C		HSS-E	steam tempered	DIN 5156	G 1/8 - G1	73325	103	515
	Intensiv N	C		HSS-E	bright	DIN 5156	G 1/8 - G1 1/2	73286	103	516

Machine taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Machine taps for BSP-threads



Produktiv HD	B		HSS-E	steam tempered	DIN 5156	G 1/8 - G1	73300	103	517
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Intensiv HD	C		HSS-E	steam tempered	DIN 5156	G 1/8 - G1	73288	103	518
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G	C		HSS-E	nitrided	DIN 5156	G 1/8 - G1	73345	103	519
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Machine taps for PG-threads for electr. conduits



Produktiv N	B		HSS-E	bright	DIN 40432	PG 7 - PG 16	73296	103	520
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Fluteless taps with oil grooves

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Fluteless machine taps for ISO metric threads

	Durativ	C	6HX	HSS-E	bright	~ DIN 371	M 3 - M10	73120	103	521
	Durativ	C	6HX	HSS-E	TiN	~ DIN 371	M 3 - M10	63120	103	521
	Durativ	C	6GX	HSS-E	TiN	~ DIN 371	M 3 - M10	63119	103	522
	Durativ	C	6HX	HSS-E	TiN	~ DIN 376	M12 - M16	63122	103	523
	Durativ	C	6HX	HSS-E-PM	AlCrN	~ DIN 371	M 3 - M10	53620	103	524
	Durativ	C	6GX	HSS-E-PM	AlCrN	~ DIN 371	M 3 - M10	53621	103	525
	Durativ	C	6HX	HSS-E-PM	AlCrN	~ DIN 376	M12 - M20	53622	103	526



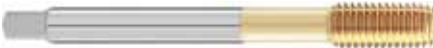
Oil feed fluteless taps f. ISO metric threads

	Durativ	C	6HX	Solid Carbide	AlTiN	~ DIN 371	M 3 - M10	63013	103	527
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Fluteless taps without oil grooves

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Fluteless machine taps for ISO metric threads

									
Durativ	C	6HX	HSS-E	bright	DIN 371	M 2 - M10	73121	103	528
									
Durativ	C	6HX	HSS-E	TiN	DIN 371	M 2 - M10	63121	103	528
									
Durativ	C	6HX	HSS-E	TiN	~ DIN 376	M12 - M20	63123	103	529

Thread milling cutters with chamfer

Type	Thread depth		Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Thread milling cutters for metric ISO threads



TMC SP	2xD	Solid Carbide	bright	Stock std.	M 3 - M20	73810	108	530
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TMC SP	2xD	Solid Carbide	TiCN	Stock std.	M 3 - M20	53810	108	530
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Thread milling cutters for metric ISO fine threads



TMC SP	2xD	Solid Carbide	bright	Stock std.	M 4 X0,5 - M16 X1,5	73820	108	531
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TMC SP	2xD	Solid Carbide	TiCN	Stock std.	M 4 X0,5 - M16 X1,5	53820	108	531
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Thread milling cutters without chamfer

Type	Thread depth		Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Thread milling cutters for metric ISO threads

									
TM SP	2xD		Solid Carbide	bright	Stock std.	M 6 - M20 X1,5	73830	108	532
									
TM SP	2xD		Solid Carbide	TiCN	Stock std.	M 6 - M20 X1,5	53830	108	532

Hand taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Hand taps for ISO metric threads

N	A/D/C	ISO 2 / 6H	HSS	bright	DIN 352	M 1 - M24	73531	118	533
									
N	A	ISO 2 / 6H	HSS	bright	DIN 352	M 1 - M24	73101	118	533
									
N	D	ISO 2 / 6H	HSS	bright	DIN 352	M 1 - M24	73102	118	533
									
N	C	ISO 2 / 6H	HSS	bright	DIN 352	M 1 - M24	73103	118	534
									
N-LH	A/D/C	ISO 2 / 6H	HSS	bright	DIN 352	M 4 - M18	73532	118	536
									
N-LH	A	ISO 2 / 6H	HSS	bright	DIN 352	M 4 - M18	73105	118	536
									
N-LH	D	ISO 2 / 6H	HSS	bright	DIN 352	M 4 - M18	73106	118	536
									
N-LH	C	ISO 2 / 6H	HSS	bright	DIN 352	M 4 - M18	73107	118	537
									




Hand taps for ISO metric fine threads

N	D/C	ISO 2 / 6H	HSS	bright	DIN 2181	M 5 X0,5 - M20 X1,5	73521	118	539
									
N	D	ISO 2 / 6H	HSS	bright	DIN 2181	M 4 X0,35 - M20 X1,5	73110	118	539
									
N	C	ISO 2 / 6H	HSS	bright	DIN 2181	M 4 X0,35 - M20 X2	73111	118	539
									



Hand taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
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Hand taps for UNC-threads

N	A/D/C	2B	HSS	bright	~ DIN 352	NR. 4 -40 - 3/4 -10	73535	118	541
									
N	A	2B	HSS	bright	~ DIN 352	NR. 4 -40 - 3/4 -10	73301	118	541
									
N	D	2B	HSS	bright	~ DIN 352	NR. 6 -32 - 3/4 -10	73302	118	541
									
N	C	2B	HSS	bright	~ DIN 352	NR. 6 -32 - 3/4 -10	73303	118	542

Hand taps for UNF-threads

N	D/C	2B	HSS	bright	~ DIN 2181	3/8 -24 - 1 -12	73523	118	544
									
N	D	2B	HSS	bright	~ DIN 2181	5/16-24 - 1 -12	73319	118	544
									
N	C	2B	HSS	bright	~ DIN 2181	5/16-24 - 1 -12	73320	118	544



Hand taps for BSW-threads

N	A/D/C		HSS	bright	~ DIN 352	W 1/8 - W 3/4	73534	118	546
									
N	A		HSS	bright	~ DIN 352	W 1/8 - W1 3/4	73311	118	546
									
N	D		HSS	bright	~ DIN 352	W 1/8 - W1 1/2	73312	118	546
									
N	C		HSS	bright	~ DIN 352	W 1/8 - W2	73313	118	547


Hand taps

Type	Form	Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
------	------	----------------	---------------	---------	----------	----------------	-------------	----------------	----------------------

Hand taps for BSP-threads

N	D/C		HSS	bright	DIN 5157	G 1/8 - G 1/2	73522	118	549
									
N	D		HSS	bright	DIN 5157	G 1/8 - G2	73315	118	549
									
N	C		HSS	bright	DIN 5157	G 1/8 - G2	73316	118	549

Machine combination drill taps

									
N	D	ISO 2 / 6H	HSS-E	bright	Stock std.	M 3 - M12	73248	103	551




Machine nut taps for ISO metric threads

									
N		ISO 2 / 6H	HSS-E	bright	DIN 357	M 3 - M30	73243	103	552

Dies

Form		Tolerance on Ø	Tool material	Surface	Standard	Diameter range	Catalog no.	Discount group	Standard range, page
------	--	-------------------	---------------	---------	----------	----------------	-------------	-------------------	-------------------------

Dies for ISO metric threads

	B	lapped	6g	HSS	bright	DIN EN 22568	M 3 - M18	73410	103	553
	B		6g	HSS	bright	DIN EN 22568	M 1 - M45	73400	103	553
	B	lapped	6g	HSS-E	nitrided	DIN EN 22568	M 2,5 - M20	73413	103	553

Application

by materials

Coloured ring	Catalog no.		Nonferrous metals, Aluminium	Steels	GG, GGG	Stainless and acid resistant steels	Nickel, Titanium alloys	Harded steels
	Produktiv	Intensiv						
Green	73033	73046						
	73038	73048						
	73183	73187						
	73308	73322						
	73309	73323						
	73310	73324						
	73321	73325						
	63033	63046						
		63048						
		73047						
Green Synchro	53053	53050						
	53054	53051						
	53055	53052						
Yellow	73133	73146						
	73132	73145						
	73138	73148						
	73250	73173						
	73293	73286						
	63133	63146						
	63138	63148						
	63250	63173						
Blue	73176	73660						
	73177	73659						
	73178	73180						
	73297	73304						
	73298	73305						
	73299	73306						
	73300	73288						
	63176	73662						
	63177	73665						
	73641	63662						
	73643	53662						
	53641	53665						
	53667	53666						
Red	73642	53661						
	73645	73619						
	73646	73661						
	53642	73664						
	73640	73666						
	63641	63010						
	63643							
	53640							
	53670	53670						
Black	53669	53668						
	73131	73156						
	73189	73136						
	73011	73011						
White	53670	53670						
	73201	73201						
	73211	73211						
	73194	73194						
	73326	73326						
	73327	73327						
	73345	73345						
	63201	63201						
	53670	53670						
for blind and trough holes								
Thread Forming Taps	73121	63122						
	63121	53620						
	63123	53621						
	73120	53622						
	63120	63013						
	63119							
Thread Milling Cutters	73810	53820						
	73820	73830						
	53810	53830						

optimal well suited

by tensile strength

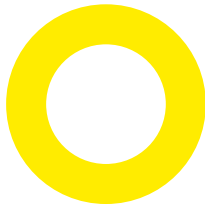


Application recommendations for taps



Material examples	for universal applications in materials <1000 MPa, e. g. : structural steels, free-cutting steels case hardened steels, heat-treatable steels nitriding steels spheroidal graphite cast iron					for synchro machining universal applications in materials up to 1200 MPa	
Tool material	HSS-E					HSS-E-PM	HSS-E-PM
Type	Produktiv N		Intensiv N		Intensiv N	Produktiv-Synchro	Intensiv-Synchro
Form	B		C		E	B	C
Surface finish	steam temp.	TiN	steam temp.	TiN	br	TiCN	TiCN
v _c m/min	≤ 15	≤ 20	≤ 15	≤ 20	≤ 15	≤ 20	≤ 20

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range					
M	DIN 371	ISO 2 6H	73033 M3 - M10	63033 M3 - M10	73046 M3 - M10	63046 M3 - M10	73047 M4 - M10	53053 M2 - M10
		6HX						53050 M5 - M10
	DIN 376	ISO 2 6H	73038 M12 - M16		73048 M12 - M20	63048 M12 - M20		53054 M12 - M20
		6HX						53051 M12 - M20
MF	DIN 374	ISO 2 6H	73183 M6x0,75 - M20x1,5		73187 M6x0,75 - M20x1,5			53055 M8x1 - M16x1,5
		6HX						53052 M8x1 - M20x1,5
UNC	DIN ~ 371	2B	73308 Nr.4-40 - 3/8-16		73322 Nr.4-40 - 3/8-16			
	DIN ~ 376	2B	73309 1/2-13 - 3/4-10		73323 1/2-13 - 3/4-10			
UNF	DIN ~ 374	2B	73310 Nr.10-32 - 5/8-18		73324 Nr.10-32 - 5/8-18			
G	DIN 5156	-	73321 G1/8 - G1		73325 G1/8 - G1			



Material examples	for gen. steels ≤ 800 MPa and non-ferrous metals	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels	for gen. steels ≤ 800 MPa and non-ferrous metals	for gen. steels ≤ 800 MPa, e. g.: structural steels free-cutting steels case hardened steels heat-treatable steels
Hole type					
Tool material	HSS-E				
Type	Massiv N	N	Produktiv N	Intensiv N	
Form	B	C	B	C	
Surface finish	bright	bright	bright TiN	bright	bright TiN
v_c m/min	≤ 15	≤ 15	≤ 15 ≤ 20	≤ 15	≤ 15 ≤ 20

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range						
M	DIN 371	ISO 2 6H	73126 M2,3 - M10	73185 M2 - M10	73133 M2 - M10	63133 M3 - M10	73221 M2 - M10	73146 M2 - M10	63146 M3 - M10
		ISO 3 6G			73132 M2 - M10			73145 M3 - M10	
	DIN 376	ISO 2 6H		73191 M3 - M22	73138 M3 - M24	63138 M12 - M20	73227 M3 - M20	73148 M3 - M30	63148 M12 - M20
MF	DIN 374	ISO 2 6H		73237 M3x0,35 - M26x1,5	73250 M4x0,50 - M24x2	63250 M8x1 - M20x1,5		73173 M3x0,35 - M24x2	63173 M8x1 - M20x1,5
G	DIN 5156	-						73286 G1/8 - G1 1/2	

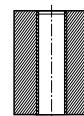
Designation of the symbols for the hole types



= through hole, short



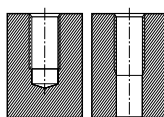
= through hole 1 x D



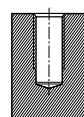
= through hole 2 x D



= blind hole 1 x D

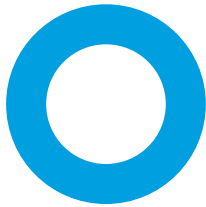


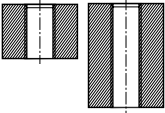
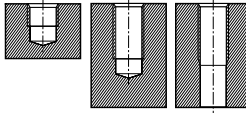
= blind hole 2 x D



= blind hole till drilling base

Application recommendations for taps

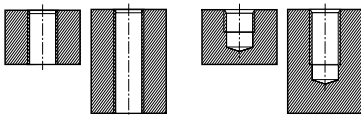


Material examples	for stainless- and acid resistant steels e. g. : sulphured stainless steels austenitic stainless steels martensitic stainless steels ferritic stainless steels				for stainless- and acid resistant steels e. g. : sulphured stainless steels austenitic stainless steels martensitic stainless steels ferritic stainless steels			
								
Hole type								
Tool material	HSS-E		HSS-E-PM		HSS-E		HSS-E-PM	
Type	Produktiv HD				Intensiv HD			
Form	B				C			
Surface finish	steam temp.	TiN	bright	TiCN	steam temp.	bright	TiCN	TiN
v _c m/min	≤ 15	≤ 20	≤ 15	≤ 20	≤ 15	≤ 15	≤ 20	≤ 20

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range							
	DIN 371	ISO 2 6H	73176 M3 - M10	63176 M3 - M10	73641 M3 - M10	53641 M3 - M10	73660 M3 - M10	73662 M3 - M10	53662 M3 - M10	63662 M3 - M10
		6HX								
	DIN 376	ISO 2 6H	73177 M12 - M20	63177 M12 - M16	73643 M12 - M22	53643 M12 - M22	73659 M12 - M20	73665 M12 - M24	53665 M12 - M24	
MF	DIN 374	ISO 2 6H	73178 M5x0,5 - M20x1,5				73180 M8x1 - M20x1,5			
UNC	DIN ~ 371	2B	73297 Nr.4-40 - 3/8-16				73304 Nr.4-40 - 3/8-16			
	DIN ~ 376	2B	73298 1/2-13 - 1-8				73305 1/2-13 - 3/4-10			
UNF	DIN ~ 374	2B	73299 Nr.10-32 - 5/8-18				73306 Nr.10-32 - 3/4-16			
G	DIN 5156	–	73300 G1/8 - G1				73288 G1/8 - G1			
NPT	Stock std.	–	73293 1/8 - 3/4							



for tensile-hard, tight
materials up to 1400 MPa
e. g.: Nickel basic alloys
Hastelloy, Waspalloy



Stable in difficult-to-machine materials

Especially for the process reliable machining of tough-hard, jamming materials with tensile strengths up to 1400 N/mm² the taps type HDX complete our blue-ring HD tap range.

HSS-E-PM	
Produktiv HDX	Intensiv HDX
B	C
TiCN	TiCN
≤ 20	≤ 20
Catalog no./Ø-range	
53667 M3 - M16	53666 M3 - M16

Applications:

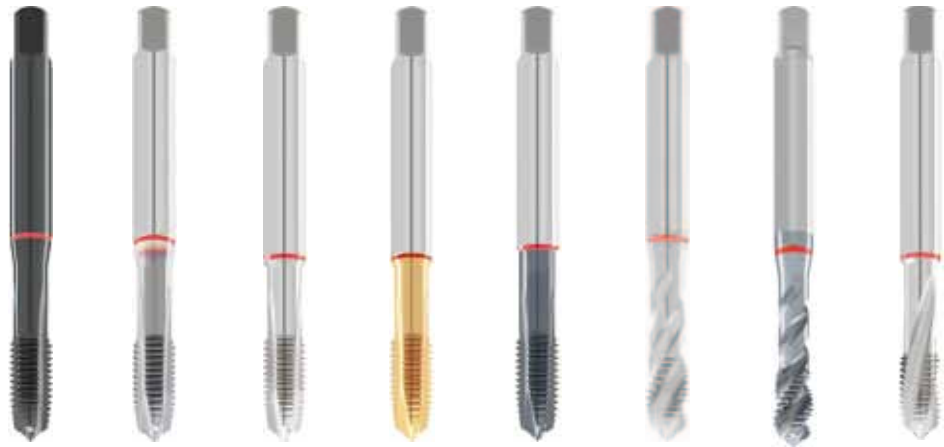
- special alloys
- Nickel basic alloys
- Hastelloy
- Waspalloy
- high heat resistant steels
- Copper, hard
- Ampco <21
- Super Duplex

Advantages:

- absolutely accurate threads
- optimal chip evacuation
- no jamming
- low wear
- long tool life
- maximum process reliability



Application recommendations for taps

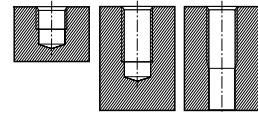
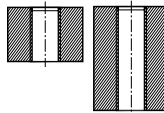


Material examples

for
high tensile steels
≥ 800...1200 MPa, e.g. :
heat-treatable steels
alloyed cold work tool steels
high speed tool steels

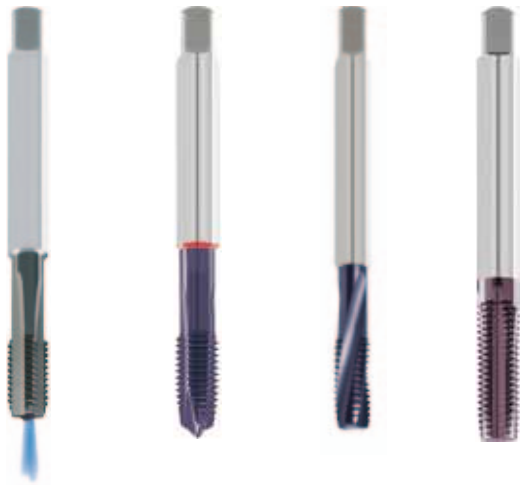
for
high tensile steels
≥ 800...1200 MPa, e.g. :
heat-treatable steels
alloyed cold work tool steels
high speed tool steels

Hole type



Tool material	HSS-E					HSS-E-PM		
Type	Produktiv H					Intensiv H		
Form	B					C		
Surface finish	nitrided	TiCN	bright	TiN	TiCN	bright	TiCN	bright
v _c m/min	≤ 15	≤ 20	≤ 15	≤ 20	≤ 20	≤ 15	≤ 20	≤ 15

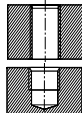
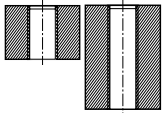
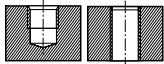
Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range								
M	DIN 371	ISO 2 6H	73642 M2 - M10	53642 M2 - M10	73640 M3 - M10	63641 M3 - M10	53640 M3 - M10	73661 M3 - M10	53661 M2 - M10	73619 M3 - M10	
		6HX									
	DIN 376	ISO 2 6H	73645 M12 - M20			63643 M12 - M20		73664 M12 - M20		73666 M12 - M20	
	Stock std.	ISO 2 6H									
MF	DIN 374	ISO 2 6H	73646 M3x0,35 - M22x1,5								
UNC	DIN ~ 371	2B									
	DIN ~ 376	2B									
UNF	DIN ~ 374	2B									
G	DIN 5156	–									



for
high tensile
materials
≥ 1400 MPa

for
high tensile
special alloys
≥ 1400 MPa,
e. g. : Inconel

for
high tensile
steels
54-62 HRC



HSS-E-PM	HSS-E-PM		Solid carbide
HCX	Produktiv HX	Intensiv HX	H
C	B	B	D
TiCN	TiAlN	TiAlN	TiCN
≤ 20	≤ 20	≤ 20	≤ 2

Catalog no./Ø-range

53670 M5 - M10	53669 M3 - M16	53668 M3 - M16
		63010 M3 - M12



In difficult cases.

With the red-ring taps type HX and HCX STOCK offers special solutions for the machining of high-tensile materials. Their special hard coating adds high wear resistance for the high requirements of hard machining.

Application range **HX**:

- Inconel
- Ti-alloys
- hardened steels
- Ampco >21
- chilled cast iron

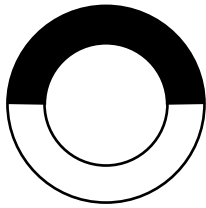
Application range **HCX**:

- tool steels
- cast w. vermicular graphite
- all. heat treatable steels
- cast w. spheroidal graphite
- high speed steels
- bronze, hard
- malleable cast iron
- special materials, hard

Advantages:

- process reliable tapping
- long tool life
- accuracy

Application recommendations for taps

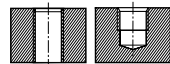
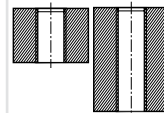
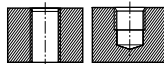
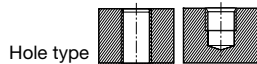


Material examples for short chipping non-ferrous alloys, e. g.: AlSi > 10% Si

for Al and Al-alloys, e. g.: pure aluminium-alloys Al wrought alloys < 10% Si

for short chipping Al and Al-alloys non-ferrous metals plastics

for cast materials, e. g.: grey cast iron malleable cast iron spheroidal graphite cast iron cast iron



Tool material HSS-E-PM

HSS-E

Solid carbide

HSS-E-PM

HSS-E

Type HCX

Produktiv W

Intensiv W

H

HCX

G

Form C

B

C

C

C

Surface finish TiCN

bright

bright

bright

TiCN

nitrided

TiAlN

v_c m/min ≤ 30

≤ 15

≤ 15

≤ 15

≤ 30

≤ 20

≤ 30

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range				
M	DIN 371	ISO 2 6H	73131 M2 - M10	73156 M2 - M10	73011 M3 - M10		
		6HX	53670 M5 - M10			53670 M5 - M10	73201 M3 - M10 63201 M3 - M10
	DIN 376	ISO 2 6H	73189 M12 - M20	73136 M12 - M20			
		6HX					73211 M12 - M22
MF	DIN 374	6HX					73194 M8x1 - M20x1,5
UNC	DIN ~ 371	2B					73326 Nr.8-32 - 3/8-16
	DIN ~ 376	2B					73327 1/2-13 - 1-8
G	DIN 5156	-					73345 G1/8 - G1

Application recommendations for hand taps, short machine- and special taps



Material examples

for gen. steels ≤ 800 MPa, e. g.:
struct. steels, free-cutting steels
case hard. steels, heat-treat. steels
The sets 73531 and 73532 are
also suitable for high tensile,
acid- and stainless resist. steels

Hole type



for general steels ≤ 800 MPa,
e. g.: structural steels
free-cutting steels
case hard. steels
heat-treat. steels



Tool material

HSS

HSS-E

Type

N

N

Form

–

B

combinat.

–

Surface finish

bright

bright

bright

bright

v_c m/min

–

≤ 15

≤ 15

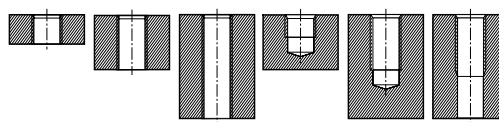
≤ 15

Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range		
M	DIN 352	ISO 2 6H	73531 (set) RH: V 73101 M 73102 F 73103 M1 - M22	73532 (set) LH: V 73105 M 73106 F 73107 M4 - M20	73243 M3 - M30
	Stock std.	ISO 2 6H	73248 M3 - M12		
MF	DIN 2181	ISO 2 6H	73521 (set): V 73110 / F 73111 M4x0,35 - M40x1,5		
UNC	~DIN 352	2B	73535 (set): V 73301 / M 73302 / F 73303 Nr.4-40 - 3/4-10		
UNF	~DIN 2181	2B	73523 (set): V 73319 / F 73320 5/16-24 - 1-12		
BSW	~DIN 352	–	73534 (set): V 73311 / M 73312 / F 73313 W1/8 - W2		
G	DIN 5157	–	73522 (set): V 73315 / F 73316 G1/8 - G2		
Pg	DIN 40432	–	73296 Pg7 - PG16		

Application recommendations for cold forming taps



Hole type



Material examples

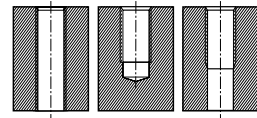
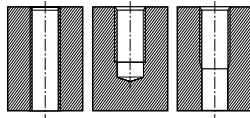
for general steels $\geq 800 \dots 1000$ MPa,
stainless and acid resistant steels,
universal applications in materials < 1000 MPa and
Al and Al-alloys

		HSS-E				HSS-E-PM	Solid carbide
		Durativ					
		C without oil grooves		C with oil grooves			
		bright	TiN	bright	TiN	AlCrN	TiAlN
		v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min	v_c m/min
		4-50	4-50	4-50	4-50	4-50	4-50
Thread type	Dimensions to DIN 2184-1	Tolerance zone					
		Catalog no./Ø-range					
M	~ DIN 371	6HX	73121 M2,2 - M10	63121 M2 - M10	73120 M3 - M10	63120 M3 - M10	53620 M3 - M10
		6GX			63119 M3 - M10	53621 M3 - M10	63013 M3 - M10
	~ DIN 376	6HX		63123 M16 - M20	63122 M12 - M16	53622 M12 - M20	

Application recommendations for thread milling cutters



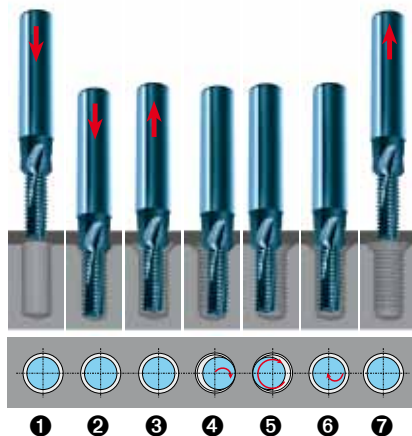
Hole type



Material examples

for universal application:
structural steels, free-cutting steels,
case hardened steels, heat-treatable steels,
tool steels, high speed steels,
sulphured, austenitic and martensitic steels, special alloys
Al and Al-alloys,
cast materials, non-ferrous metals,
plastics, magnesium-alloys, Titanium

			Tool material		Solid carbide		Solid carbide	
			Type		TMC SP		TM SP	
			Form		-	-	-	-
			Surface finish		bright	TiCN	bright	TiCN
			v _c m/min		100 - 300 (Ti: 40-60)	50 - 200	100 - 300 (Ti: 40-60)	50 - 200
Thread type	Dimensions to DIN 2184-1	Tolerance zone	Catalog no./Ø-range					
M	Stock std.	2,0 x D	73810 M3 - M20	53810 M3 - M20	73830 M6 - M20	53830 M6 - M20		
MF	Stock std.	2,0 x D	73820 M4x0,5 - M16x1,5	53820 M4x0,5 - M16x1,5				



Machine taps

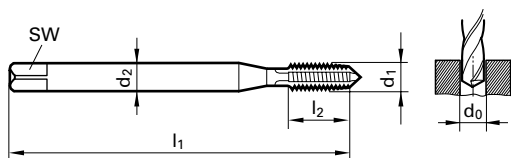
Machine taps for ISO metric threads

Catalog no. 53053



For through holes also for thread depths over 2xD. The spiral point causes better chip removal out of the hole in feed direction. Universal applicable in combination with synchronous chucks in nearly all materials. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv Synchro
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO2/6H
Flutes	straight



Catalog no.	53053
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2	0.40	2.800	2.10	1.600	45.00	8.00	●
M 2,2	0.45	2.800	2.10	1.750	45.00	9.00	●
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	●
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●
M 8	1.25	8.000	6.20	6.800	90.00	17.00	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●

Machine taps

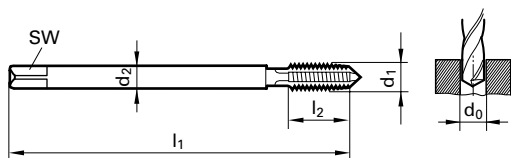
Machine taps for ISO metric threads

Catalog no. 53054



For through holes also for thread depths over 2xD. The spiral point causes better chip removal out of the hole in feed direction. Universal applicable in combination with synchronous chucks in nearly all materials. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv Synchro
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO2/6H
Flutes	straight



Catalog no.	53054
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	●
M14	2.00	11.000	9.00	12.000	110.00	26.00	●
M16	2.00	12.000	9.00	14.000	110.00	26.00	●
M18	2.50	14.000	11.00	15.500	125.00	30.00	●
M20	2.50	16.000	12.00	17.500	140.00	32.00	●

Machine taps

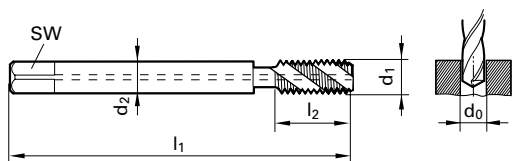
Machine taps for ISO metric threads

Catalog no. 53050



For blind holes also for thread depths over 2xD. Universal applicable in combination with synchronous chucks in nearly all materials. Easy chip evacuation in shank direction thanks to the helix and the axial coolant supply. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv Synchro
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	50° right hand helix



Catalog no.	53050
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 5	0.80	6.000	4.90	4.200	70.00	4.00	●
M 6	1.00	6.000	4.90	5.000	80.00	5.00	●
M 8	1.25	8.000	6.20	6.800	90.00	6.30	●
M10	1.50	10.000	8.00	8.500	100.00	7.50	●

Machine taps

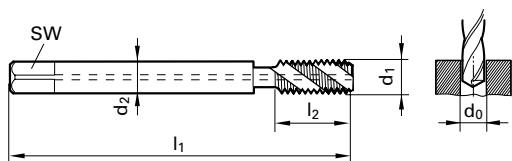
Machine taps for ISO metric threads

Catalog no. 53051



For blind holes also for thread depths over 2xD. Universal applicable in combination with synchronous chucks in nearly all materials. Easy chip evacuation in shank direction thanks to the helix and the axial coolant supply. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv Synchro
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	50° right hand helix



Catalog no.	53051
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	8.80	●
M14	2.00	11.000	9.00	12.000	110.00	10.00	●
M16	2.00	12.000	9.00	14.000	110.00	10.00	●
M20	2.50	16.000	12.00	17.500	140.00	12.50	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73033



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

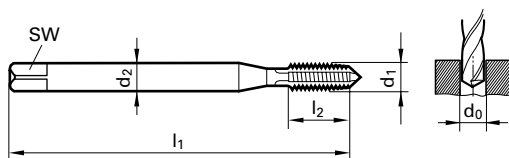
Machine taps for ISO metric threads

Catalog no. 63033



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat-treatable steels, nitrided steels and case hardened steels, malleable cast iron.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73033	63033
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	steam tempered	TiN
Application		
	price per piece	
	●	●
	●	●
	●	●
	●	●
	●	●
	●	●

d1	P	d2	SW	d0	l1	l2		
mm	mm	mm	mm	mm	mm	mm		
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●	●
M 8	1.25	8.000	6.20	6.800	90.00	18.00	●	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●	●

Machine taps

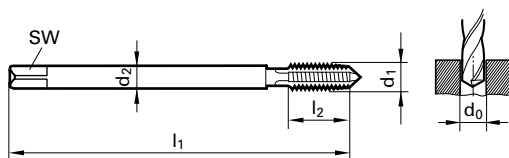
Machine taps for ISO metric threads

Catalog no. 73038



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73038
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	●
M14	2.00	11.000	9.00	12.000	110.00	26.00	●
M16	2.00	12.000	9.00	14.000	110.00	26.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73046



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

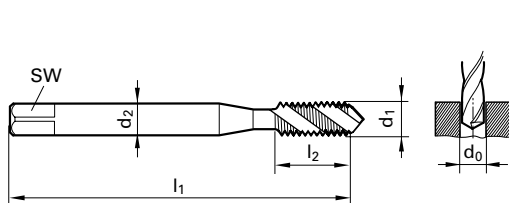
Machine taps for ISO metric threads

Catalog no. 63046



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73046	63046
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	steam tempered	TiN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M 3	●	●
M 4	●	●
M 5	●	●
M 6	●	●
M 8	●	●
M10	●	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73048



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

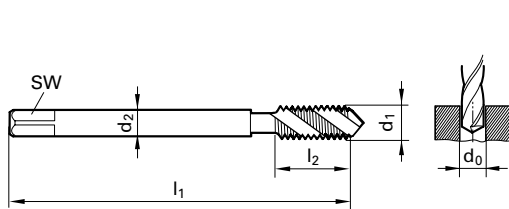
Machine taps for ISO metric threads

Catalog no. 63048



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron. High wear resistance thanks to TiN coating.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73048	63048
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	steam tempered	TiN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M12	●	●
M14	●	
M16	●	●
M18	●	
M20	●	●

Machine taps

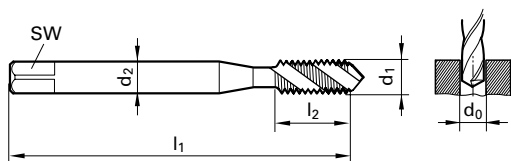
Machine taps for ISO metric threads

Catalog no. 73047



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	E
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73047
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

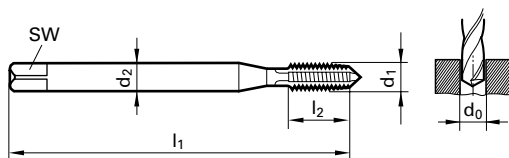
Machine taps for ISO metric threads

Catalog no. 73126

For through holes. Primarily applicable in thin materials such as tube and sheet metals up to 1 x D. The spiral point causes better chip removal. Suitable in unalloyed and alloyed steels up to 1000 N/mm², metal sheets made of Al, copper or brass.



DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Massiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73126
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2,3	0.40	2.800	2.10	1.900	45.00	9.00	○
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	○
M 2,6	0.45	2.800	2.10	2.100	50.00	9.00	○
M 3	0.50	3.500	2.70	2.500	56.00	10.00	○
M 3,5	0.60	4.000	3.00	2.900	56.00	12.00	○
M 4	0.70	4.500	3.40	3.300	63.00	12.00	○
M 5	0.80	6.000	4.90	4.200	70.00	14.00	○
M 6	1.00	6.000	4.90	5.000	80.00	16.00	○
M 8	1.25	8.000	6.20	6.800	90.00	18.00	○
M10	1.50	10.000	8.00	8.500	100.00	20.00	○

Machine taps

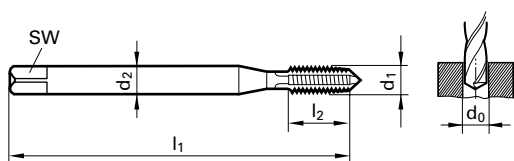
Machine taps for ISO metric threads

Catalog no. 73185



For through and blind holes, thread depths up to 1 x D. Universal suitable in alloyed and unalloyed steels up to 1000 N/mm², steel cast iron up to 800 N/mm², grey cast iron up to 200 HB as well as short chipping Al-alloys.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73185
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 1	0.25	2.500	2.10	0.750	40.00	5.50	○
M 1,2	0.25	2.500	2.10	0.950	40.00	5.50	○
M 1,4	0.30	2.500	2.10	1.100	40.00	7.00	○
M 1,6	0.35	2.500	2.10	1.250	40.00	8.00	○
M 2	0.40	2.800	2.10	1.600	45.00	8.00	○
M 2,3	0.40	2.800	2.10	1.900	45.00	9.00	○
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	○
M 2,6	0.45	2.800	2.10	2.100	50.00	9.00	○
M 3	0.50	3.500	2.70	2.500	56.00	6.00	○
M 4	0.70	4.500	3.40	3.300	63.00	7.50	○
M 5	0.80	6.000	4.90	4.200	70.00	8.50	○
M 6	1.00	6.000	4.90	5.000	80.00	11.00	○
M 8	1.25	8.000	6.20	6.800	90.00	14.00	○
M10	1.50	10.000	8.00	8.500	100.00	16.00	○

Machine taps

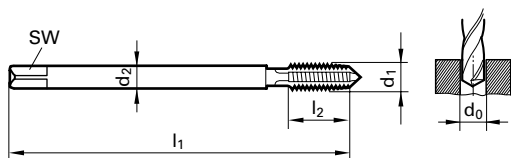
Machine taps for ISO metric threads

Catalog no. 73191

for through and blind holes, threading depths upto 1xD (no chip evacuation), universal suitable in unalloyed and alloyed steels upto 1000 N/mm², cast materials upto 200 HB, AL-alloys (short chipping)



DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73191
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 6	1.00	4.500	3.40	5.000	80.00	11.00	○
M 8	1.25	6.000	4.90	6.800	90.00	14.00	○
M10	1.50	7.000	5.50	8.500	100.00	16.00	○
M12	1.75	9.000	7.00	10.200	110.00	18.50	○
M14	2.00	11.000	9.00	12.000	110.00	20.00	○
M16	2.00	12.000	9.00	14.000	110.00	20.00	○
M18	2.50	14.000	11.00	15.500	125.00	25.00	○

Machine taps

Machine taps for ISO metric threads

Catalog no. 73133



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal in feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc die-casting.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Machine taps for ISO metric threads

Catalog no. 63133



For through holes with thread depths more than $2 \times d$. The spiral point causes better chip removal into the feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc diecasting. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Catalog no.							73133	63133
Tool material							HSS-E	
Discount group							103	103
Cutting direction							right-hand	right-hand
Surface							bright	TiN
Application								
d1	P	d2	SW	d0	l1	l2	price per piece	
mm	mm	mm	mm	mm	mm	mm		
M 2	0.40	2.800	2.10	1.600	45.00	8.00	●	
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	●	
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●	●
M 3,5	0.60	4.000	3.00	2.900	56.00	12.00	●	
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●	●
M 7	1.00	7.000	5.50	6.000	80.00	16.00	●	
M 8	1.25	8.000	6.20	6.800	90.00	18.00	●	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●	●

Machine taps

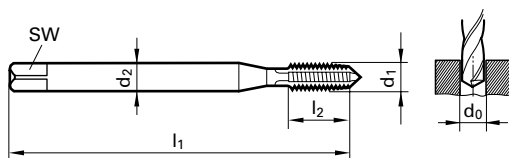
Machine taps for ISO metric threads

Catalog no. 73132



For through holes with larger tolerance for galvanic layers. For through holes more than 2 x D. The spiral point causes better chip removal in feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm², cast steel up to 800 N/mm², malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short-chipping, Zinc-alloys, zinc die-casting.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 3 / 6G
Flutes	straight



Catalog no.	73132
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	●
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●
M 8	1.25	8.000	6.20	6.800	90.00	18.00	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73138



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal in feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc die-casting.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

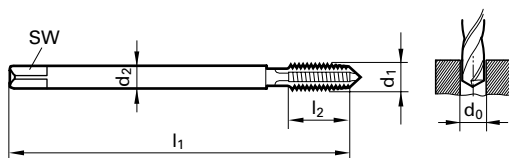
Machine taps for ISO metric threads

Catalog no. 63138



For through holes with thread depths more than $2 \times d$. The spiral point causes better chip removal into the feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc diecasting. High wear resistance thanks to TiN coating.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73138	63138
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiN
Application		

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2	0.40	1.400		1.600	45.00	8.00	
M 3	0.50	2.200		2.500	56.00	10.00	
M 3,5	0.60	2.500	2.10	2.900	56.00	12.00	
M 4	0.70	2.800	2.10	3.300	63.00	12.00	
M 5	0.80	3.500	2.70	4.200	70.00	14.00	
M 6	1.00	4.500	3.40	5.000	80.00	16.00	
M 8	1.25	6.000	4.90	6.800	90.00	18.00	
M10	1.50	7.000	5.50	8.500	100.00	20.00	
M12	1.75	9.000	7.00	10.200	110.00	24.00	
M14	2.00	11.000	9.00	12.000	110.00	26.00	
M16	2.00	12.000	9.00	14.000	110.00	26.00	
M18	2.50	14.000	11.00	15.500	125.00	30.00	
M20	2.50	16.000	12.00	17.500	140.00	32.00	
M22	2.50	18.000	14.50	19.500	140.00	32.00	
M24	3.00	18.000	14.50	21.000	160.00	36.00	

Machine taps

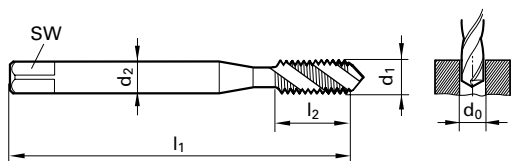
Machine taps for ISO metric threads

Catalog no. 73221



For blind holes with thread depths up to 2 x D. The helix results in a better chip removal out of the hole towards the shank. Suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm², tool steels, cast steel up to 800 N/mm², brass long-chipping, red brass.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	15° RH spiral



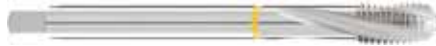
Catalog no.	73221
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2	0.40	2.800	2.10	1.600	45.00	8.00	○
M 2,2	0.45	2.800	2.10	1.750	45.00	9.00	○
M 3	0.50	3.500	2.70	2.500	56.00	6.00	○
M 3,5	0.60	4.000	3.00	2.900	56.00	7.00	○
M 4	0.70	4.500	3.40	3.300	63.00	7.50	○
M 5	0.80	6.000	4.90	4.200	70.00	8.50	○
M 6	1.00	6.000	4.90	5.000	80.00	11.00	○
M 8	1.25	8.000	6.20	6.800	90.00	14.00	○
M10	1.50	10.000	8.00	8.500	100.00	16.00	○

Machine taps

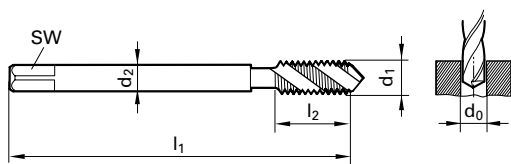
Machine taps for ISO metric threads

Catalog no. **73227**



For blind holes with thread depths of up to 2 x D. The helix results in a better chip removal out of the hole towards the shank. Suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm², tool steels, cast steel up to 800 N/mm², brass long-chipping, red brass.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	15° RH spiral



Catalog no.	73227
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	2.200		2.500	56.00	6.00	
M 4	0.70	2.800	2.10	3.300	63.00	7.50	
M 5	0.80	3.500	2.70	4.200	70.00	8.50	
M 6	1.00	4.500	3.40	5.000	80.00	11.00	
M 8	1.25	6.000	4.90	6.800	90.00	14.00	
M10	1.50	7.000	5.50	8.500	100.00	16.00	
M12	1.75	9.000	7.00	10.200	110.00	18.50	
M16	2.00	12.000	9.00	14.000	110.00	20.00	
M18	2.50	14.000	11.00	15.500	125.00	25.00	

Machine taps

Machine taps for ISO metric threads

Catalog no. 73146



For blind holes with thread depths of more than $2 \times d$ in long-chipping materials, other materials $1-2 \times d$ depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

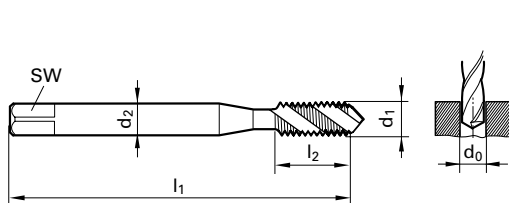
Machine taps for ISO metric threads

Catalog no. 63146



For blind holes with thread depths of more than $2 \times d$ in long-chipping materials, other materials $1-2 \times d$ depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.		73146	63146
Tool material		HSS-E	
Discount group		103	103
Cutting direction		right-hand	right-hand
Surface		bright	TiN
Application			
d1	l2	price per piece	
mm	mm		
5.00	8.00		
6.00	9.00		
9.00	9.00		
6.00	6.00		
6.00	7.00		
8.00	7.50		
9.00	8.50		
9.00	11.00		
9.00	14.00		
9.00	16.00		

Machine taps

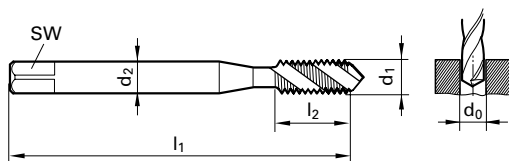
Machine taps for ISO metric threads

Catalog no. 73145



For oversized blind holes (galvanical coated) with thread depths over 2xD in long-chipping materials. For other materials, depending to the chip-conditions only 1-2xD. Easy chip evacuation thanks to the helix in shank direction. Suitable for unalloyed and alloyed steels upto 1000 N/mm², cast steels upto 800 N/mm² malleable cast iron, spheroidal iron, copper-alloys, tough/hard bronze, brass (long-chipping), red brass, Al-alloys (short chipping), Mg- and zinc-alloys, Elektron and zinc-die-cast

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 3 / 6G
Flutes	40° RH spiral



Catalog no.	73145
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73148



For blind holes with thread depths of more than $2 \times d$ in long-chipping materials, other materials $1-2 \times d$ depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Machine taps for ISO metric threads

Catalog no. 63148



For blind holes with thread depths of more than $2 \times d$ in long-chipping materials, other materials $1-2 \times d$ depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Catalog no.							73148	63148
Tool material							HSS-E	
Discount group							103	103
Cutting direction							right-hand	right-hand
Surface							bright	TiN
Application								
d1	P	d2	SW	d0	l1	l2	price per piece	
mm	mm	mm	mm	mm	mm	mm		
M 3	0.50	2.200		2.500	56.00	6.00	●	
M 4	0.70	2.800	2.10	3.300	63.00	7.50	●	
M 5	0.80	3.500	2.70	4.200	70.00	8.50	●	
M 6	1.00	4.500	3.40	5.000	80.00	11.00	●	
M 8	1.25	6.000	4.90	6.800	90.00	14.00	●	
M10	1.50	7.000	5.50	8.500	100.00	16.00	●	
M12	1.75	9.000	7.00	10.200	110.00	18.50	●	●
M14	2.00	11.000	9.00	12.000	110.00	20.00	●	
M16	2.00	12.000	9.00	14.000	110.00	20.00	●	●
M18	2.50	14.000	11.00	15.500	125.00	25.00	○	
M20	2.50	16.000	12.00	17.500	140.00	25.00	●	●
M22	2.50	18.000	14.50	19.500	140.00	27.00	●	
M24	3.00	18.000	14.50	21.000	160.00	30.00	●	
M27	3.00	20.000	16.00	24.000	160.00	30.00	●	
M30	3.50	22.000	18.00	26.500	180.00	35.00	●	

Machine taps

Machine taps for ISO metric threads

Catalog no. 73642



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam tempered surface reduces cutting edge build-up. For working in alloyed steels up to 1000 N/mm², tool steels, copper-alloys, tough bronzes and Duroplastic.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

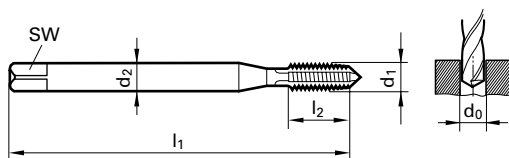
Machine taps for ISO metric threads

Catalog no. 53642



For through holes with thread depths more than $2 \times d$. The spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm², tool steels, copper-alloys, tough bronzes and duroplastic. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiCN
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73642	53642
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	nitrided	TiCN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M 2	●	●
M 3	●	●
M 4	●	●
M 5	●	●
M 6	●	●
M 8	●	●
M10	●	●

Machine taps

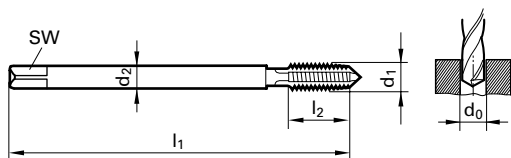
Machine taps for ISO metric threads

Catalog no. 73645



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and Duroplastic.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73645
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	●
M16	2.00	12.000	9.00	14.000	110.00	26.00	●
M20	2.50	16.000	12.00	17.500	140.00	32.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73640



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and Duroplastic.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

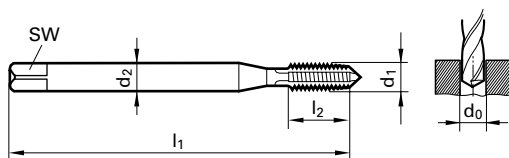
Machine taps for ISO metric threads

Catalog no. 63641



For through holes with thread depths more than $2 \times d$. The spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and duroplastic. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiN
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO2/6H
Flutes	straight



Catalog no.	73640	63641
Tool material	HSS-E-PM	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M 3	●	●
M 4	●	●
M 5	●	●
M 6	●	●
M 8	●	●
M10	●	●

Machine taps

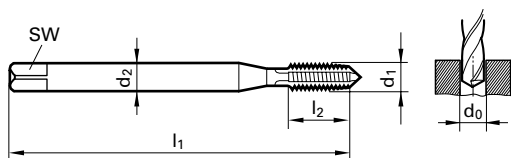
Machine taps for ISO metric threads

Catalog no. 53640



For through holes with thread depths more than $2 \times d$, the spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and duroplastic. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	53640
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●
M 8	1.25	8.000	6.20	6.800	90.00	17.00	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●

Machine taps

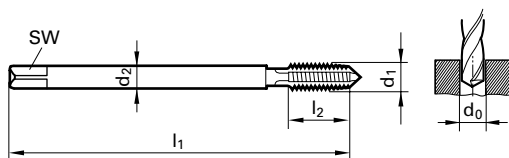
Machine taps for ISO metric threads

Catalog no. 63643



For through holes with thread depths more than $2 \times d$, the spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and duroplastic. High wear resistance thanks to TiN coating.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiN
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	63643
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	●
M16	2.00	12.000	9.00	14.000	110.00	26.00	●
M20	2.50	16.000	12.00	17.500	140.00	32.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73661



For blind holes with thread depths of more than $2 \times D$. The helix results in a better chip removal out of the hole towards the shank. Suitable for alloyed steels with a tensile strength up to 1000 N/mm^2 , heat treatable steels, case hardened steels.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv H
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

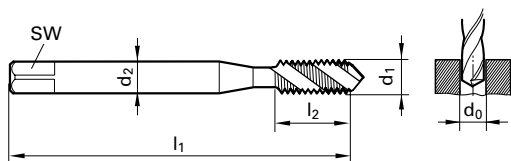
Machine taps for ISO metric threads
















Catalog no. 53661



For blind holes with thread depths of more than $2 \times d$. the helix results in a better chip removal out of the hole towards the shank. suitable for alloyed steels with a tensile strength up to 1000 N/mm^2 , heat treatable steels, case hardened steels. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiCN
Type	Intensiv H
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.		73661	53661
Tool material		HSS-E	
Discount group		103	103
Cutting direction		right-hand	right-hand
Surface		bright	TiCN
Application			
1	l2	price per piece	
mm	mm		
0.00	8.00		
0.00	6.00		
0.00	7.50		
0.00	8.50		
0.00	11.00		
0.00	14.00		
0.00	16.00		

Machine taps

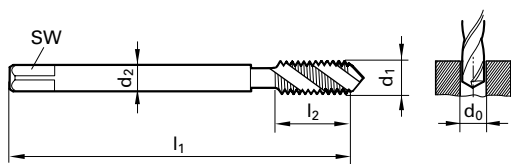
Machine taps for ISO metric threads

Catalog no. 73664



For blind holes with thread depths of more than 2 x D. The helix results in a better chip removal out of the hole towards the shank. Suitable for alloyed steels with a tensile strength up to 1000 N/mm², heat treatable steels, case hardened steels.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv H
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73664
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	18.50	●
M14	2.00	11.000	9.00	12.000	110.00	20.00	●
M16	2.00	12.000	9.00	14.000	110.00	20.00	●
M20	2.50	16.000	12.00	17.500	140.00	25.00	●

Machine taps

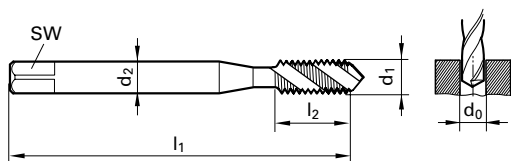
Machine taps for ISO metric threads

Catalog no. 73619

For blind holes with thread depths of more than 2 x D. Better chip removal. For working in alloyed steels up to 1000 N/mm², tool steels, copper alloys, tough bronze.



DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Intensiv H
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	15° RH spiral



Catalog no.	73619
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

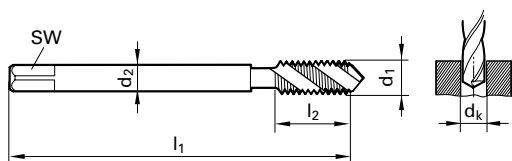
Machine taps for ISO metric threads

Catalog no. 73666



For blind holes with thread depths of more than 2 x D. Better chip removal. For working in alloyed steels up to 1000 N/mm², tool steels, copper alloys, tough bronze.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	H R15
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	15° RH spiral



Catalog no.	73666
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	18.50	
M16	2.00	12.000	9.00	14.000	110.00	20.00	
M20	2.50	16.000	12.00	17.500	140.00	25.00	

Machine taps

Machine taps for ISO metric threads

Catalog no. 63010

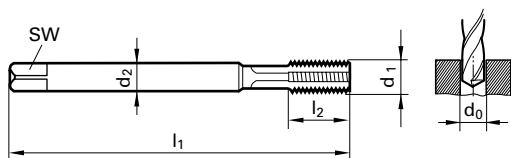


Long chamfer lead, 3,5 - 5 x P.

For through and blind holes with a thread depth up to 1xD. Tapping of threads in hardened steel between 48 and 62 HRC. Remarks: The diameter of the drilled hole should be 0,1 mm larger than recommended.

~ DIN 371 Werksnorm

Tool material	Solid Carbide
Surface	TiCN
Type	H
Form	D
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



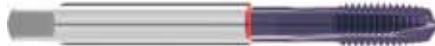
Catalog no.	63010
Tool material	Solid Carbide
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.600	56.00	12.00	●
M 4	0.70	4.500	3.40	3.400	63.00	14.00	●
M 5	0.80	6.000	4.90	4.300	70.00	17.00	●
M 6	1.00	6.000	4.90	5.100	80.00	20.00	●
M 8	1.25	8.000	6.20	6.900	90.00	20.00	●
M10	1.50	10.000	8.00	8.600	100.00	24.00	●
M12	1.75	12.000	9.00	10.400	110.00	28.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 53669



For blind holes with thread depths up to 2 x D. Special geometry for tapping in high-tensile special alloys, e.g. Inconel 718. High wear resistance thanks to HSS-E-PM and AlTiN coating.

DIN 371/376 DIN 2184-1

Tool material	HSS-E-PM
Surface	AlTiN
Type	Produktiv HX
Form	B
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight

Machine taps for ISO metric threads

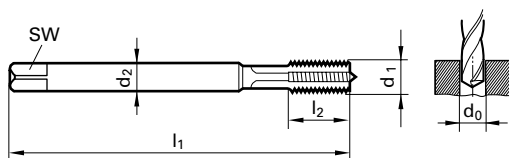
Catalog no. 53668



For blind holes with thread depths up to 2 x D. Special geometry for tapping in high-tensile special alloys, e.g. Inconel 718. High wear resistance thanks to HSS-E-PM and AlTiN coating.

DIN 371/376 DIN 2184-1

Tool material	HSS-E-PM
Surface	AlTiN
Type	Intensiv HX
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	10° right hand helix



Catalog no.	53669	53668
Tool material	HSS-E-PM	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	AlTiN	AlTiN
Application		

d1	P	d2	SW	d0	l1	l2	price per piece	
mm	mm	mm	mm	mm	mm	mm		
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●	●
M 8	1.25	8.000	6.20	6.800	90.00	17.00	●	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●	●
M12	1.75	9.000	7.00	10.200	110.00	24.00	●	●
M16	2.00	12.000	9.00	14.000	110.00	26.00		●

Machine taps

Machine taps for ISO metric threads

Catalog no. 53670



This machine tap is able to solve problems, which are not only based on the tensile strength of the material to be cut. Suitable for through- and blind holes. Due to the geometry with wide flutes the short chips can remain in the flutes or will be transported out of the blind hole together with the soluble oil. Useable with external or internal coolant supply. High wear resistant due to PM-steel and TiCN-coating. Clamping direct in the spindle for synchronized tapping is possible.

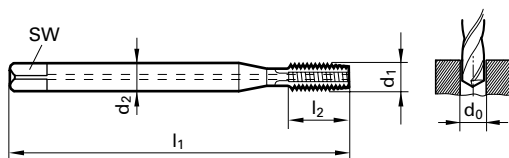
This type HCX supplements the range of taps with the color codes:

Red - for high tensile materials >1000 N/mm²

Black - for brittle and short chipping AISi-alloys

White - for all cast materials

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	HCX
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight



Catalog no.	53670
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●
M 8	1.25	8.000	6.20	6.800	90.00	17.00	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73176



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

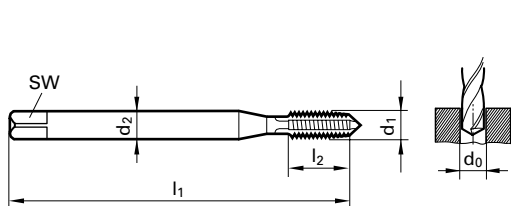
Machine taps for ISO metric threads

Catalog no. 63176



For through holes with thread depths of more than 2 x d. special relief results in free cutting applicability. the spiral point causes better chip removal. due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in such case a tap type n is preferable. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73176	63176
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	steam tempered	TiN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M 3	●	●
M 4	●	●
M 5	●	●
M 6	●	●
M 8	●	●
M10	●	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73177



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

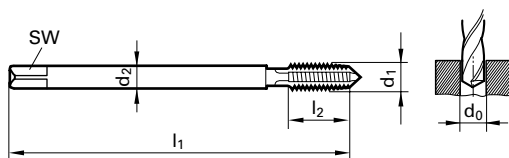
Machine taps for ISO metric threads

Catalog no. 63177



For through holes with thread depths of more than 2 x d. special relief results in free cutting applicability. the spiral point causes better chip removal. due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in such case a tap type n is preferable. High wear resistance thanks to TiN coating.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73177	63177
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	steam tempered	TiN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M12	●	●
M14	●	
M16	●	●
M20	●	

Machine taps

Machine taps for ISO metric threads

Catalog no. 73641



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

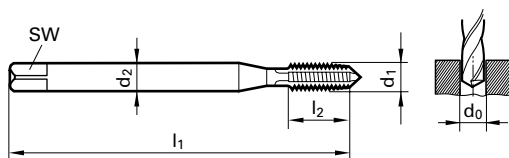
Machine taps for ISO metric threads

Catalog no. 53641



For through holes with thread depths of more than 2 x d. special relief results in free cutting applicability. the spiral point causes better chip removal. due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in such case a tap type n is preferable. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73641	53641
Tool material	HSS-E-PM	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiCN
Application		
	price per piece	
d1		
P		
d2		
SW		
d0		
l1		
l2		
M 3	●	●
M 4	●	●
M 5	●	●
M 6	●	●
M 8	●	●
M 8	●	●
M10	●	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73643



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

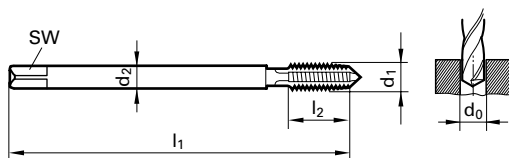
Machine taps for ISO metric threads

Catalog no. 53643



For through holes with thread depths of more than 2 x d. special relief results in free cutting applicability. the spiral point causes better chip removal. due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in such case a tap type n is preferable. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73643	53643
Tool material	HSS-E-PM	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiCN
Application		
	price per piece	
d1		
mm		
P		
mm		
d2		
mm		
SW		
mm		
d0		
mm		
l1		
mm		
l2		
mm		
M12	●	●
M14	●	●
M16	●	●
M18	●	
M20	●	
M22	●	

Machine taps

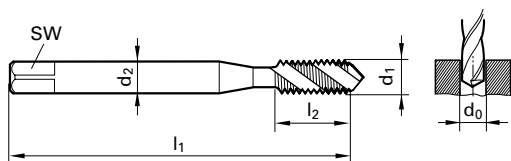
Machine taps for ISO metric threads

Catalog no. 73660



For blind holes with thread depth more than $2 \times D$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73660
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

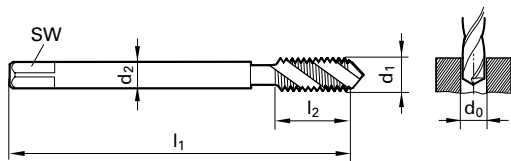
Machine taps for ISO metric threads

Catalog no. 73659



For blind holes with thread depth more than 2 x D. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73659
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	18.50	●
M14	2.00	11.000	9.00	12.000	110.00	20.00	●
M16	2.00	12.000	9.00	14.000	110.00	20.00	●
M20	2.50	16.000	12.00	17.500	140.00	25.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73662



For blind holes with thread depth more than $2 \times D$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Machine taps for ISO metric threads

Catalog no. 63662



For blind holes with thread depth more than $2 \times d$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. chip removal out of the hole towards the shank. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in this case type n is preferable. High wear resistance thanks to TiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiN
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Catalog no.							73662	63662
Tool material							HSS-E-PM	
Discount group							103	103
Cutting direction							right-hand	right-hand
Surface							bright	TiN
Application								
d1	P	d2	SW	d0	l1	l2	price per piece	
mm	mm	mm	mm	mm	mm	mm		
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●	○
M 3,5	0.60	4.000	3.00	2.900	56.00	7.00	●	
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●	○
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●	○
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●	○
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●	○
M10	1.50	10.000	8.00	8.500	100.00	16.00	●	○

Machine taps

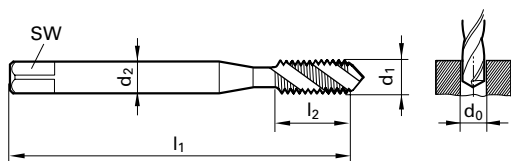
Machine taps for ISO metric threads

Catalog no. 53662



For blind holes with thread depth more than $2 \times d$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. chip removal out of the hole towards the shank. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in this case type n is preferable. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 371	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	53662
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73665



For blind holes with thread depth more than $2 \times D$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	bright
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

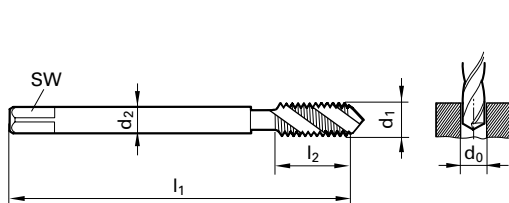
Machine taps for ISO metric threads

Catalog no. 53665



For blind holes with thread depth more than $2 \times d$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. chip removal out of the hole towards the shank. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. this type of tap tends to stick when used in materials with less strength. in this case type n is preferable. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

DIN 376	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.		73665	53665
Tool material		HSS-E-PM	
Discount group		103	103
Cutting direction		right-hand	right-hand
Surface		bright	TiCN
Application			
d1	l2	price per piece	
mm	mm		
0.00	18.50	●	●
0.00	20.00	●	●
0.00	20.00	●	●
5.00	25.00	○	
0.00	25.00	●	
0.00	27.00	○	
0.00	30.00	●	

Machine taps

Machine taps for ISO metric threads

DIN 371/376 DIN 2184-1

Catalog no. 53667



For blind holes with thread depths up to 2 x D. Special geometry for tapping tough-hard, jamming materials, nickel-based alloys with tensile strengths up to 1400 N/mm², Hastelloy, Ampco, Super Duplex. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

Tool material	HSS-E-PM
Surface	TiCN
Type	Produktiv HDX
Form	B
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight

Machine taps for ISO metric threads

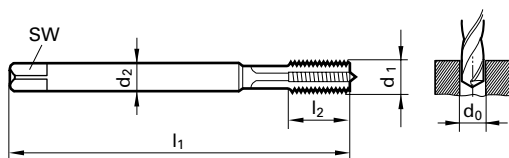
DIN 371/376 DIN 2184-1



Catalog no. 53666



For blind holes with thread depths up to 2 x D. Special geometry for tapping tough-hard, jamming materials, nickel-based alloys with tensile strengths up to 1400 N/mm², Hastelloy, Ampco, Super Duplex. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.

Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv HDX
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	15° RH spiral



Catalog no.		53667	53666
Tool material		HSS-E-PM	
Discount group		103	103
Cutting direction		right-hand	right-hand
Surface		TiCN	TiCN
Application			
d1	l2	price per piece	
mm	mm		
3.00	10.00	●	●
4.00	12.00	●	●
5.00	14.00	●	●
6.00	16.00	●	●
8.00	17.00	●	●
10.00	20.00	●	●
12.00	24.00	●	●
16.00	26.00	●	●

Machine taps

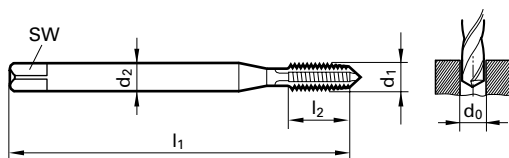
Machine taps for ISO metric threads

Catalog no. 73131



For through holes also for thread depths over 2xD. Larger flute space due to less number of flutes. Strong chip-removal in feed direction. For machining long chipping materials such as steels up to 700 N/mm², cast steel up to 800 N/mm², copper, brass, red brass, Al- and Al-alloys, Mg-alloys, Elektron, soft plastics (Thermoplast)

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv W
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73131
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2	0.40	2.800	2.10	1.600	45.00	8.00	●
M 2,3	0.40	2.800	2.10	1.900	45.00	9.00	●
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	●
M 2,6	0.45	2.800	2.10	2.100	50.00	9.00	●
M 3	0.50	3.500	2.70	2.500	56.00	10.00	●
M 3,5	0.60	4.000	3.00	2.900	56.00	12.00	●
M 4	0.70	4.500	3.40	3.300	63.00	12.00	●
M 5	0.80	6.000	4.90	4.200	70.00	14.00	●
M 6	1.00	6.000	4.90	5.000	80.00	16.00	●
M 8	1.25	8.000	6.20	6.800	90.00	18.00	●
M10	1.50	10.000	8.00	8.500	100.00	20.00	●

Machine taps

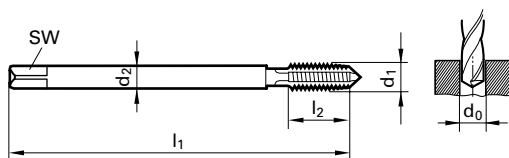
Machine taps for ISO metric threads

Catalog no. 73189



For through holes with thread depths of more than $2 \times D$. Compared with type N it has larger flutes due to reduced number of flutes. The spiral point causes better chip removal. For use in soft long-chipping materials, steels up to 700 N/mm^2 , malleable cast iron up to 800 N/mm^2 , copper, brass, red bronze, Al and Al-alloys, Mg-alloys, Electron, thermo plastics.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv W
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73189
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	○

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	○
M16	2.00	12.000	9.00	14.000	110.00	26.00	○
M20	2.50	16.000	12.00	17.500	140.00	32.00	○

Machine taps

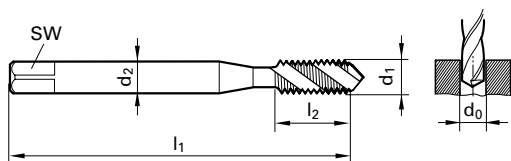
Machine taps for ISO metric threads

Catalog no. 73156



For blind holes. Larger flute space due to less number of flutes. Easy chip evacuation in shank direction. For machining long-chipping materials such as copper, brass, red brass, Aluminium and Al-alloys, Mg-alloys, Elektron, soft plastics.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv W
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	45° RH spiral



Catalog no.	73156
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 2	0.40	2.800	2.10	1.600	45.00	8.00	●
M 2,3	0.40	2.800	2.10	1.900	45.00	9.00	●
M 2,5	0.45	2.800	2.10	2.050	50.00	9.00	●
M 3	0.50	3.500	2.70	2.500	56.00	6.00	●
M 4	0.70	4.500	3.40	3.300	63.00	7.50	●
M 5	0.80	6.000	4.90	4.200	70.00	8.50	●
M 6	1.00	6.000	4.90	5.000	80.00	11.00	●
M 8	1.25	8.000	6.20	6.800	90.00	14.00	●
M10	1.50	10.000	8.00	8.500	100.00	16.00	●

Machine taps

Machine taps for ISO metric threads

DIN 376

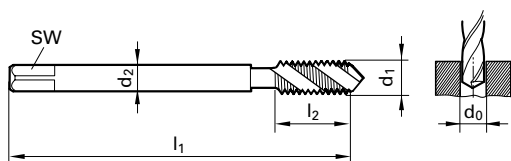
DIN 2184-1

Catalog no. 73136



For blind holes. Larger flute space due to less number of flutes. Easy chip evacuation in shank direction. For machining long-chipping materials such as copper, brass, red brass, Aluminium and Al-alloys, Mg-alloys, Elektron, soft plastics.

Tool material	HSS-E
Surface	bright
Type	Intensiv W
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	45° RH spiral



Catalog no.	73136
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	18.50	●
M16	2.00	12.000	9.00	14.000	110.00	20.00	●
M 20	2.50	16.000	12.00	17.500	140.00	25.00	●

Machine taps

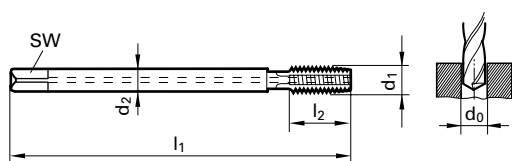
Machine taps for ISO metric threads

Catalog no. 73011

For blind holes. Suitable for thread depths larger than 2xD. From M5 upwards with axial coolant through. Especially for machining Al-alloys with a Si-content > 7%.



DIN 371	DIN 2184-1
Tool material	Solid Carbide
Surface	bright
Type	H
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight



Catalog no.	73011
Tool material	Solid Carbide
Discount group	103
Cutting direction	right-hand
Surface	bright
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.500	56.00	8.00	●
M 4	0.70	4.500	3.40	3.300	63.00	10.00	●
M 5	0.80	6.000	4.90	4.200	70.00	10.00	●
M 6	1.00	6.000	4.90	5.000	80.00	12.00	●
M 8	1.25	8.000	6.20	6.800	90.00	16.00	●
M10	1.50	10.000	8.00	8.500	100.00	18.00	●

Machine taps

Machine taps for ISO metric threads

Catalog no. 73201



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight

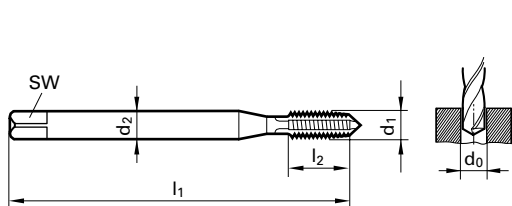
Machine taps for ISO metric threads

Catalog no. 63201



For through and blind holes with thread depths of more than 2 x d. Better tool-life due to higher flank diameter tolerance. especially suited for tapping in grey cast, malleable cast, spheroidal cast. High wear resistance thanks to AlTiN coating.

DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	AlTiN
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight



Catalog no.		73201	63201
Tool material		HSS-E	
Discount group		103	103
Cutting direction		right-hand	right-hand
Surface		nitrided	AlTiN
Application			
1	l2	price per piece	
mm	mm		
0.00	10.00	●	●
0.00	12.00	○	
0.00	12.00	●	●
0.00	14.00	●	●
0.00	16.00	●	●
0.00	18.00	●	●
0.00	20.00	●	●

Machine taps

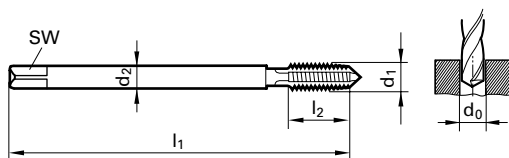
Machine taps for ISO metric threads

Catalog no. 73211



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight



Catalog no.	73211
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	10.200	110.00	24.00	
M14	2.00	11.000	9.00	12.000	110.00	26.00	
M16	2.00	12.000	9.00	14.000	110.00	26.00	
M18	2.50	14.000	11.00	15.500	125.00	30.00	
M20	2.50	16.000	12.00	17.500	140.00	32.00	
M22	2.50	18.000	14.50	19.500	140.00	32.00	

Machine taps

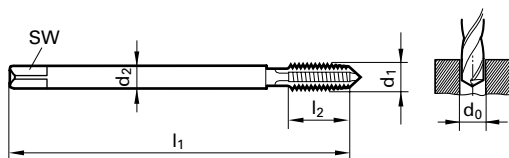
Machine taps for ISO metric fine threads

Catalog no. 53055



For through holes also for thread depths over 2xD. The spiral point causes better chip removal out of the hole in feed direction. Universal applicable in combination with synchronous chucks in nearly all materials. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life

DIN 374	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv Synchro
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	53055
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 8 X1	8.005	6.000	4.90	7.000	90.00	17.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	17.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	20.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	20.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	●

Machine taps

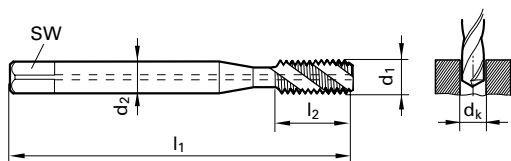
Machine taps for ISO metric fine threads

Catalog no. 53052

For blind holes also for thread depths over 2xD. Universal applicable in combination with synchronous chucks in nearly all materials. Easy chip evacuation in shank direction thanks to the helix and the axial coolant supply. Thanks to the TiCN-coating highly wear-resistant, gaining a very long tool life.



DIN 374	DIN 2184-1
Tool material	HSS-E-PM
Surface	TiCN
Type	Intensiv Synchro
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	50° right hand helix



Catalog no.	53052
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	TiCN
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 8 X1	8.005	6.000	4.90	7.000	90.00	5.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	5.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	5.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	7.50	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	7.50	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	7.50	●
M18 X1,5	18.007	14.000	11.00	16.500	110.00	7.50	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	7.50	●

Machine taps

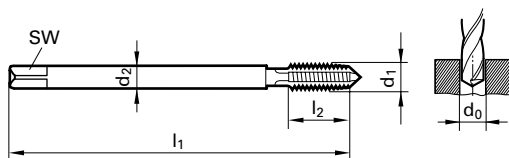
Machine taps for ISO metric fine threads

Catalog no. 73183



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73183
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 6 X0,75	6.004	4.500	3.40	5.250	80.00	13.00	●
M 8 X0,75	8.004	6.000	4.90	7.250	80.00	14.00	●
M 8 X1	8.005	6.000	4.90	7.000	90.00	18.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	20.00	●
M12 X1,50	12.007	9.000	7.00	10.500	100.00	20.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	25.00	●

Machine taps

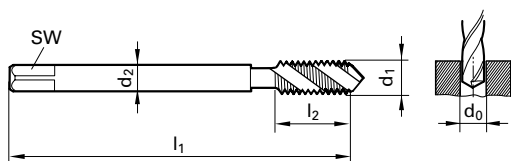
Machine taps for ISO metric fine threads

Catalog no. 73187



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73187
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 6 X0,75	6.004	4.500	3.40	5.250	80.00	8.00	●
M 8 X1	8.005	6.000	4.90	7.000	90.00	11.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	11.00	●
M10 X1,25	10.006	7.000	5.50	8.800	100.00	14.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	11.00	●
M12 X1,25	12.006	9.000	7.00	10.800	100.00	15.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	15.00	●
M14 X1	14.005	11.000	9.00	13.000	100.00	11.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	15.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	15.00	●
M18 X1,5	18.007	14.000	11.00	16.500	110.00	16.00	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	16.00	●

Machine taps

Machine taps for ISO metric fine threads

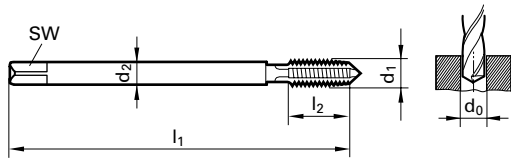
Catalog no. 73237



for through and blind holes, threading depths upto 1xD (no chip evacuation), universal suitable in unalloyed and alloyed steels upto 1000 N/mm², cast materials upto 200 HB, AL-alloys (short chipping)

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Machine taps for ISO metric fine threads



Catalog no. 73237

Tool material HSS-E

Discount group 103

Cutting direction right-hand

Surface bright

Application

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 8 X0,75	8.004	6.000	4.90	7.250	80.00	14.00	○
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	○
M12 X1,25	12.006	9.000	7.00	10.800	100.00	15.00	○
M12 X1,5	12.007	9.000	7.00	10.500	100.00	15.00	○
M16 X1,5	16.007	12.000	9.00	14.500	100.00	15.00	○
M24 X1,5	24.007	18.000	14.50	22.500	140.00	16.00	○

Machine taps

Machine taps for ISO metric fine threads

Catalog no. 73250



For through holes with thread depths more than 2 x D. The spiral point causes better chip removal in feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm², cast steel up to 800 N/mm², malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc die-casting.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Machine taps for ISO metric fine threads

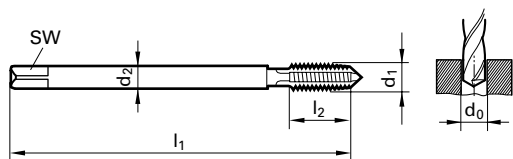
Catalog no. 63250



For through holes with thread depths more than 2 x d. the spiral point causes better chip removal into the feed direction. Generally usable (with or without guidance) in unalloyed and alloyed steels with a tensile strength up to 1000 N/mm², cast steel up to 800 N/mm², malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long-chipping, red brass, Al-alloys short chipping, zinc-alloys, zinc diecasting. High wear resistance thanks to TiN coating.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Machine taps for ISO metric fine threads



Catalog no.							73250	63250
Tool material							HSS-E	
Discount group							103	
Cutting direction							right-hand	right-hand
Surface							bright	TiN
Application								
d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece	
M 4 X0,5	4.003	2.800	2.10	3.500	63.00	8.00	●	
M 5 X0,5	5.003	3.500	2.70	4.500	70.00	10.00	●	
M 6 X0,5	6.003	4.500	3.40	5.500	80.00	13.00	●	
M 6 X0,75	6.004	4.500	3.40	5.250	80.00	13.00	●	
M 8 X0,75	8.004	6.000	4.90	7.250	80.00	14.00	●	
M 8 X1	8.005	6.000	4.90	7.000	90.00	18.00	●	●
M 9 X1	9.005	7.000	5.50	8.000	90.00	18.00	○	
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	●	●
M10 X1,25	10.006	7.000	5.50	8.800	100.00	20.00	●	●
M12 X1	12.005	9.000	7.00	11.000	100.00	20.00	●	●
M12 X1,25	12.006	9.000	7.00	10.800	100.00	20.00	●	
M12 X1,5	12.007	9.000	7.00	10.500	100.00	20.00	●	●
M14 X1	14.005	11.000	9.00	13.000	100.00	20.00	●	
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	●	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	●	●
M18 X1	18.005	14.000	11.00	17.000	110.00	25.00	●	
M20 X1,5	20.007	16.000	12.00	18.500	125.00	25.00	●	●
M22 X1,5	22.007	18.000	14.50	20.500	125.00	25.00	●	
M24 X2	24.008	18.000	14.50	22.000	140.00	28.00	●	

Machine taps

Machine taps for ISO metric fine threads

Catalog no. 73173



For blind holes with thread depths of more than 2 x d in long-chipping materials, other materials 1-2 x d depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 n/mm², cast steel up to 800 n/mm², malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Machine taps for ISO metric fine threads

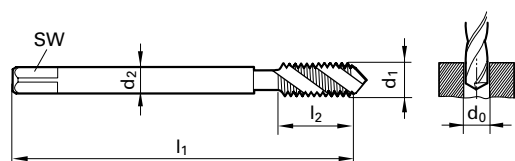
Catalog no. 63173































For blind holes with thread depths of more than 2 x d in long-chipping materials, other materials 1-2 x d depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 n/mm², cast steel up to 800 n/mm², malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	TiN
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral

Machine taps for ISO metric fine threads



Catalog no.		73173	63173
Tool material		HSS-E	
Discount group		103	
Cutting direction		right-hand	right-hand
Surface		bright	TiN
Application			
1	l2	price per piece	
mm	mm		
0.00	4.00		
0.00	5.00		
0.00	5.00		
0.00	5.00		
0.00	8.00		
0.00	8.00		
0.00	11.00		
0.00	11.00		
0.00	14.00		
0.00	11.00		
0.00	11.00		
0.00	15.00		
0.00	15.00		
0.00	11.00		
0.00	15.00		
0.00	15.00		
0.00	16.00		
5.00	16.00		

Machine taps

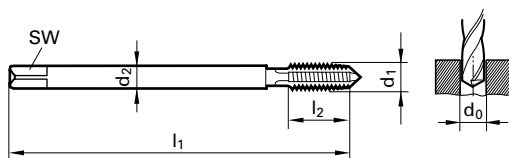
Machine taps for ISO metric fine threads

Catalog no. 73646



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. For working in alloyed steels up to 1000 N/mm^2 , tool steels, copper-alloys, tough bronzes and Duroplastic.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	Produktiv H
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73646
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 3 X0,35	3.002	2.200		2.650	56.00	7.00	●
M 4 X0,5	4.003	2.800	2.10	3.500	63.00	8.00	●
M 5 X0,5	5.003	3.500	2.70	4.500	70.00	10.00	●
M 6 X0,75	6.004	4.500	3.40	5.250	80.00	13.00	●
M 8 X0,75	8.004	6.000	4.90	7.250	80.00	14.00	●
M 8 X1	8.005	6.000	4.90	7.000	90.00	18.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	20.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	●
M18 X1,5	18.007	14.000	11.00	16.500	110.00	25.00	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	25.00	●
M22 X1,5	22.007	18.000	14.50	20.500	125.00	25.00	●

Machine taps

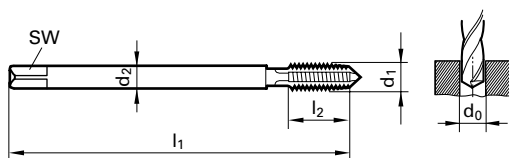
Machine taps for ISO metric fine threads

Catalog no. 73178



For through holes with thread depths of more than $2 \times D$. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73178
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 5 X0,5	5.003	3.500	2.70	4.500	70.00	10.00	●
M 6 X0,75	6.004	4.500	3.40	5.250	80.00	13.00	●
M 8 X1	8.005	6.000	4.90	7.000	90.00	18.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	20.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	20.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	●
M18 X1,5	18.007	14.000	11.00	16.500	110.00	25.00	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	25.00	●

Machine taps

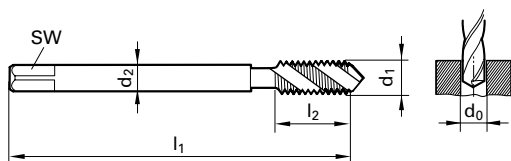
Machine taps for ISO metric fine threads

Catalog no. 73180

For blind holes with thread depth more than $2 \times D$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.



DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	40° RH spiral



Catalog no.	73180
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 8 X1	8.005	6.000	4.90	7.000	90.00	11.00	●
M10 X1	10.005	7.000	5.50	9.000	90.00	11.00	●
M12 X1	12.005	9.000	7.00	11.000	100.00	11.00	●
M12 X1,5	12.007	9.000	7.00	10.500	100.00	15.00	●
M14 X1,5	14.007	11.000	9.00	12.500	100.00	15.00	●
M16 X1,5	16.007	12.000	9.00	14.500	100.00	15.00	●
M18 X1,5	18.007	14.000	11.00	16.500	110.00	16.00	●
M20 X1,5	20.007	16.000	12.00	18.500	125.00	16.00	●

Machine taps

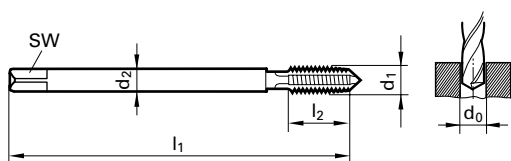
Machine taps for ISO metric fine threads

Catalog no. 73194



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	straight



Catalog no.	73194
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
M 8 X1	8.005	6.000	4.90	7.000	90.00	18.00	
M10 X1	10.005	7.000	5.50	9.000	90.00	18.00	
M12 X1,5	12.007	9.000	7.00	10.500	100.00	20.00	
M14 X1,5	14.007	11.000	9.00	12.500	100.00	20.00	
M16 X1,5	16.007	12.000	9.00	14.500	100.00	22.00	
M18 X1,5	18.007	14.000	11.00	16.500	110.00	25.00	
M20 X1,5	20.007	16.000	12.00	18.500	125.00	25.00	

Machine taps

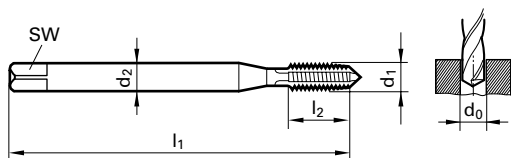
Machine taps for UNC-threads

Catalog no. 73308



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

~ DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73308
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR. 4 -40	2.845	3.500	2.70	2.350	56.00	11.00	●
NR. 6 -32	3.505	4.000	3.00	2.850	56.00	12.00	●
NR. 8 -32	4.166	4.500	3.40	3.500	63.00	13.00	●
NR.10 -24	4.826	6.000	4.90	3.900	70.00	14.00	●
1/4 -20	6.350	7.000	5.50	5.100	80.00	16.00	●
5/16-18	7.938	8.000	6.20	6.600	90.00	18.00	●
3/8 -16	9.525	10.000	8.00	8.000	100.00	20.00	●

Machine taps

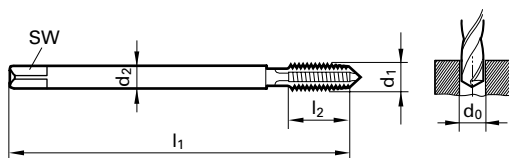
Machine taps for UNC-threads

Catalog no. 73309



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

~ DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73309
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
1/2 -13	12.700	9.000	7.00	10.800	110.00	25.00	●
5/8 -11	15.875	12.000	9.00	13.500	110.00	30.00	●
3/4 -10	19.050	14.000	11.00	16.500	125.00	33.00	●

Machine taps

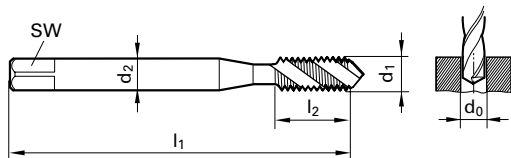
Machine taps for UNC-threads

Catalog no. 73322



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

~ DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73322
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR. 4 -40	2.845	3.500	2.70	2.350	56.00	6.50	●
NR. 6 -32	3.505	4.000	3.00	2.850	56.00	8.00	●
NR. 8 -32	4.166	4.500	3.40	3.500	63.00	8.00	●
NR.10 -24	4.826	6.000	4.90	3.900	70.00	11.00	●
1/4 -20	6.350	7.000	5.50	5.100	80.00	13.00	●
5/16-18	7.938	8.000	6.20	6.600	90.00	14.00	●
3/8 -16	9.525	10.000	8.00	8.000	100.00	16.00	●

Machine taps

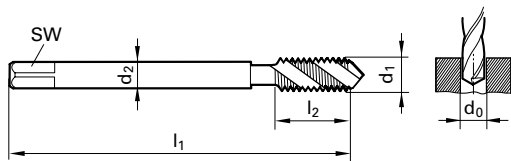
Machine taps for UNC-threads

Catalog no. 73323



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

~ DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73323
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
1/2 -13	12.700	9.000	7.00	10.800	110.00	20.00	●
5/8 -11	15.875	12.000	9.00	13.500	110.00	24.00	●
3/4 -10	19.050	14.000	11.00	16.500	125.00	25.00	●

Machine taps

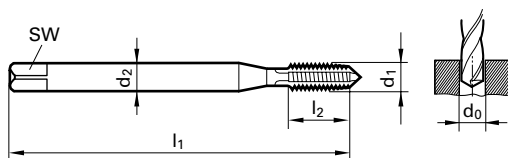
Machine taps for UNC-threads

Catalog no. 73297



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

~ DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73297
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR. 4 -40	2.845	3.500	2.70	2.350	56.00	11.00	●
NR. 6 -32	3.505	4.000	3.00	2.850	56.00	12.00	●
NR. 8 -32	4.166	4.500	3.40	3.500	63.00	13.00	●
NR.10 -24	4.826	6.000	4.90	3.900	70.00	14.00	●
1/4 -20	6.350	7.000	5.50	5.100	80.00	16.00	●
5/16-18	7.938	8.000	6.20	6.600	90.00	18.00	●
3/8 -16	9.525	10.000	8.00	8.000	100.00	20.00	●

Machine taps

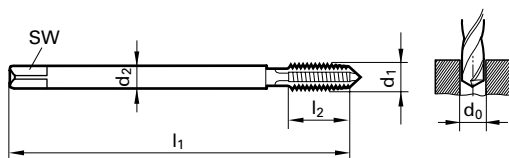
Machine taps for UNC-threads

Catalog no. 73298



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

~ DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73298
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
1/2 -13	12.700	9.000	7.00	10.800	110.00	25.00	●
5/8 -11	15.875	12.000	9.00	13.500	110.00	30.00	●
3/4 -10	19.050	14.000	11.00	16.500	125.00	33.00	●
1 - 8	25.400	18.000	14.50	22.250	160.00	38.00	●

Machine taps

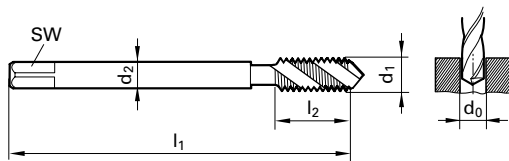
Machine taps for UNC-threads

Catalog no. 73304

For blind holes with thread depth more than $2 \times D$. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.



~ DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73304
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR. 4 -40	2.845	3.500	2.70	2.350	56.00	6.50	●
NR. 6 -32	3.505	4.000	3.00	2.850	56.00	8.00	●
NR. 8 -32	4.166	4.500	3.40	3.500	63.00	8.00	●
NR.10 -24	4.826	6.000	4.90	3.900	70.00	11.00	●
1/4 -20	6.350	7.000	5.50	5.100	80.00	13.00	●
5/16-18	7.938	8.000	6.20	6.600	90.00	14.00	●
3/8 -16	9.525	10.000	8.00	8.000	100.00	16.00	●

Machine taps

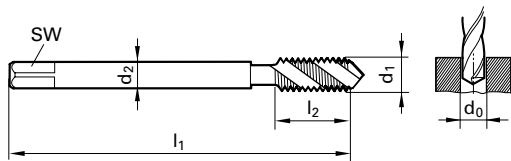
Machine taps for UNC-threads

Catalog no. 73305



For blind holes with thread depth more than 2 x D. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

~ DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73305
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
1/2 -13	12.700	9.000	7.00	10.800	110.00	20.00	●
5/8 -11	15.875	12.000	9.00	13.500	110.00	24.00	●
3/4 -10	19.050	14.000	11.00	16.500	125.00	25.00	●

Machine taps

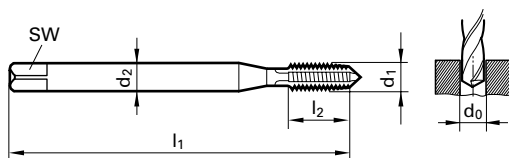
Machine taps for UNC-threads

Catalog no. 73326



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

~ DIN 371	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73326
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR. 8 -32	4.166	4.500	3.40	3.500	63.00	13.00	●
NR.10 -24	4.826	6.000	4.90	3.900	70.00	14.00	●
1/4 -20	6.350	7.000	5.50	5.100	80.00	18.00	●
5/16-18	7.938	8.000	6.20	6.600	90.00	20.00	●
3/8 -16	9.525	10.000	8.00	8.000	100.00	22.00	●

Machine taps

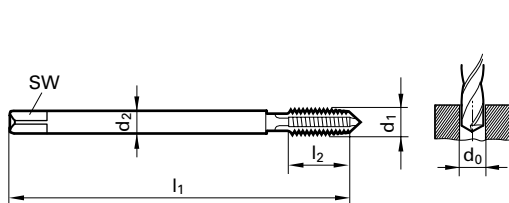
Machine taps for UNC-threads

Catalog no. 73327



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

~ DIN 376	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73327
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
1/2 -13	12.700	9.000	7.00	10.800	110.00	25.00	●
5/8 -11	15.875	12.000	9.00	13.500	110.00	30.00	●
3/4 -10	19.050	14.000	11.00	16.500	125.00	33.00	●
1 - 8	25.400	18.000	14.50	22.250	160.00	38.00	●

Machine taps

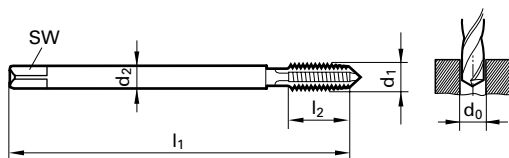
Machine taps for UNF-threads

Catalog no. 73310



For through holes with thread depths more than $2 \times D$. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm^2 e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

~ DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73310
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR.10 -32	4.826	3.500	2.70	4.100	70.00	14.00	●
1/4 -28	6.350	4.500	3.40	5.500	80.00	16.00	●
3/8 -24	9.525	7.000	5.50	8.500	90.00	18.00	●
5/8 -18	15.875	12.000	9.00	14.500	100.00	22.00	●

Machine taps

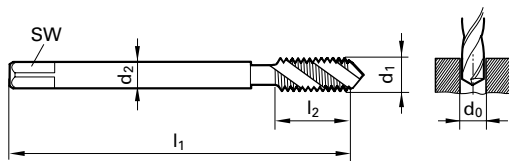
Machine taps for UNF-threads

Catalog no. 73324



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

~ DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73324
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR.10 -32	4.826	3.500	2.70	4.100	70.00	8.50	●
1/4 -28	6.350	4.500	3.40	5.500	80.00	9.00	●
5/16-24	7.938	6.000	4.90	6.900	90.00	11.00	●
3/8 -24	9.525	7.000	5.50	8.500	90.00	11.00	●
7/16-20	11.113	8.000	6.20	9.900	100.00	13.00	●
1/2 -20	12.700	9.000	7.00	11.500	100.00	13.00	●
5/8 -18	15.875	12.000	9.00	14.500	100.00	15.00	●

Machine taps

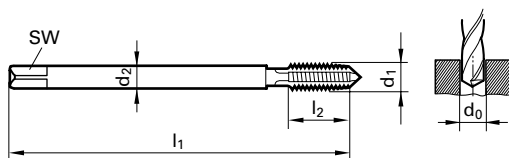
Machine taps for UNF-threads

Catalog no. 73299



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

~ DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight



Catalog no.	73299
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR.10 -32	4.826	3.500	2.70	4.100	70.00	14.00	●
1/4 -28	6.350	4.500	3.40	5.500	80.00	16.00	●
3/8 -24	9.525	7.000	5.50	8.500	90.00	18.00	●
5/8 -18	15.875	12.000	9.00	14.500	100.00	22.00	●

Machine taps

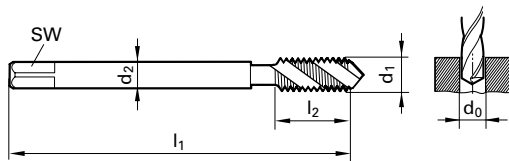
Machine taps for UNF-threads

Catalog no. 73306



For blind holes with thread depth more than 2 x D. Free-cutting execution due to special relief, short tapping part and cylindrical reduced thread. Chip removal out of the hole towards the shank. For tapping in strong, stainless, non-corrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In this case type N is preferable.

~ DIN 374	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	40° RH spiral



Catalog no.	73306
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered
Application	

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	price per piece
NR.10 -32	4.826	3.500	2.70	4.100	70.00	8.50	●
1/4 -28	6.350	4.500	3.40	5.500	80.00	9.00	●
5/16-24	7.938	6.000	4.90	6.900	90.00	11.00	●
3/8 -24	9.525	7.000	5.50	8.500	90.00	11.00	●
7/16-20	11.113	8.000	6.20	9.900	100.00	13.00	●
1/2 -20	12.700	9.000	7.00	11.500	100.00	13.00	●
5/8 -18	15.875	12.000	9.00	14.500	100.00	15.00	●
3/4 -16	19.050	14.000	11.00	17.500	110.00	16.00	●

Machine taps

Machine taps for NPT-threads

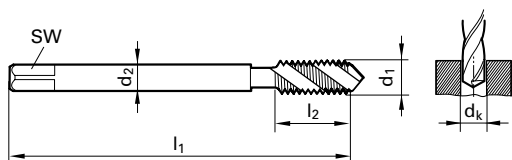
Catalog no. 73293



For blind holes upto 2xD. Chip evacuation in shank direction. Especially suitable for tough, jamming, acid-stainless and heat-resistant materials

Stock std.

Tool material	HSS-E
Surface	steam tempered
Type	CVA
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	25° right hand helix



Catalog no.	73293
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
1/8	27.00	10.620	11.000	9.00	8.500	90.00	15.00	●
1/4	18.00	14.140	14.000	11.00	11.200	100.00	21.00	●
3/8	18.00	17.570	16.000	12.00	14.400	110.00	21.00	●
1/2	14.00	21.900	18.000	14.50	18.000	125.00	27.00	●
3/4	14.00	27.230	22.000	18.00	23.400	140.00	27.00	●

Machine taps

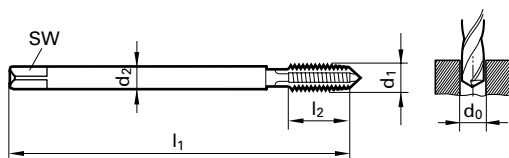
Machine taps for BSP-threads

Catalog no. 73321



For through holes with thread depths more than 2 x D. The spiral point causes better chip removal out of the hole in feed direction. The steam-tempered surface reduces cutting edge build-up. Generally usable in iron materials, unalloyed and alloyed steels with a tensile strength up to 1000 N/mm² e.g. heat treatable steels, nitrided steels and case hardened steels, malleable cast iron.

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight



Catalog no.	73321
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	18.00	●
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	20.00	●
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	22.00	●
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	25.00	●
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	28.00	●
G1	11.00	33.249	25.000	20.00	30.750	160.00	30.00	●

Machine taps

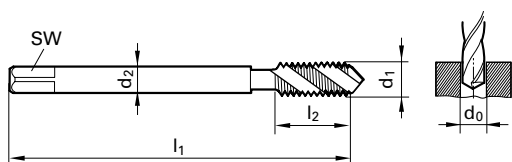
Machine taps for BSP-threads

Catalog no. 73325



For blind holes over 2xD. Easy chip evacuation thanks to the helix in shank direction. No galling because of the steam tempered surface. Universal suitable in unalloyed and alloyed steels upto 1000/N/mm² as tempered- and nitrided steels, case-hardened steels, spheroidal cast iron

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	40° RH spiral



Catalog no.	73325
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	11.00	●
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	14.00	●
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	14.00	●
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	18.00	●
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	20.00	●
G1	11.00	33.249	25.000	20.00	30.750	160.00	24.00	●

Machine taps

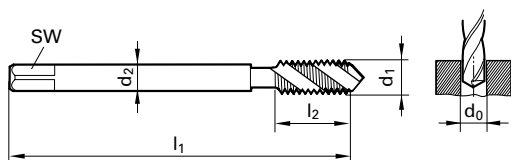
Machine taps for BSP-threads

Catalog no. 73286



For blind holes with thread depths of more than $2 \times d$ in long-chipping materials, other materials $1-2 \times d$ depending on chip-rise. the helix results in a better chip removal out of the hole towards the shank. Accurate guidance is given even without automatic feed. suitable for unalloyed and alloyed steels with tensile strengths of up to 1000 N/mm^2 , cast steel up to 800 N/mm^2 , malleable cast iron, spheroidal iron, copper alloys, high tensile bronzes, brass long chipping, red brass, al-alloys short-chipping, zinc-alloys, zinc die-casting.

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	bright
Type	Intensiv N
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	40° RH spiral



Catalog no.	73286
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	11.00	●
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	14.00	●
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	14.00	●
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	18.00	●
G 5/8	14.00	22.911	18.000	14.50	21.000	125.00	18.00	●
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	20.00	●
G 7/8	14.00	30.201	22.000	18.00	28.250	150.00	22.00	●
G1	11.00	33.249	25.000	20.00	30.750	160.00	24.00	●
G1 1/4	11.00	41.910	32.000	24.00	39.500	170.00	25.00	●
G1 1/2	11.00	47.803	36.000	29.00	45.250	190.00	27.00	●

Machine taps

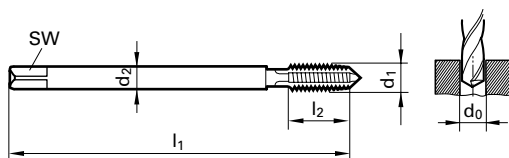
Machine taps for BSP-threads

Catalog no. 73300



For through holes with thread depths of more than 2 x D. Special relief results in free cutting applicability. The spiral point causes better chip removal. Due to short, stabile construction especially suitable for use on automatic machines. For tapping in strong, stainless, noncorrosive and heat-resistant materials and tool steels. This type of tap tends to stick when used in materials with less strength. In such case a tap type N is preferable.

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Produktiv HD
Form	B
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight



Catalog no.	73300
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	18.00	●
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	20.00	●
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	22.00	●
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	25.00	●
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	28.00	●
G1	11.00	33.249	25.000	20.00	30.750	160.00	30.00	●

Machine taps

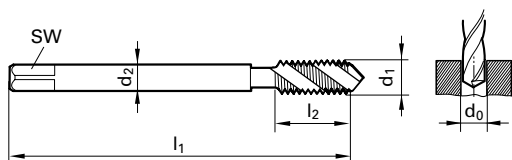
Machine taps for BSP-threads

Catalog no. 73288



For blind holes with thread depths of more than 2 x D. The helix results in a better chip removal out of the hole towards the shank. The thread relief is reduced to a minimum. Especially suited in adhesive materials, stainless, noncorrosive and heat-resistant steels.

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	steam tempered
Type	Intensiv HD
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	40° RH spiral



Catalog no.	73288
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	steam tempered

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	11.00	●
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	14.00	●
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	14.00	●
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	18.00	●
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	20.00	●
G1	11.00	33.249	25.000	20.00	30.750	160.00	24.00	●

Machine taps

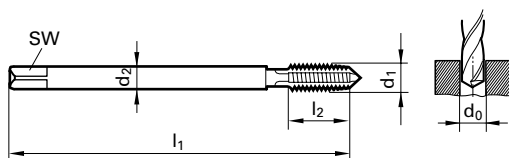
Machine taps for BSP-threads

Catalog no. 73345



For through and blind holes with thread depths of more than 2 x D. Better tool-life due to higher flank diameter tolerance. Especially suited for tapping in grey cast, malleable cast, spheroidal cast.

DIN 5156	DIN 2184-1
Tool material	HSS-E
Surface	nitrided
Type	G
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight



Catalog no.	73345
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	nitrided

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
G 1/8	28.00	9.728	7.000	5.50	8.800	90.00	18.00	○
G 1/4	19.00	13.157	11.000	9.00	11.800	100.00	20.00	○
G 3/8	19.00	16.662	12.000	9.00	15.250	100.00	22.00	○
G 1/2	14.00	20.955	16.000	12.00	19.000	125.00	25.00	○
G 3/4	14.00	26.441	20.000	16.00	24.500	140.00	28.00	○
G1	11.00	33.249	25.000	20.00	30.750	160.00	30.00	○

Short machine taps

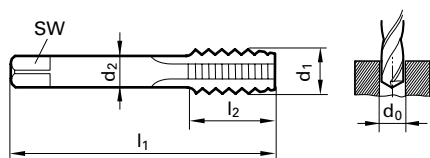
Machine taps for PG-threads for electr. conduits

Catalog no. 73296



For through and blind holes, thread depths up to 1 x D. Universal suitable in alloyed and unalloyed steels up to 1000 N/mm², steel cast iron up to 800 N/mm², grey cast iron up to 200 HB as well as short chipping Al-alloys.

DIN 40432	DIN 2184-2
Tool material	HSS-E
Surface	bright
Type	Produktiv N
Form	B
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight



Catalog no.	73296
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright

d1	P	Code no.	d2	SW	d0	l1	l2	price per piece
inch	G/Inch		mm	mm	mm	mm	mm	
PG 7	20.00	12.500	9.000	7.00	11.500	70.00	22.00	●
PG 9	18.00	15.200	12.000	9.00	14.000	70.00	22.00	●
PG 11	18.00	18.600	14.000	11.00	17.250	80.00	22.00	●
PG 13,5	18.00	20.400	16.000	12.00	19.000	80.00	22.00	●
PG 16	18.00	22.500	18.000	14.50	21.250	80.00	22.00	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

Catalog no. 73120



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting.

~ DIN 371	DIN 2174
Tool material	HSS-E
Surface	bright
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves

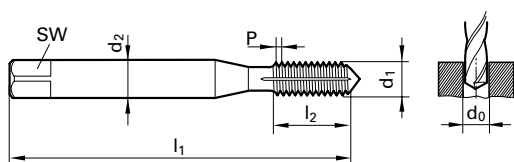
Fluteless machine taps for ISO metric threads

Catalog no. 63120



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

~ DIN 371	DIN 2174
Tool material	HSS-E
Surface	TiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves



Catalog no.	73120	63120
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiN
	price per piece	
	●	●
	○	●
	●	●
	●	●
	●	●
	●	●
	●	●

d1	P	d2	SW	d0	l1	l2		
mm	mm	mm	mm	mm	mm	mm		
M 3	0.50	3.500	2.70	2.800	56.00	10.00	●	●
M 3,5	0.60	4.000	3.00	3.250	56.00	12.00	○	
M 4	0.70	4.500	3.40	3.700	63.00	12.00	●	●
M 5	0.80	6.000	4.90	4.650	70.00	14.00	●	●
M 6	1.00	6.000	4.90	5.550	80.00	16.00	●	●
M 8	1.25	8.000	6.20	7.400	90.00	18.00	●	●
M10	1.50	10.000	8.00	9.250	100.00	20.00	●	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

~ DIN 371

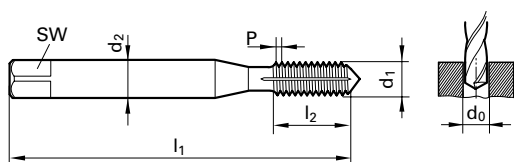
DIN 2174

Catalog no. 63119



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

Tool material	HSS-E
Surface	TiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6GX
Flutes	with oil grooves



Catalog no.	63119
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	TiN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.800	56.00	10.00	●
M 4	0.70	4.500	3.40	3.700	63.00	12.00	●
M 5	0.80	6.000	4.90	4.650	70.00	14.00	●
M 6	1.00	6.000	4.90	5.550	80.00	16.00	●
M 8	1.25	8.000	6.20	7.400	90.00	18.00	●
M10	1.50	10.000	8.00	9.250	100.00	20.00	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

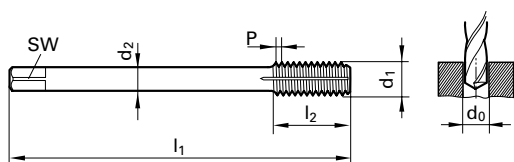
~ DIN 376 DIN 2174

Catalog no. 63122



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

Tool material	HSS-E
Surface	TiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves



Catalog no.	63122
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	TiN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	11.250	110.00	24.00	●
M14	2.00	11.000	9.00	13.100	110.00	26.00	●
M16	2.00	12.000	9.00	15.100	110.00	26.00	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

~ DIN 371

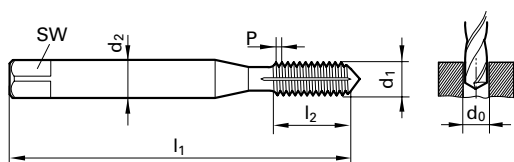
DIN 2174

Catalog no. 53620



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. Greatly increased wear resistance thanks to AlCrN coating.

Tool material	HSS-E-PM
Surface	AlCrN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves



Catalog no.	53620
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	AlCrN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.800	56.00	10.00	●
M 4	0.70	4.500	3.40	3.700	63.00	12.00	●
M 5	0.80	6.000	4.90	4.650	70.00	14.00	●
M 6	1.00	6.000	4.90	5.550	80.00	16.00	●
M 8	1.25	8.000	6.20	7.400	90.00	18.00	●
M10	1.50	10.000	8.00	9.250	100.00	20.00	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

~ DIN 371

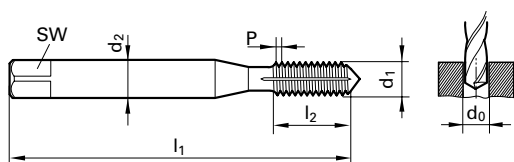
DIN 2174

Catalog no. 53621



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. Greatly increased wear resistance thanks to AlCrN coating.

Tool material	HSS-E-PM
Surface	AlCrN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6GX
Flutes	with oil grooves



Catalog no.	53621
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	AlCrN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.800	56.00	10.00	●
M 4	0.70	4.500	3.40	3.700	63.00	12.00	●
M 5	0.80	6.000	4.90	4.650	70.00	14.00	●
M 6	1.00	6.000	4.90	5.550	80.00	16.00	●
M 8	1.25	8.000	6.20	7.400	90.00	18.00	●
M10	1.50	10.000	8.00	9.250	100.00	20.00	●

Fluteless taps with oil grooves

Fluteless machine taps for ISO metric threads

~ DIN 376

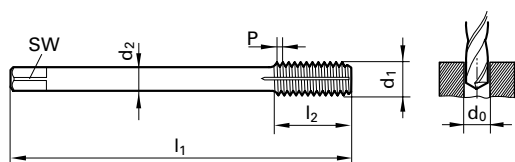
DIN 2174

Catalog no. 53622



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. Greatly increased wear resistance thanks to AlCrN coating.

Tool material	HSS-E-PM
Surface	AlCrN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves



Catalog no.	53622
Tool material	HSS-E-PM
Discount group	103
Cutting direction	right-hand
Surface	AlCrN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	11.250	110.00	24.00	●
M14	2.00	11.000	9.00	13.100	110.00	26.00	●
M16	2.00	12.000	9.00	15.100	110.00	26.00	●
M20	2.50	16.000	12.00	18.900	140.00	32.00	●

Fluteless taps with oil grooves

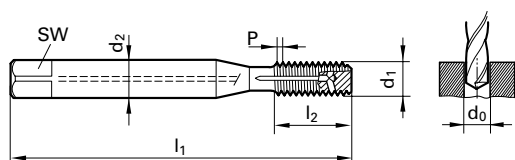
Oil feed fluteless taps f. ISO metric threads

Catalog no. 63013

For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 1000 N/mm², stainless-, noncorrosive and heat-resistant steels, al-alloys long chipping, zinc-alloys, zinc die-casting. Greatly increased wear resistance thanks to AlTiN coating.



~ DIN 371	DIN 2174
Tool material	Solid Carbide
Surface	AlTiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	with oil grooves



Catalog no.	63013
Tool material	Solid Carbide
Discount group	103
Cutting direction	right-hand
Surface	AlTiN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.70	2.800	56.00	6.00	●
M 4	0.70	4.500	3.40	3.700	63.00	7.50	●
M 5	0.80	6.000	4.90	4.650	70.00	8.50	●
M 6	1.00	6.000	4.90	5.550	80.00	11.00	●
M 8	1.25	8.000	6.20	7.400	90.00	14.00	●
M10	1.50	10.000	8.00	9.250	100.00	16.00	●

Fluteless taps without oil grooves

Fluteless machine taps for ISO metric threads

Catalog no. 73121



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 900 N/mm², stainless-, noncorrosive and heat-resistant steels, Al-alloys long chipping, zinc-alloys, zinc die-casting.

DIN 371	DIN 2174
Tool material	HSS-E
Surface	bright
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	without oil grooves

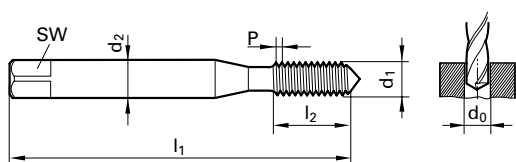
Fluteless machine taps for ISO metric threads

Catalog no. 63121



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 900 N/mm², stainless-, noncorrosive and heat-resistant steels, Al-alloys long chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

DIN 371	DIN 2174
Tool material	HSS-E
Surface	TiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	without oil grooves



Catalog no.	73121	63121
Tool material	HSS-E	
Discount group	103	103
Cutting direction	right-hand	right-hand
Surface	bright	TiN
	price per piece	
	●	●
	○	
	○	
	○	
	●	●
	○	
	●	●
	●	●
	●	●
	●	●
	●	●

d1	P	d2	SW	d0	l1	l2		
mm	mm	mm	mm	mm	mm	mm		
M 2	0.40	2.800	2.10	1.800	45.00	8.00	●	●
M 2,2	0.45	2.800	2.10	2.000	45.00	9.00	○	
M 2,3	0.40	2.800	2.10	2.100	45.00	9.00	○	
M 2,5	0.45	2.800	2.10	2.300	50.00	9.00	○	
M 3	0.50	3.500	2.70	2.800	56.00	10.00	●	●
M 3,5	0.60	4.000	3.00	3.250	56.00	12.00	○	
M 4	0.70	4.500	3.40	3.700	63.00	12.00	●	●
M 5	0.80	6.000	4.90	4.650	70.00	14.00	●	●
M 6	1.00	6.000	4.90	5.550	80.00	16.00	●	●
M 8	1.25	8.000	6.20	7.400	90.00	18.00	●	●
M10	1.50	10.000	8.00	9.250	100.00	20.00	●	●

Fluteless taps without oil grooves

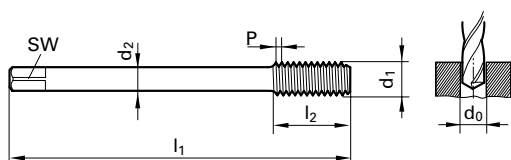
Fluteless machine taps for ISO metric threads

Catalog no. 63123



For through and blind holes of up to 1 x d. suitable for materials with good cold deformation and at least 10% extension characteristics such as unalloyed steels up to 900 N/mm², stainless-, noncorrosive and heat-resistant steels, Al-alloys long chipping, zinc-alloys, zinc die-casting. High wear resistance thanks to TiN coating.

~ DIN 376	DIN 2174
Tool material	HSS-E
Surface	TiN
Type	Durativ
Form	C
Cutting direction	right-hand
Tolerance on Ø	6HX
Flutes	without oil grooves



Catalog no.	63123
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	TiN

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M12	1.75	9.000	7.00	11.250	110.00	24.00	●
M16	2.00	12.000	9.00	15.100	110.00	26.00	●
M20	2.50	16.000	12.00	18.900	140.00	32.00	●

Thread milling cutters with chamfer

Thread milling cutters for metric ISO threads

Catalog no. 73810



Thread milling cutter with 45° chamfer, spiral flute and internal coolant (axial). Suitable for thread milling of through- and blind holes upto 2xD in Al-alloys, cast and cast iron, brass, Mg-alloys, Titan and Duroplastics as well as Thermoplastics.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TMC SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	

Thread milling cutters for metric ISO threads

Catalog no. 53810



Thread milling cutter with 45° chamfer, spiral flute and internal coolant (axial).

Suitable for thread milling of through- and blind holes upto 2xD in steel and special alloys. High wear resistance thanks to TiCN coating.

Stock std.

Tool material	Solid Carbide
Surface	TiCN
Type	TMC SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	

										Catalog no.	73810	53810
										Tool material	Solid Carbide	
										Carbide grade	K	K/P
										Discount group	108	108
										Surface	bright	TiCN
										Type	TMC SP	TMC SP
										Drilling depth	2xD	2xD
										Cooling	axial >=M4	axial >=M4
G	P	d1	d2	d3	d0	l1	l2	l3	Z	Code no.	price per piece	
M 3	0.50	2.300	6.000	3.400	2.500	48.00	6.75	36.00	3	3.000	●	●
M 4	0.70	3.000	6.000	4.500	3.300	48.00	8.75	36.00	3	4.000	●	●
M 5	0.80	3.800	6.000	5.500	4.200	54.00	10.80	36.00	3	5.000	●	●
M 6	1.00	4.500	8.000	6.600	5.000	62.00	13.50	36.00	3	6.000	●	●
M 8	1.25	5.950	10.000	9.000	6.800	74.00	18.13	40.00	3	8.000	●	●
M10	1.50	7.950	12.000	11.000	8.500	80.00	21.75	45.00	4	10.000	●	●
M12	1.75	9.950	14.000	13.500	10.200	90.00	25.38	45.00	4	12.000	●	●
M14	2.00	10.800	16.000	15.500	12.000	102.00	31.00	48.00	4	14.000	●	●
M16	2.00	12.800	18.000	17.500	14.000	102.00	35.00	48.00	4	16.000	●	●
M20	2.50	13.950	20.000	21.500	17.500	125.00	41.25	50.00	4	20.000	●	●

Thread milling cutters with chamfer

Thread milling cutters for metric ISO fine threads

Catalog no. 73820



Thread milling cutter with 45° chamfer, spiral flute and internal coolant (axial). Suitable for thread milling of through- and blind holes upto 2xD in Al-alloys, cast and cast iron, brass, Mg-alloys, Titan and Duroplastics as well as Thermoplastics.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TMC SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	

Thread milling cutters for metric ISO fine threads

Catalog no. 53820



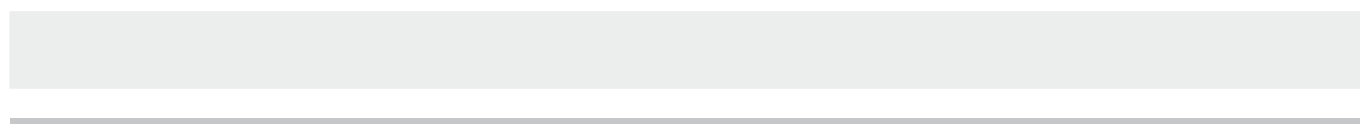
Thread milling cutter with 45° chamfer, spiral flute and internal coolant (axial).

Suitable for thread milling of through- and blind holes upto 2xD in steel and special alloys. High wear resistance thanks to TiCN coating.

Stock std.

Tool material	Solid Carbide
Surface	TiCN
Type	TMC SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	

										Catalog no.	73820	53820
										Tool material	Solid Carbide	
										Carbide grade	K	K/P
										Discount group	108	108
										Surface	bright	TiCN
										Type	TMC SP	TMC SP
										Drilling depth	2xD	2xD
										Cooling	axial	axial
G	d1	d2	d3	d0	l1	l2	l3	Z	Code no.	price per piece		
mm	mm	mm	mm	mm	mm	mm	mm					
M 4 X0,5	3.000	6.000	4.500	3.500	48.00	8.75	36.00	3	4.003	●		●
M 5 X0,5	3.800	6.000	5.500	4.500	54.00	10.75	36.00	3	5.003	●		●
M 6 X0,5	4.500	8.000	6.600	5.500	62.00	12.75	36.00	3	6.003	●		●
M 6 X0,75	4.500	8.000	6.600	5.250	62.00	13.13	36.00	3	6.004	●		●
M 8 X0,75	5.950	10.000	9.000	7.250	74.00	16.88	40.00	3	8.004	●		●
M 8 X1	5.950	10.000	9.000	7.000	74.00	17.50	40.00	3	8.005	●		●
M10 X1	7.950	12.000	11.000	9.000	80.00	21.50	45.00	4	10.005	●		●
M10 X1,25	7.950	12.000	11.000	8.800	80.00	21.88	45.00	4	10.006	●		●
M12 X1	9.950	14.000	13.500	11.000	90.00	25.50	45.00	4	12.005	●		●
M12 X1,5	9.950	14.000	13.500	10.500	90.00	26.25	45.00	4	12.007	●		●
M14 X1,5	10.800	16.000	15.500	12.500	102.00	30.75	48.00	4	14.007	●		●
M16 X1,5	12.800	18.000	17.500	14.500	102.00	33.75	48.00	4	16.007	●		●



Thread milling cutters without chamfer

Thread milling cutters for metric ISO threads

Catalog no. 73830



Thread milling cutter without chamfer, with spiral flute and internal coolant (axial). Suitable for thread milling of through- and blind holes up to 2xD in Al-alloys, cast and cast iron, brass, Mg-alloys, Titan and Duroplastics as well as Thermoplastics.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	TM SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	

Thread milling cutters for metric ISO threads

Catalog no. 53830

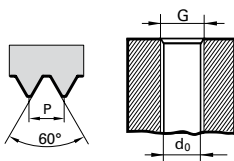
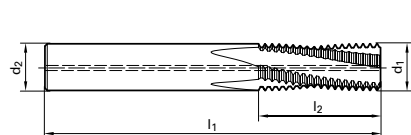


Thread milling cutter without chamfer, with spiral flute and internal coolant (axial).

Suitable for thread milling of through- and blind holes up to 2xD in steel and special alloys. High wear resistance thanks to TiCN coating.

Stock std.

Tool material	Solid Carbide
Surface	TiCN
Type	TM SP
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	



Catalog no.	73830	53830
Tool material	Solid Carbide	
Carbide grade	K	K/P
Discount group	108	108
Surface	bright	TiCN
Type	TM SP	TM SP
Drilling depth	2xD	2xD
Cooling	axial	axial

G	P	d1	d2	d0	l1	l2	Z	Code no.	price per piece	
mm	mm	mm	mm	mm	mm	mm				
M 6	1.00	4.800	6.000	5.000	54.00	13.50	3	6.000	●	●
M 8	1.25	6.400	8.000	6.800	62.00	18.10	3	8.000	●	●
M 8 X1	1.00	6.400	8.000	7.000	62.00	14.50	3	8.005	●	●
M10	1.50	7.950	10.000	8.500	74.00	21.80	3	10.000	●	●
M10 X1	1.00	7.950	10.000	9.000	74.00	14.50	3	10.005	●	●
M10 X1,25	1.25	7.950	10.000	8.800	74.00	18.10	3	10.006	●	●
M12	1.75	9.950	10.000	10.200	74.00	25.40	4	12.000	●	●
M14	2.00	11.200	12.000	12.000	80.00	31.00	4	14.000	●	●
M14 X1,50	1.50	11.200	12.000	12.500	80.00	23.30	4	14.007	●	●
M16	2.00	12.800	14.000	14.000	90.00	35.00	4	16.000	●	●
M16 X1,50	1.50	12.800	14.000	14.500	90.00	26.30	4	16.007	●	●
M20	2.50	14.950	16.000	17.500	102.00	41.30	4	20.000	●	●
M20 X1,50	1.50	14.950	16.000	18.500	102.00	24.80	4	20.007	●	●

Hand taps

Hand taps for ISO metric threads

Catalog no. 73531

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A/D/C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads

Catalog no. 73101



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads

Catalog no. 73102



Second tap, straight fluted, also suited for use on machines, for through and blind holes. Second tap with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps

Hand taps for ISO metric threads

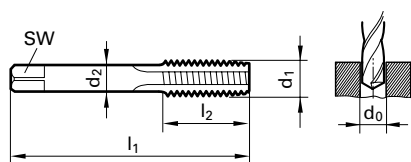
Catalog no. 73103



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads



							Catalog no.	73531	73101	73102	73103
							Tool material	HSS			
							Discount group	118	118	118	118
							Cutting direction	right-hand	right-hand	right-hand	right-hand
							Surface	bright	bright	bright	bright
d1	P	d2	SW	d0	l1	l2	Price per set		price per piece		
mm	mm	mm	mm	mm	mm	mm					
M 1	0.25	2.500	2.10	0.750	32.00	5.50	●		●	●	●
M 1,2	0.25	2.500	2.10	0.950	32.00	5.50	●		●	●	●
M 1,4	0.30	2.500	2.10	1.100	32.00	7.00	●		●	●	●
M 1,6	0.35	2.500	2.10	1.250	32.00	8.00	●		●	●	●
M 1,8	0.35	2.500	2.10	1.450	32.00	8.00			●	●	●
M 2	0.40	2.800	2.10	1.600	36.00	8.00	●		●	●	●
M 2,2	0.45	2.800	2.10	1.750	36.00	9.00			●	●	●
M 2,5	0.45	2.800	2.10	2.050	40.00	9.00	●		●	●	●
M 2,6	0.45	2.800	2.10	2.100	40.00	9.00	●		●	●	●
M 3	0.50	3.500	2.70	2.500	40.00	10.00	●		●	●	●
M 3,5	0.60	4.000	3.00	2.900	45.00	12.00	●		●	●	●
M 4	0.70	4.500	3.40	3.300	45.00	12.00	●		●	●	●
M 4,5	0.75	6.000	4.90	3.700	50.00	14.00	●		●	●	●
M 5	0.80	6.000	4.90	4.200	50.00	14.00	●		●	●	●
M 6	1.00	6.000	4.90	5.000	56.00	16.00	●		●	●	●
M 7	1.00	6.000	4.90	6.000	56.00	16.00	●		●	●	●
M 8	1.25	6.000	4.90	6.800	63.00	18.00	●		●	●	●
M10	1.50	7.000	5.50	8.500	70.00	20.00	●		●	●	●
M12	1.75	9.000	7.00	10.200	75.00	24.00	●		●	●	●
M14	2.00	11.000	9.00	12.000	80.00	26.00	●		●	●	●
M16	2.00	12.000	9.00	14.000	80.00	26.00	●		●	●	●
M18	2.50	14.000	11.00	15.500	95.00	30.00	●		●	●	●
M20	2.50	16.000	12.00	17.500	95.00	32.00	●		●	●	●
M22	2.50	18.000	14.50	19.500	100.00	32.00			●	●	●
M24	3.00	18.000	14.50	21.000	110.00	36.00	●		●	●	●

Hand taps

Hand taps for ISO metric threads

Catalog no. 73532

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N-LH
Form	A/D/C
Cutting direction	left-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads

Catalog no. 73105



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N-LH
Form	A
Cutting direction	left-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads

Catalog no. 73106



Second tap, straight fluted, also suited for use on machines, for through and blind holes. Second tap with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N-LH
Form	D
Cutting direction	left-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps

Hand taps for ISO metric threads

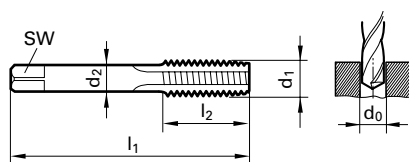
Catalog no. 73107



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N-LH
Form	C
Cutting direction	left-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric threads



Catalog no.	73532	73105	73106	73107
Tool material	HSS			
Discount group	118	118	118	118
Cutting direction	left-hand	left-hand	left-hand	left-hand
Surface	bright	bright	bright	bright

d1 mm	P mm	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece	
M 4	0.70	4.500	3.40	3.300	45.00	12.00	○	○	○
M 5	0.80	6.000	4.90	4.200	50.00	14.00	○	○	○
M 6	1.00	6.000	4.90	5.000	56.00	16.00	○	○	○
M 8	1.25	6.000	4.90	6.800	63.00	18.00	○	○	○
M10	1.50	7.000	5.50	8.500	70.00	20.00	○	○	○
M12	1.75	9.000	7.00	10.200	75.00	24.00	○	○	○
M14	2.00	11.000	9.00	12.000	80.00	26.00	○	○	○
M16	2.00	12.000	9.00	14.000	80.00	26.00	○	○	○
M18	2.50	14.000	11.00	15.500	95.00	30.00	○	○	○

Hand taps

Hand taps for ISO metric fine threads

Catalog no. 73521

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D/C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric fine threads

Catalog no. 73110



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric fine threads

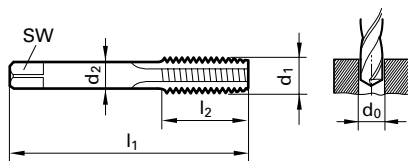
Catalog no. 73111



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight

Hand taps for ISO metric fine threads



							Catalog no.	73521	73110	73111
							Tool material	HSS		
							Discount group	118	118	118
							Cutting direction	right-hand	right-hand	right-hand
							Surface	bright	bright	bright
d1 x P mm	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece		
M 4 X0,35	4.002	4.500	3.40	3.650	45.00	8.00			○	○
M 4 X0,5	4.003	4.500	3.40	3.500	45.00	8.00			○	○
M 5 X0,5	5.003	6.000	4.90	4.500	50.00	10.00	○		○	○
M 6 X0,5	6.003	6.000	4.90	5.500	56.00	13.00	○		○	○
M 6 X0,75	6.004	6.000	4.90	5.250	56.00	13.00	○		○	○
M 7 X0,75	7.004	6.000	4.90	6.250	56.00	13.00				○
M 8 X0,75	8.004	6.000	4.90	7.250	56.00	14.00	○		○	○
M 8 X1	8.005	6.000	4.90	7.000	63.00	18.00	○		○	○
M 9 X1	9.005	7.000	5.50	8.000	63.00	18.00				○
M10 X0,75	10.004	7.000	5.50	9.250	63.00	18.00				○
M10 X1	10.005	7.000	5.50	9.000	63.00	18.00	○		○	○
M10 X1,25	10.006	7.000	5.50	8.800	70.00	20.00	○		○	○
M11 X1	11.005	8.000	6.20	10.000	63.00	20.00	○		○	○
M12 X1	12.005	9.000	7.00	11.000	70.00	20.00	○		○	○
M12 X1,25	12.006	9.000	7.00	10.800	70.00	20.00			○	○
M12 X1,25	12.006	9.000	7.00	10.800	70.00	22.00	○			
M12 X1,5	12.007	9.000	7.00	10.500	70.00	20.00			○	○
M12 X1,5	12.007	9.000	7.00	10.500	70.00	22.00	○			
M14 X1,25	14.006	11.000	9.00	12.800	70.00	20.00			○	○
M14 X1,25	14.006	11.000	9.00	12.800	70.00	22.00	○			
M16 X1	16.005	12.000	9.00	15.000	70.00	22.00				○
M16 X1,5	16.007	12.000	9.00	14.500	70.00	22.00	○		○	○
M18 X1	18.005	14.000	11.00	17.000	80.00	22.00				○
M18 X1,5	18.007	14.000	11.00	16.500	80.00	22.00	○		○	○
M20 X1,5	20.007	16.000	12.00	18.500	80.00	22.00	○		○	○
M20 X2	20.008	16.000	12.00	18.000	80.00	22.00				○

Hand taps

Hand taps for UNC-threads

Catalog no. 73535

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A/D/C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNC-threads

Catalog no. 73301



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNC-threads

Catalog no. 73302



Second tap, straight fluted, also suited for use on machines, for through and blind holes. Second tap with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps

Hand taps for UNC-threads

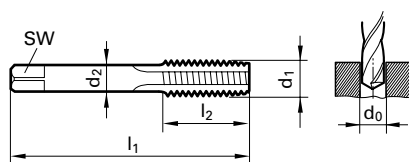
Catalog no. 73303



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNC-threads



Catalog no.	73535	73301	73302	73303
Tool material	HSS			
Discount group	118	118	118	118
Cutting direction	right-hand	right-hand	right-hand	right-hand
Surface	bright	bright	bright	bright

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece			
NR. 4 -40	2.845	3.500	2.70	2.350	40.00	11.00	○	○			
NR. 5 -40	3.175	4.000	3.00	2.650	40.00	11.00	○				
NR. 6 -32	3.505	4.000	3.00	2.850	45.00	12.00	○	○	○	○	
NR. 8 -32	4.166	4.500	3.40	3.500	45.00	13.00	○				
NR.10 -24	4.826	6.000	4.90	3.900	50.00	14.00		○	○	○	○
1/4 -20	6.350	6.000	4.90	5.100	56.00	16.00		○	○	○	○
5/16-18	7.938	6.000	4.90	6.600	63.00	18.00	○	○	○	○	○
3/8 -16	9.525	7.000	5.50	8.000	70.00	20.00		○	○	○	○
7/16-14	11.113	8.000	6.20	9.400	70.00	22.00		○	○	○	○
1/2 -13	12.700	9.000	7.00	10.800	75.00	25.00		○	○	○	○
5/8 -11	15.875	12.000	9.00	13.500	80.00	30.00		○	○	○	○
3/4 -10	19.050	16.000	12.00	16.500	95.00	33.00	○	○	○	○	○

Hand taps

Hand taps for UNF-threads

Catalog no. 73523

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D/C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNF-threads

Catalog no. 73319



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNF-threads

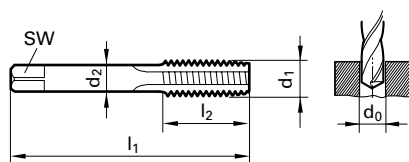
Catalog no. 73320



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 2181	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	2B
Flutes	straight

Hand taps for UNF-threads



Catalog no.	73523	73319	73320
Tool material	HSS		
Discount group	118	118	118
Cutting direction	right-hand	right-hand	right-hand
Surface	bright	bright	bright

d1 x P inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece	
5/16-24	7.938	6.000	4.90	6.900	63.00	17.00		○	○
3/8-24	9.525	7.000	5.50	8.500	63.00	18.00	○	○	○
9/16-18	14.288	11.000	9.00	12.900	70.00	20.00		○	○
5/8-18	15.875	12.000	9.00	14.500	70.00	20.00	○	○	○
3/4-16	19.050	16.000	12.00	17.500	80.00	22.00	○	○	○
7/8-14	22.225	18.000	14.50	20.400	80.00	22.00	○	○	○
1-12	25.400	18.000	14.50	23.250	90.00	22.00	○	○	○

Hand taps

Hand taps for BSW-threads

Catalog no. 73534

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A/D/C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSW-threads

Catalog no. 73311



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	A
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSW-threads

Catalog no. 73312



Second tap, straight fluted, also suited for use on machines, for through and blind holes. Second tap with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps

Hand taps for BSW-threads

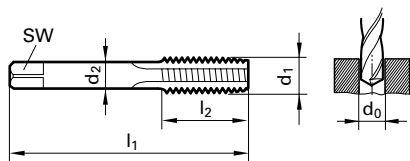
Catalog no. 73313



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

~ DIN 352	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSW-threads



Catalog no.	73534	73311	73312	73313
Tool material	HSS	HSS	HSS	HSS
Discount group	118	118	118	118
Cutting direction	right-hand	right-hand	right-hand	right-hand
Surface	bright	bright	bright	bright

d1 inch	P G/Inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece			
W 1/8	40.00	3.175	4.000	3.00	2.500	40.00	11.00	○	○	○	○	
W 5/32	32.00	3.969	4.500	3.40	3.200	45.00	13.00	○	○	○	○	
W 3/16	24.00	4.762	6.000	4.90	3.600	50.00	14.00	○	○	○	○	
W 1/4	20.00	6.350	6.000	4.90	5.100	56.00	16.00	○	○	○	○	
W 5/16	18.00	7.938	6.000	4.90	6.500	63.00	18.00	○	○	○	○	
W 3/8	16.00	9.525	7.000	5.50	7.900	70.00	20.00	○	○	○	○	
W 7/16	14.00	11.113	8.000	6.20	9.200	70.00	22.00	○	○	○	○	
W 1/2	12.00	12.700	9.000	7.00	10.500	75.00	25.00	○	○	○	○	
W 9/16	12.00	14.287	11.000	9.00	12.000	80.00	30.00	○	○	○	○	
W 5/8	11.00	15.876	12.000	9.00	13.500	80.00	30.00	○	○	○	○	
W 3/4	10.00	19.051	16.000	12.00	16.500	95.00	33.00	○	○	○	○	
W 7/8	9.00	22.226	18.000	14.50	19.250	100.00	35.00		○	○	○	
W1	8.00	25.401	18.000	14.50	22.000	110.00	38.00		○	○	○	
W1 1/4	7.00	31.751	22.000	18.00	28.000	125.00	44.00		○	○	○	
W1 1/2	6.00	38.101	32.000	24.00	33.500	150.00	50.00		○	○	○	
W1 3/4	5.00	38.108	32.000	24.00	38.250	150.00	58.00		○			
W2	4.50	50.802	40.000	32.00	44.500	180.00	65.00					○

Hand taps

Hand taps for BSP-threads

Catalog no. 73522

Hand tap set, straight fluted, also suited for use on machines, for through and blind holes. First taper and second tap with different outside and flank diameters. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 5157	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D/C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSP-threads

Catalog no. 73315



First taper, straight fluted, also suited for use on machines, for through and blind holes. First taper with different outside and flank diameters. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 5157	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSP-threads

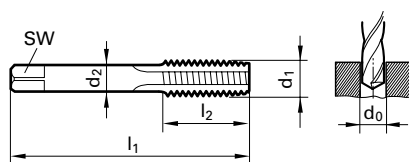
Catalog no. 73316



Bottoming tap, straight fluted, also suited for use on machines, for through and blind holes. The bottoming tap can be used as a short machine tap. Universally applicable in materials such as alloyed and unalloyed steels up to 800 N/mm².

DIN 5157	DIN 2184-2
Tool material	HSS
Surface	bright
Type	N
Form	C
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight

Hand taps for BSP-threads



Catalog no.	73522	73315	73316
Tool material	HSS	HSS	HSS
Discount group	118	118	118
Cutting direction	right-hand	right-hand	right-hand
Surface	bright	bright	bright

d1 inch	P G/Inch	Code no.	d2 mm	SW mm	d0 mm	l1 mm	l2 mm	Price per set	price per piece	
G 1/8	28.00	9.728	7.000	5.50	8.800	63.00	20.00	○	○	○
G 1/4	19.00	13.157	11.000	9.00	11.800	70.00	20.00	○	○	○
G 3/8	19.00	16.662	12.000	9.00	15.250	70.00	22.00	○	○	○
G 1/2	14.00	20.955	16.000	12.00	19.000	80.00	22.00	○	○	○
G 5/8	14.00	22.911	18.000	14.50	21.000	80.00	22.00		○	○
G 3/4	14.00	26.441	20.000	16.00	24.500	90.00	22.00		○	○
G1 1/8	11.00	37.897	28.000	22.00	35.500	125.00	30.00		○	○
G2	11.00	59.614	45.000	35.00	57.000	160.00	40.00		○	○

Combination drill

Machine combination drill taps

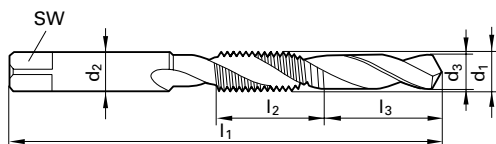
Catalog no. 73248



Drill-N-Tap: drills through holes and cuts threads up to approx 2 x D in one operation. Generally suitable for materials of unalloyed and alloyed steels up to 700 N/mm², malleable cast, spheroidal cast, copper, brass, Al and Al-alloys, Mg- and zinc alloys, red bronze, Elektron, zinc die-cast.

Stock std.

Tool material	HSS-E
Surface	bright
Type	N
Form	D
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	28° RH spiral



Catalog no.	73248
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright

d1	P	d2	d3	SW	l1	l2	l3	price per piece
mm	mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	3.500	2.500	2.70	62.00	12.00	9.00	●
M 4	0.70	4.500	3.300	3.40	66.00	16.00	10.00	●
M 5	0.80	6.000	4.200	4.90	75.00	18.00	12.00	●
M 6	1.00	6.000	5.000	4.90	81.00	20.00	14.00	●
M 8	1.25	6.000	6.800	4.90	93.00	12.00	20.00	●
M10	1.50	7.000	8.500	5.50	99.00	14.00	22.00	●
M12	1.75	9.000	10.200	7.00	106.00	16.00	25.00	●

Machine nut taps

Machine nut taps for ISO metric threads

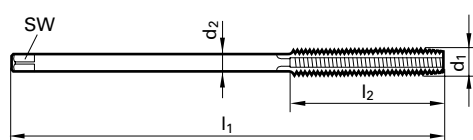
DIN 357

Catalog no. 73243



For through holes. For nuts of up to 1 x D. Suitable for unalloyed alloyed steels with tensile strengths of up to 1000 N/mm², short-chipping brass. Chamfer lead about 20 x P.

Tool material	HSS-E
Surface	bright
Type	N
Form	
Cutting direction	right-hand
Tolerance on Ø	ISO 2 / 6H
Flutes	straight



Catalog no.	73243
Tool material	HSS-E
Discount group	103
Cutting direction	right-hand
Surface	bright

d1	P	d2	SW	d0	l1	l2	price per piece
mm	mm	mm	mm	mm	mm	mm	
M 3	0.50	2.200		2.500	70.00	22.00	●
M 3,5	0.60	2.500	2.10	2.900	80.00	25.00	●
M 4	0.70	2.800	2.10	3.300	90.00	25.00	●
M 5	0.80	3.500	2.70	4.200	100.00	28.00	●
M 6	1.00	4.500	3.40	5.000	110.00	32.00	●
M 8	1.25	6.000	4.90	6.800	125.00	40.00	●
M10	1.50	7.000	5.50	8.500	140.00	45.00	●
M12	1.75	9.000	7.00	10.200	180.00	50.00	○
M14	2.00	11.000	9.00	12.000	200.00	56.00	●
M18	2.50	14.000	11.00	15.500	220.00	63.00	○
M30	3.50	22.000	18.00	26.500	315.00	100.00	○

Dies

Dies for ISO metric threads

Catalog no. 73410

for general purpose steels, brass, brass-alloyed copper



DIN EN 22568

Tool material	HSS
Surface	bright
	<i>lapped</i>
Form	B
Cutting direction	right-hand
Tolerance on Ø	6g
Flutes	
Spiral point	>M 2,6

Dies for ISO metric threads

Catalog no. 73400

for general purpose steels, brass, brass-alloyed copper



DIN EN 22568

Tool material	HSS
Surface	bright
Form	B
Cutting direction	right-hand
Tolerance on Ø	6g
Flutes	
Spiral point	>M 2,6

Dies for ISO metric threads

Catalog no. 73413

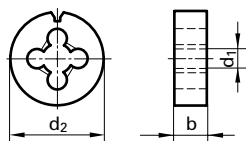
for general purpose steels, brass, brass-alloyed copper



DIN EN 22568

Tool material	HSS-E
Surface	nitrided
	<i>lapped</i>
Form	B
Cutting direction	right-hand
Tolerance on Ø	6g
Flutes	
Spiral point	>M 2,6

Dies for ISO metric threads



						Catalog no.	73410	73400	73413
						Tool material	HSS		HSS-E
						Discount group	103	103	103
						Cutting direction	right-hand	right-hand	right-hand
						Surface	bright	bright	nitrided
						Tolerance on Ø	6g	6g	6g
d1	P	Code no.	d2	workpce Ø	b	price per piece			
mm	mm		mm	mm	mm				
M 1	0.25	1.000	16.000	0.970	5.00			○	
M 1,2	0.25	1.200	16.000	1.170	5.00			○	
M 2,2	0.45	2.200	16.000	2.130	5.00			○	
M 2,3	0.40	2.300	16.000	2.250	5.00			○	
M 2,5	0.45	2.500	16.000	2.430	5.00				●
M 3	0.50	3.000	20.000	2.920	5.00	○		●	
M 3	0.50	3.020	20.000	2.920	5.00				●
M 3,5	0.60	3.500	20.000	3.410	5.00			●	
M 4	0.70	4.000	20.000	3.910	5.00	○		●	
M 4	0.70	4.020	20.000	3.910	5.00				●
M 4,5	0.75	4.500	20.000	4.410	7.00			●	
M 5	0.80	5.000	20.000	4.900	7.00			●	●
M 6	1.00	6.000	20.000	5.880	7.00	○		●	●
M 7	1.00	7.000	25.000	6.880	9.00			●	
M 8	1.25	8.000	25.000	7.870	9.00	○		●	●
M10	1.50	10.000	30.000	9.850	11.00	○		●	●
M12	1.75	12.000	38.000	11.830	14.00	○		●	●
M14	2.00	14.000	38.000	13.820	14.00	○		●	○
M16	2.00	16.000	45.000	15.820	18.00			●	○
M18	2.50	18.000	45.000	17.790	18.00	○		●	
M20	2.50	20.000	45.000	19.790	18.00			●	○
M30	3.50	30.000	65.000	29.730	25.00			●	
M45	4.50	45.000	90.000	44.690	36.00			●	













MILLING TOOLS SUPER F-UT





SuperF-UT end mills

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperF-UT end mills N

	SuperF-UT N	HB	35°/38°	Solid Carbide	TiAlN	DIN 6527 K	6,000 - 20,000	64550	106	564
	SuperF-UT N	HA	35°/38°	Solid Carbide	TiAlN	DIN 6527 L	4,000 - 20,000	54551	106	565
	SuperF-UT N	HB	35°/38°	Solid Carbide	TiAlN	DIN 6527 L	4,000 - 25,000	64551	106	565
	SuperF-UT N	HA	35°/38°	Solid Carbide	TiAlN	Stock std.	6,000 - 20,000	54562	106	566
	SuperF-UT N	HB	35°/38°	Solid Carbide	TiAlN	Stock std.	6,000 - 20,000	54563	106	566
	SuperF-UT N	HA	35°/38°	Solid Carbide	TiAlN	Stock std.	10,000 - 25,000	54552	106	567
	SuperF-UT N-F	HA	30°/32°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 25,000	54566	106	568
	SuperF-UT N-F	HB	30°/32°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 25,000	54567	106	568
	SuperF-UT N-3	HA	41°/43°/45°	Solid Carbide	TiAlN	~ DIN 6527 L	3,000 - 20,000	54564	106	569
	SuperF-UT N-3	HB	41°/43°/45°	Solid Carbide	TiAlN	~ DIN 6527 L	3,000 - 20,000	54565	106	569











SuperF-UT end mills Ti

	SuperF-UT Ti	HA	35°/38°	Solid Carbide	AlTiN+	DIN 6527 L	6,000 - 20,000	54560	106	571
	SuperF-UT Ti	HB	35°/38°	Solid Carbide	AlTiN+	DIN 6527 L	6,000 - 20,000	54561	106	571



SuperF-UT end mills

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperF-UT end mills VA

	SuperF-UT VA-X	HB	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 K	4,000 - 20,000	54576	106	573
	SuperF-UT VA-X	HA	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	3,000 - 25,000	54558	106	574
	SuperF-UT VA-X	HB	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	3,000 - 25,000	54559	106	574
	SuperF-UT VA-X IK	HA	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	6,000 - 25,000	54574	106	575
	SuperF-UT VA-X IK	HB	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	6,000 - 25,000	54575	106	575
	SuperF-UT VA-XF	HA	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	6,000 - 25,000	54568	106	576
	SuperF-UT VA-XF	HB	36°/38°	Solid Carbide	AlTiN nano	DIN 6527 L	6,000 - 25,000	54569	106	576
	SuperF-UT VA	HA	40°/42°	Solid Carbide	TiAlN	DIN 6527 L	4,000 - 20,000	54556	106	577
	SuperF-UT VA	HB	40°/42°	Solid Carbide	TiAlN	DIN 6527 L	4,000 - 20,000	64557	106	577
	SuperF-UT VA IK	HB	40°/42°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 20,000	64567	106	578

SuperF-UT end mills Alu

	SuperF-UT Al	HA	40°/42°	Solid Carbide	bright	DIN 6527 L	4,000 - 20,000	74554	106	579
	SuperF-UT Al	HB	40°/42°	Solid Carbide	bright	DIN 6527 L	4,000 - 20,000	74555	106	579

SuperF-UT end mills

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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SuperF-UT end mills Alu



SuperF-UT Al-F	HA	30°/29°/31°	Solid Carbide	bright	~ DIN 6527 L	6,000 - 25,000	54570	106	580
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SuperF-UT Al-F	HB	30°/29°/31°	Solid Carbide	bright	~ DIN 6527 L	6,000 - 25,000	54571	106	580
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SuperF-UT Al-3	HA	39°/40°/41°	Solid Carbide	bright	~ DIN 6527 L	3,000 - 20,000	74552	106	581
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SuperF-UT Al-3	HB	39°/40°/41°	Solid Carbide	bright	~ DIN 6527 L	3,000 - 20,000	74553	106	582
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SuperF-UT end mills H



SuperF-UT H	HA	40°/42°	Solid Carbide	AlTiN	DIN 6527 L	6,000 - 20,000	54572	106	583
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SuperF-UT H	HB	40°/42°	Solid Carbide	AlTiN	DIN 6527 L	6,000 - 20,000	54573	106	583
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SuperF-UT end mills FS



SuperF-UT FS	HA	44°/45°/46°	Solid Carbide	TiAlN	Stock std.	8,000 - 20,000	64558	106	584
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SuperF-UT FS	HB	44°/45°/46°	Solid Carbide	TiAlN	Stock std.	8,000 - 20,000	64559	106	584
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General recommendations

Stock SuperF-UT end mills are designed for application under optimal machining conditions, i.e.:

- high machine performance
- sufficient coolant supply
- rigid workpiece and tool clamping

In case of insufficient conditions in respect of machine and/or workpiece, we recommend the use of SuperF-UT end mills with new designed roughing and finishing profile i.e. N-F, VA-XF.

To machine steel materials (typically SuperF-UT type N) with a corner-radius end mill we recommend the SuperF-UT Ti, catalogue no. 54560 or 54561.

We also recommend synchronous milling.

Ramping and slot milling

For ramping, the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of $1 \times D$. This also applies to the transition to radial machining.

Slot milling

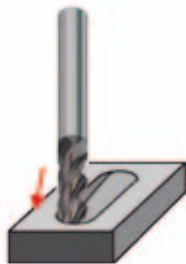
a_p = cut. depth $0,5 \times D$ = f_z 100%

a_p = cut. depth $1,0 \times D$ = f_z 75%

Ramping

$\leq 15^\circ$ = f_z 100%

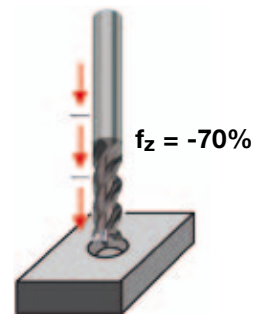
$15^\circ - 30^\circ$ = f_z -30%



Drilling

For drilling, the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of $0,5 \times D$.



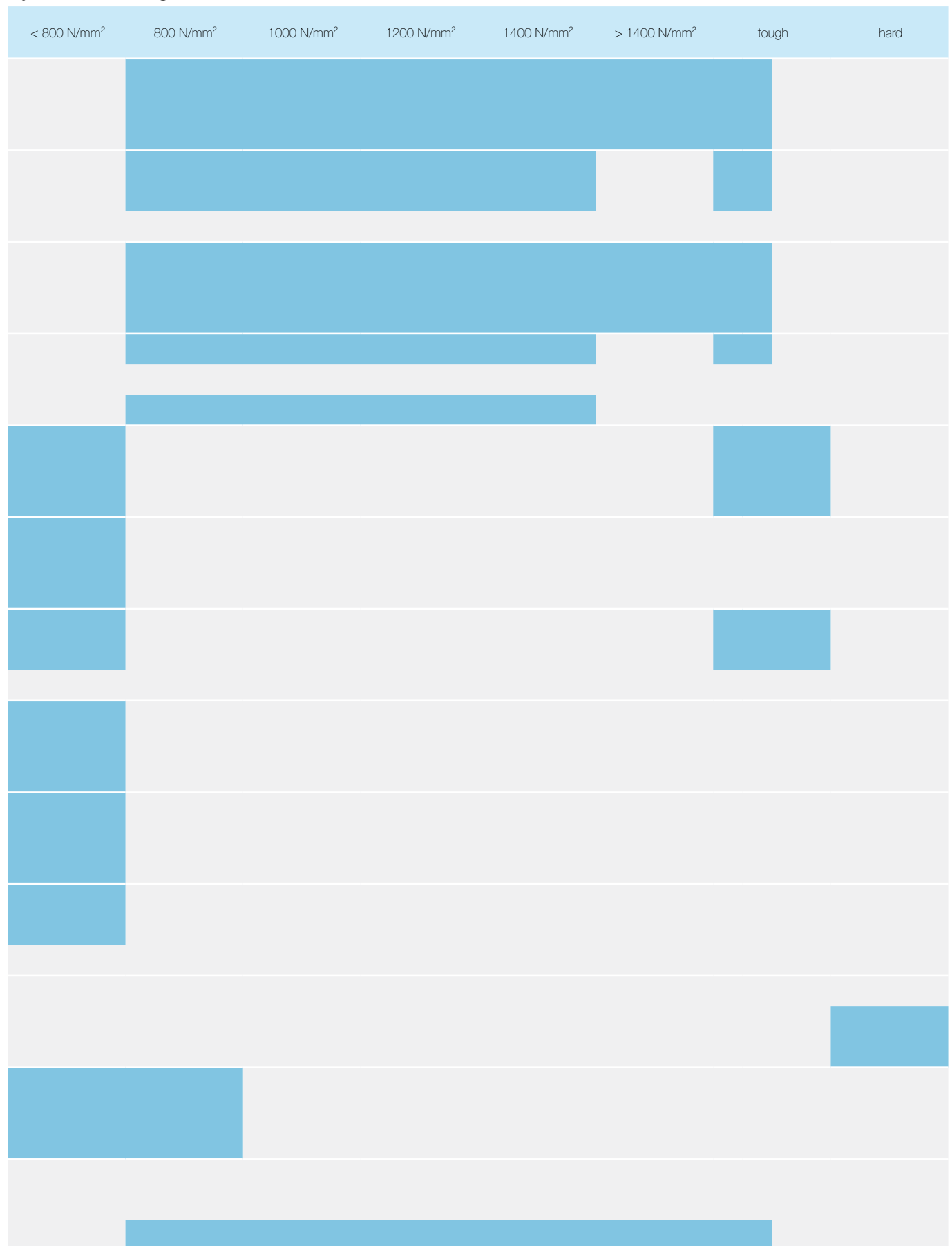
Application

by materials

Type	Catalog no.	Application	Non-ferrous metals, Aluminium	Steels	Cast iron	Stainless and acid- resistant steels	Nickel, Ti-alloys	Hardened steels
SuperF-UT N	64550	Slot drilling						
	54551							
	64551	Roughing						
	54562							
	54563	Finishing						
SuperF-UT N-F	54566	Slot drilling						
	54567	Roughing						
	54567	Finishing						
SuperF-UT Ti	54560	Slot drilling						
	54561	Roughing						
	54561	Finishing						
SuperF-UT N-3	54564	Slot drilling						
	54565	Roughing						
	54565	Finishing						
SuperF-UT VA-X	54576	Slot drilling						
	54558	Roughing						
	54559	Finishing						
SuperF-UT VA-X IK	54574	Slot drilling						
	54575	Roughing						
	54575	Finishing						
SuperF-UT VA-XF	54568	Slot drilling						
	54569	Roughing						
	54569	Finishing						
SuperF-UT AL	74554	Slot drilling						
	74555	Roughing						
	74555	Finishing						
SuperF-UT AL-3	74552	Slot drilling						
	74553	Roughing						
	74553	Finishing						
SuperF-UT AL-F	54570	Slot drilling						
	54571	Roughing						
	54571	Finishing						
SuperF-UT H	54572	Slot drilling						
	54573	Roughing						
	54573	Finishing						
SuperF-UT VA	54556	Slot drilling						
	64557	Roughing						
	64567	Finishing						
SuperF-UT FS	64558	Slot drilling						
	64559	Roughing						
	64559	Fine finishing						

optimal well suited

by tensile strength



Application recommendations for End mills, type F-UT

Feed column										
Code-letter	K	L	M	N	O	P	Q	R	S	
tool-Q mm	4.00	0.011	0.015	0.015	0.016	0.020	0.021	0.024	0.026	f (mm/tooth)
	6.00	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	
	8.00	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	
	10.00	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	
	12.00	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	
	16.00	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	
	20.00	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120



Type
Shank form
Catalogue no.

F-UT N-3		F-UT N		F-UT Ti		F-UT N-F	
HA	HB	HA	HB	HA	HB	HA	HB
54564	54565	54551	64551	54560	54561	54566	54567
		54562	54563				
		54552	64550				



$$a_p = 1 - 2 \times D$$

$$a_e = 0.05 - 0.1 \times D$$

Finishing

Material group	Tensile strength MPa (N/mm ²)	Hardness
Steel	< 850 N/mm ²	
Steel	850-1200 N/mm ²	
Steel	> 1200 N/mm ²	
Hardened steel		< 54 HRc
Hardened steel		54-60 HRc
Acid and stainless resistant steel	< 750 N/mm ²	
Acid and stainless resistant steel	700-900 N/mm ²	
Acid and stainless resistant steel	< 900 N/mm ²	
Nickel-base alloys	< 1300 N/mm ²	
Ti-alloys	< 1300 N/mm ²	
Cast iron		< 240 HB30
Cast iron		> 240 HB30
Al wrought alloys < 3% Si		
Al cast alloys > 3% Si		
Magnesium alloys		
Non-ferrous metal alloys	< 850 N/mm ²	

v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z
260	P	260	P	260	P		
210	P	210	P	210	P		
190	P	190	P	190	P		
		110	O				
		40	N	40	N		
		110	P	110	P		
200	Q	200	Q				
190	Q	190	Q				
		600	Q				
340	Q	340	Q				
380	P	380	P	380	P		

$$a_p = 2 \times D$$

$$f_z = -30\%$$



$$a_p = 0.5 - 1 \times D$$

$$a_e = 0.5 - 0.9 \times D$$

Roughing

Material group	Tensile strength MPa (N/mm ²)	Hardness
Steel	< 850 N/mm ²	
Steel	850-1200 N/mm ²	
Steel	> 1200 N/mm ²	
Hardened steel		< 54 HRc
Hardened steel		54-60 HRc
Acid and stainless resistant steel	< 750 N/mm ²	
Acid and stainless resistant steel	700-900 N/mm ²	
Acid and stainless resistant steel	< 900 N/mm ²	
Nickel-base alloys	< 1300 N/mm ²	
Ti-alloys	< 1300 N/mm ²	
Cast iron		< 240 HB30
Cast iron		> 240 HB30
Al wrought alloys < 3% Si		
Al cast alloys > 3% Si		
Magnesium alloys		
Non-ferrous metal alloys	< 850 N/mm ²	

v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z
200	S	200	S	200	S	200	M
180	S	180	S	180	S	180	M
160	R	160	R	160	R	160	L
110	M	110	M	110	M	110	K
140	Q						
120	P						
100	N						
35	L	35	L	35	L	35	K
90	P	90	P	90	P	90	K
180	S	180	S			180	O
160	S	160	S			160	M
280	S						
220	S						
300	O						

$$a_p = 2 \times D$$

$$f_z = -30\%$$






















$$a_p = 0.5 - 1 \times D$$

$$a_e = 1 \times D$$

Slot drilling

Material group	Tensile strength MPa (N/mm ²)	Hardness
Steel	< 850 N/mm ²	
Steel	850-1200 N/mm ²	
Steel	> 1200 N/mm ²	
Hardened steel		< 54 HRc
Hardened steel		54-60 HRc
Acid and stainless resistant steel	< 750 N/mm ²	
Acid and stainless resistant steel	700-900 N/mm ²	
Acid and stainless resistant steel	< 900 N/mm ²	
Nickel-base alloys	< 1300 N/mm ²	
Ti-alloys	< 1300 N/mm ²	
Cast iron		< 240 HB30
Cast iron		> 240 HB30
Al wrought alloys < 3% Si		
Al cast alloys > 3% Si		
Magnesium alloys		
Non-ferrous metal alloys	< 850 N/mm ²	

v _c	f _z	v _c	f _z	v _c	f _z	v _c	f _z
180	Q	180	Q	180	Q	180	Q
160	Q	160	Q	160	Q	160	Q
135	P	135	P	135	P	135	K
70	M	70	M	70	M	70	K
120	O						
80	N						
70	L						
30	K	30	K	30	K	30	K
60	N	60	N	60	K	60	K
160	R	160	R	160	R		
140	P	140	P	140	M		
230	O						
180	O						
250	N						

																		
F-UT VA-X		F-UT VA-X		F-UT VA-XF		F-UT AL-3		F-UT AL		F-UT AL-F		F-UT VA			F-UT H		F-UT FS	
HA	HB	HA	HB	HA	HB	HA	HB	HA	HB	HA	HB	HA	HB	HB	HA	HB	HA	HB
54558	54559	54574	54575	54568	54569	74552	74553	74554	74555	54570	54571	54556	64557	64567	54572	54573	64558	64559
	54576	IK	IK											IK				

	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	f _z	V _c	f _z	V _c	f _z
											230	P	P			280	P
																220	P
																200	P
																150	O
														100	K		
	160	P	160	P												180	P
	120	O	120	O												140	O
	100	N	100	N							90	N				120	N
																45	N
																130	P
											180	Q				220	Q
																200	Q
						800	Q	800	Q							1000	Q
						330	P	330	P							350	Q
						260	Q	260	Q							280	Q
	380	P	380	P							340	P				400	P

	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	f _z	V _c	f _z	V _c	f _z
					200	M							200	S			
					180	M							180	S			
															70	K	
	140	Q	140	Q	140	N											
	120	P	120	P	120	L											
	100	N	100	N	100	K											
					180	O							180	S			
							600	S	600	S	600	Q					
							280	S	280	S	280	O					
							220	S	220	S	220	O					
	300	O	300	O	300	O							300	O			

	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	V _c	f _z	f _z	V _c	f _z	V _c	f _z
					180	Q							180	Q	Q		
													160	Q	Q		
	120	O	120	O	120	M											
	80	N	80	N	80	K											
	70	L	70	L	70	K							70		L		
	30	K	30	K	30	K											
							500	R	500	R	500	P					
							230	P	230	P	230	N					
							180	P	180	P	180	M					
	250	N			250	M	250	N	250	N			230		O		

SuperF-UT end mills

SuperF-UT end mills N

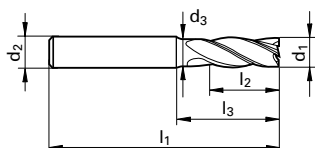
DIN 6527 K

Catalog no. 64550



Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10
centre cutting	
centre cutting	



Catalog no.	64550
Tool material	Solid Carbide
Type	SuperF-UT N
Discount group	106
Surface	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece
mm	mm	mm	mm	mm	mm		
6.000	6.000	5.500	54.00	10.00	18.00	4	●
8.000	8.000	7.500	58.00	12.00	22.00	4	●
10.000	10.000	9.200	66.00	14.00	26.00	4	●
12.000	12.000	11.200	73.00	16.00	28.00	4	●
14.000	14.000	13.200	75.00	18.00	30.00	4	●
16.000	16.000	15.000	82.00	22.00	34.00	4	●
18.000	18.000	17.000	84.00	24.00	36.00	4	●
20.000	20.000	19.000	92.00	26.00	42.00	4	●

SuperF-UT end mills

SuperF-UT end mills N

Catalog no. 54551



Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills N

Catalog no. 64551

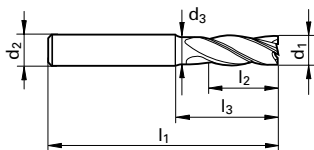


Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54551	64551
Tool material	Solid Carbide	
Type	SuperF-UT N	SuperF-UT N
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
4.000	6.000	3.700	57.00	11.00	21.00	4	●	●
5.000	6.000	4.700	57.00	13.00	21.00	4	●	●
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
14.000	14.000	13.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
18.000	18.000	17.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●
25.000	25.000	23.500	121.00	45.00	65.00	4		●

SuperF-UT end mills

SuperF-UT end mills N

Catalog no. 54562



Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills N

Catalog no. 54563

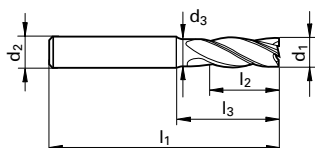


Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54562	54563
Tool material	Solid Carbide	
Type	SuperF-UT N	SuperF-UT N
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	65.00	18.00	29.00	4	●	●
8.000	8.000	7.500	75.00	24.00	39.00	4	●	●
10.000	10.000	9.200	80.00	30.00	40.00	4	●	●
12.000	12.000	11.200	93.00	36.00	48.00	4	●	●
16.000	16.000	15.000	108.00	48.00	60.00	4	●	●
20.000	20.000	19.000	126.00	60.00	76.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills N

Catalog no. 54552

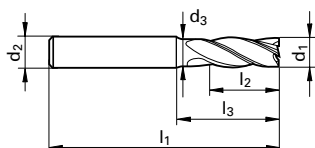


Suitable for roughing, finishing and slotting under HPC conditions in steel and high-alloyed steel up to 48 HRC (1600 N/mm²). Due to unequal helix no vibrations and chatter-free, gaining better surface quality.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N
Spiral angle	35°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.

54552

Tool material

Solid Carbide

Type

SuperF-UT N

Discount group

106

Surface

TiAlN

d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	Z	price per piece
10.000	10.000	9.200	100.00	40.00	60.00	4	●
12.000	12.000	11.200	150.00	45.00	105.00	4	●
14.000	14.000	13.200	150.00	45.00	105.00	4	●
16.000	16.000	15.000	150.00	65.00	102.00	4	●
18.000	18.000	17.000	150.00	65.00	102.00	4	●
20.000	20.000	19.000	150.00	65.00	100.00	4	●
25.000	25.000	23.500	150.00	75.00	94.00	4	●

SuperF-UT end mills

SuperF-UT end mills N

Catalog no. 54566



Suitable for slotting and roughing in steel and high alloyed steel upto 1400 N/mm² particularly for insufficient conditions of machine and/or workpiece. Ra 2-3µm is achievable.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N-F
Spiral angle	30°/32°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills N

Catalog no. 54567

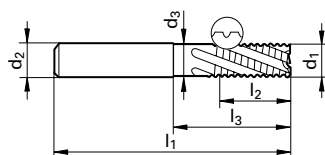


Suitable for slotting and roughing in steel and high alloyed steel upto 1400 N/mm² particularly for insufficient conditions of machine and/or workpiece. Ra 2-3µm is achievable.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N-F
Spiral angle	30°/32°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54566	54567
Tool material	Solid Carbide	
Type	SuperF-UT N-F	SuperF-UT N-F
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●
25.000	25.000	23.500	121.00	45.00	65.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills N

~ DIN 6527 L

Catalog no. 54564



Suitable for slotting, finishing and roughing under HPC conditions in steel and high-alloyed steel up to 1400 N/mm². Due to unequal helix no vibrations and chatter free, gaining better surface quality.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N-3
Spiral angle	41°/43°/45°
Shank form	HA
Cutting direction	rechts
Tolerance on Ø	e8

centre cutting

SuperF-UT end mills N

~ DIN 6527 L

Catalog no. 54565

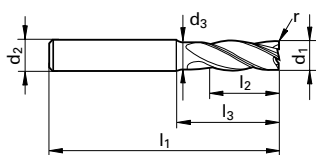


Suitable for slotting, finishing and roughing under HPC conditions in steel and high-alloyed steel up to 1400 N/mm². Due to unequal helix no vibrations and chatter free, gaining better surface quality.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT N-3
Spiral angle	41°/43°/45°
Shank form	HB
Cutting direction	rechts
Tolerance on Ø	e8

centre cutting

SuperF-UT end mills



Catalog no.	54564	54565
Tool material	Solid Carbide	
Type	SuperF-UT N-3	SuperF-UT N-3
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
3.000	6.000	2.700	57.00	8.00	21.00	3	●	●
3.500	6.000	3.200	57.00	10.00	21.00	3	●	●
3.700	6.000	3.400	57.00	11.00	21.00	3	●	●
4.000	6.000	3.700	57.00	11.00	21.00	3	●	●
4.500	6.000	4.200	57.00	11.00	21.00	3	●	●
4.700	6.000	4.400	57.00	13.00	21.00	3	●	●
5.000	6.000	4.700	57.00	13.00	21.00	3	●	●
5.500	6.000	5.200	57.00	13.00	21.00	3	●	●
5.700	6.000	5.400	57.00	13.00	21.00	3	●	●
6.000	6.000	5.500	57.00	13.00	21.00	3	●	●
6.500	8.000	6.000	63.00	16.00	27.00	3	●	●
7.000	8.000	6.500	63.00	16.00	27.00	3	●	●
7.500	8.000	7.000	63.00	19.00	27.00	3	●	●
8.000	8.000	7.500	63.00	19.00	27.00	3	●	●
8.500	10.000	8.000	72.00	19.00	32.00	3	●	●
9.000	10.000	8.500	72.00	19.00	32.00	3	●	●
9.500	10.000	9.000	72.00	22.00	32.00	3	●	●
10.000	10.000	9.200	72.00	22.00	32.00	3	●	●
12.000	12.000	11.200	83.00	26.00	38.00	3	●	●
16.000	16.000	15.000	92.00	32.00	44.00	3	●	●
20.000	20.000	19.000	104.00	38.00	54.00	3	●	●

SuperF-UT end mills

SuperF-UT end mills Ti

Catalog no. 54560



Suitable for slotting, roughing and finishing under HPC-conditions in Ni- and Ti-alloys.
Also available as SuperF-UT-N with corner radius.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN+
Type	SuperF-UT Ti
Spiral angle	35°/38°
Shank form	HA
Cutting direction	rechts
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills Ti

Catalog no. 54561



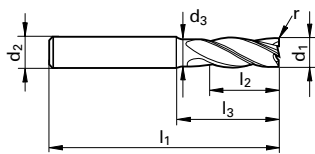
Suitable for slotting, roughing and finishing under HPC-conditions in Ni- and Ti-alloys.
Also available as SuperF-UT-N with corner radius.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN+
Type	SuperF-UT Ti
Spiral angle	35°/38°
Shank form	HB
Cutting direction	rechts
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills



Catalog no.	54560	54561
Tool material	Solid Carbide	Solid Carbide
Type	SuperF-UT Ti	SuperF-UT Ti
Discount group	106	106
Surface	AlTiN+	AlTiN+

d1	d2	d3	l1	l2	l3	r	Z	Code no.	price per piece	
mm	mm	mm	mm	mm	mm					
6.000	6.000	5.500	57.00	13.00	21.00	0.500	4	6.005	●	●
6.000	6.000	5.500	57.00	13.00	21.00	0.800	4	6.008	●	●
6.000	6.000	5.500	57.00	13.00	21.00	1.000	4	6.010	●	●
6.000	6.000	5.500	57.00	13.00	21.00	1.500	4	6.015	●	●
6.000	6.000	5.500	57.00	13.00	21.00	2.000	4	6.020	●	●
8.000	8.000	7.500	63.00	19.00	27.00	0.500	4	8.005	●	●
8.000	8.000	7.500	63.00	19.00	27.00	0.800	4	8.008	●	●
8.000	8.000	7.500	63.00	19.00	27.00	1.000	4	8.010	●	●
8.000	8.000	7.500	63.00	19.00	27.00	1.500	4	8.015	●	●
8.000	8.000	7.500	63.00	19.00	27.00	2.000	4	8.020	●	●
10.000	10.000	9.200	72.00	22.00	32.00	0.500	4	10.005	●	●
10.000	10.000	9.200	72.00	22.00	32.00	0.800	4	10.008	●	●
10.000	10.000	9.200	72.00	22.00	32.00	1.000	4	10.010	●	●
10.000	10.000	9.200	72.00	22.00	32.00	1.500	4	10.015	●	●
10.000	10.000	9.200	72.00	22.00	32.00	2.000	4	10.020	●	●
12.000	12.000	11.200	83.00	26.00	38.00	0.500	4	12.005	●	●
12.000	12.000	11.200	83.00	26.00	38.00	0.800	4	12.008	●	●
12.000	12.000	11.200	83.00	26.00	38.00	1.000	4	12.010	●	●
12.000	12.000	11.200	83.00	26.00	38.00	1.500	4	12.015	●	●
12.000	12.000	11.200	83.00	26.00	38.00	2.000	4	12.020	●	●
12.000	12.000	11.200	83.00	26.00	38.00	2.500	4	12.025	●	●
12.000	12.000	11.200	83.00	26.00	38.00	3.000	4	12.030	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4.000	4	12.040	●	●
16.000	16.000	15.000	92.00	32.00	44.00	0.500	4	16.005	●	●
16.000	16.000	15.000	92.00	32.00	44.00	0.800	4	16.008	●	●
16.000	16.000	15.000	92.00	32.00	44.00	1.000	4	16.010	●	●
16.000	16.000	15.000	92.00	32.00	44.00	1.500	4	16.015	●	●
16.000	16.000	15.000	92.00	32.00	44.00	2.000	4	16.020	●	●
16.000	16.000	15.000	92.00	32.00	44.00	2.500	4	16.025	●	●
16.000	16.000	15.000	92.00	32.00	44.00	3.000	4	16.030	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4.000	4	16.040	●	●
20.000	20.000	19.000	104.00	38.00	54.00	1.000	4	20.010	●	●
20.000	20.000	19.000	104.00	38.00	54.00	2.000	4	20.020	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4.000	4	20.040	●	●

SuperF-UT end mills

SuperF-UT end mills VA

DIN 6527 K

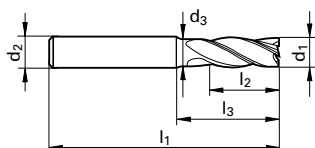
Catalog no. 54576



Suitable for slotting, finishing and roughing in stainless and heat-resisting steels under HPC conditions. Due to unequal helix no vibrations and chatter-free, gaining better surface qualities.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-X
Spiral angle	36°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54576
Tool material	Solid Carbide
Type	SuperF-UT VA-X
Discount group	106
Surface	AlTiN nano

d1	d2	d3	l1	l2	l3	Z	price per piece
mm	mm	mm	mm	mm	mm		
4.000	6.000	3.700	54.00	8.00	18.00	4	●
5.000	6.000	4.700	54.00	9.00	18.00	4	●
6.000	6.000	5.500	54.00	10.00	18.00	4	●
8.000	8.000	7.500	58.00	12.00	22.00	4	●
10.000	10.000	9.200	66.00	14.00	26.00	4	●
12.000	12.000	11.200	73.00	16.00	28.00	4	●
16.000	16.000	15.000	82.00	22.00	34.00	4	●
20.000	20.000	19.000	92.00	26.00	42.00	4	●

SuperF-UT end mills

SuperF-UT end mills VA

Catalog no. 54558



Suitable for slotting, roughing and finishing under HPC-conditions in stainless steels.

Due to unequal helix angle no vibrations and chatter-free, gaining better surface quality.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-X
Spiral angle	36°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills VA

Catalog no. 54559



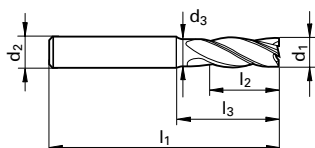
Suitable for slotting, roughing and finishing under HPC-conditions in stainless steels.

Due to unequal helix angle no vibrations and chatter-free, gaining better surface quality.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-X
Spiral angle	36°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54558	54559
Tool material	Solid Carbide	
Type	SuperF-UT VA-X	SuperF-UT VA-X
Discount group	106	106
Surface	AlTiN nano	AlTiN nano

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
3.000	6.000	2.700	57.00	8.00	21.00	4	●	●
4.000	6.000	3.700	57.00	11.00	21.00	4	●	●
5.000	6.000	4.700	57.00	13.00	21.00	4	●	●
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
14.000	14.000	13.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
18.000	18.000	17.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●
25.000	25.000	23.500	121.00	45.00	65.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills VA

Catalog no. 54574



Suitable for slotting, roughing and finishing under HPC-conditions in stainless steels. Due to unequal helix angle no vibrations and chatter-free, gaining better surface quality.

Internal coolant supply for better chip flow and less heat on the workpiece and tool.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-X IK
Spiral angle	36°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills VA

Catalog no. 54575



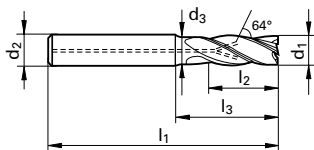
Suitable for slotting, roughing and finishing under HPC-conditions in stainless steels. Due to unequal helix angle no vibrations and chatter-free, gaining better surface quality.

Internal coolant supply for better chip flow and less heat on the workpiece and tool.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-X IK
Spiral angle	36°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.							54574	54575
Tool material							Solid Carbide	
Type							SuperF-UT VA-X IK	SuperF-UT VA-X IK
Discount group							106	106
Surface							AlTiN nano	AlTiN nano
d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●
25.000	25.000	23.500	121.00	45.00	65.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills VA

Catalog no. 54568



Suitable for slotting and roughing in steels upto 1200N/mm² as well as stainless steels. Especially for the usage under instabile conditions. Thanks to the unequal helix no vibrations and chatter-free. The special roughing-profile achieves good surfaces with a roughness of Ra 2-3 µm. Also larger cutting depths at difficult machining conditions possible.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-XF
Spiral angle	36°/38°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills VA

Catalog no. 54569

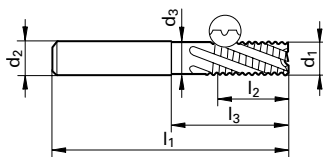


Suitable for slotting and roughing in steels upto 1200N/mm² as well as stainless steels. Especially for the usage under instabile conditions. Thanks to the unequal helix no vibrations and chatter-free. The special roughing-profile achieves good surfaces with a roughness of Ra 2-3 µm. Also larger cutting depths at difficult machining conditions possible.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperF-UT VA-XF
Spiral angle	36°/38°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54568	54569
Tool material	Solid Carbide	
Type	SuperF-UT VA-XF	SuperF-UT VA-XF
Discount group	106	106
Surface	AlTiN nano	AlTiN nano

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
14.000	14.000	13.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
18.000	20.000	17.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●
25.000	25.000	23.500	121.00	45.00	65.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills VA

Catalog no. 54556



Especially suitable for HPC-operation of soft steels upto 850 N/mm² as well as long-chipping, tough materials such as acid-resistant and stainless steels. For roughing and finishing operations.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT VA
Spiral angle	40°/42°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills VA

Catalog no. 64557

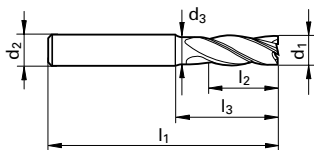


Especially suitable for HPC-operation of soft steels upto 850 N/mm² as well as long-chipping, tough materials such as acid-resistant and stainless steels. For roughing and finishing operations.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT VA
Spiral angle	40°/42°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54556	64557
Tool material	Solid Carbide	
Type	SuperF-UT VA	SuperF-UT VA
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
4.000	6.000	3.700	57.00	11.00	21.00	4	●	●
5.000	6.000	4.700	57.00	13.00	21.00	4	●	●
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills VA

DIN 6527 L

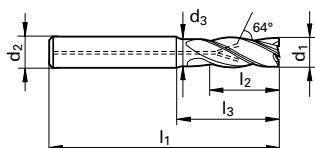
Catalog no. 64567



Especially suitable for HPC-operation of soft steels up to 850 N/mm² as well as long-chipping, tough materials such as acid-resistant and stainless steels. For roughing and finishing operations. Internal coolant supply for better chip flow and less heat on the workpiece and tool.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT VA-IK
Spiral angle	40°/42°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.

64567

Tool material

Solid Carbide

Type

SuperF-UT VA-IK

Discount group

106

Surface

TiAlN

d1	d2	d3	l1	l2	l3	Z	price per piece
mm	mm	mm	mm	mm	mm		
6.000	6.000	5.500	57.00	13.00	21.00	4	○
8.000	8.000	7.500	63.00	19.00	27.00	4	○
10.000	10.000	9.200	72.00	22.00	32.00	4	○
12.000	12.000	11.200	83.00	26.00	38.00	4	○
16.000	16.000	15.000	92.00	32.00	44.00	4	○
20.000	20.000	19.000	104.00	38.00	54.00	4	○

SuperF-UT end mills

SuperF-UT end mills Alu

Catalog no. 74554



Suitable for milling aluminium and aluminium alloys, plastics, copper alloys and non-ferrous metals. Unequal helix angle achieves smooth and vibration-free operation, giving excellent surface finish.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al
Spiral angle	40°/42°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills Alu

Catalog no. 74555

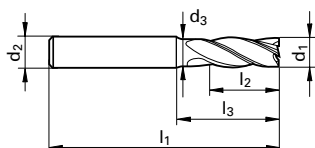


Suitable for milling aluminium and aluminium alloys, plastics, copper alloys and non-ferrous metals. Unequal helix angle achieves smooth and vibration-free operation, giving excellent surface finish.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al
Spiral angle	40°/42°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74554	74555
Tool material	Solid Carbide	
Type	SuperF-UT Al	SuperF-UT Al
Discount group	106	106
Surface	bright	bright

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
4.000	6.000	3.700	57.00	11.00	21.00	4	●	●
5.000	6.000	4.700	57.00	13.00	21.00	4	●	●
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills Alu

~ DIN 6527 L

Catalog no. 54570



3-fluted end mill for slotting, and roughing in aluminium and Al-alloys. Especially suitable on instabile machines. The unequal helix achieves smooth, chatter-free operation. The unique roughing-profile gains a good surface finish with $R_a = 2-3 \mu m$

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al-F
Spiral angle	30°/29°/31°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills Alu

~ DIN 6527 L

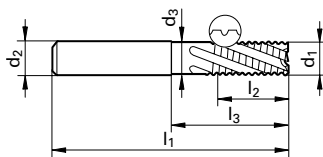
Catalog no. 54571



3-fluted end mill for slotting, and roughing in aluminium and Al-alloys. Especially suitable on instabile machines. The unequal helix achieves smooth, chatter-free operation. The unique roughing-profile gains a good surface finish with $R_a = 2-3 \mu m$

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al-F
Spiral angle	30°/29°/31°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.							54570	54571
Tool material							Solid Carbide	
Type							SuperF-UT Al-F	SuperF-UT Al-F
Discount group							106	106
Surface							bright	bright
d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	57.00	13.00	21.00	3	●	●
8.000	8.000	7.500	63.00	19.00	27.00	3	●	●
10.000	10.000	9.200	72.00	22.00	32.00	3	●	●
12.000	12.000	11.200	83.00	26.00	38.00	3	●	●
16.000	16.000	15.000	92.00	32.00	44.00	3	●	●
20.000	20.000	19.000	104.00	38.00	54.00	3	●	●
25.000	25.000	23.500	121.00	45.00	65.00	3	●	●

SuperF-UT end mills

SuperF-UT end mills Alu

~ DIN 6527 L

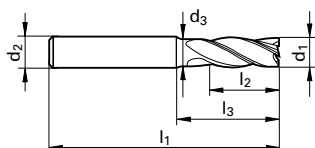
Catalog no. 74552



3-fluted end mill for slotting, roughing and finishing under HPC-conditions in aluminium and Al-alloys. Especially for larger cutting depths on instable machines. Good surface finish due to unequal helix.

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al-3
Spiral angle	39°/40°/41°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.

74552

Tool material

Solid Carbide

Type

SuperF-UT Al-3

Discount group

106

Surface

bright

d1	d2	d3	l1	l2	l3	Z	price per piece
mm	mm	mm	mm	mm	mm		
3.000	6.000	2.700	57.00	8.00	21.00	3	●
4.000	6.000	3.700	57.00	11.00	21.00	3	●
5.000	6.000	4.700	57.00	13.00	21.00	3	●
6.000	6.000	5.500	57.00	13.00	21.00	3	●
8.000	8.000	7.500	63.00	19.00	27.00	3	●
10.000	10.000	9.200	72.00	22.00	32.00	3	●
12.000	12.000	11.200	83.00	26.00	38.00	3	●
16.000	16.000	15.000	92.00	32.00	44.00	3	●
20.000	20.000	19.000	104.00	38.00	54.00	3	●

SuperF-UT end mills

SuperF-UT end mills Alu

~ DIN 6527 L

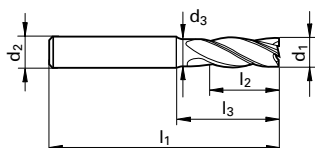
Catalog no. 74553



3-fluted end mill for slotting, roughing and finishing under HPC-conditions in aluminium and Al-alloys. Especially for larger cutting depths on instable machines. Good surface finish due to unequal helix.

Tool material	Solid Carbide
Surface	bright
Type	SuperF-UT Al-3
Spiral angle	39°/40°/41°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74553
Tool material	Solid Carbide
Type	SuperF-UT Al-3
Discount group	106
Surface	bright

d1	d2	d3	l1	l2	l3	Z	price per piece
mm	mm	mm	mm	mm	mm		
3.000	6.000	2.700	57.00	8.00	21.00	3	●
4.000	6.000	3.700	57.00	11.00	21.00	3	●
5.000	6.000	4.700	57.00	13.00	21.00	3	●
6.000	6.000	5.500	57.00	13.00	21.00	3	●
8.000	8.000	7.500	63.00	19.00	27.00	3	●
10.000	10.000	9.200	72.00	22.00	32.00	3	●
12.000	12.000	11.200	83.00	26.00	38.00	3	●
16.000	16.000	15.000	92.00	32.00	44.00	3	●
20.000	20.000	19.000	104.00	38.00	54.00	3	●

SuperF-UT end mills

SuperF-UT end mills H

Catalog no. 54572



Suitable for roughing upto 1xD in materials upto 54 HRC and finishing upto 2,5xD in materials with not more than 62 HRC under HPC-conditions. With high core stability. Due to unequal helix angle no vibrations and chatter-free as well as good surface finish.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperF-UT H
Spiral angle	40°/42°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills H

Catalog no. 54573

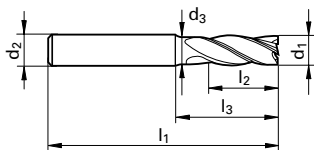


Suitable for roughing upto 1xD in materials upto 54 HRC and finishing upto 2,5xD in materials with not more than 62 HRC under HPC-conditions. With high core stability. Due to unequal helix angle no vibrations and chatter-free as well as good surface finish.

DIN 6527 L

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperF-UT H
Spiral angle	40°/42°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54572	54573
Tool material	Solid Carbide	
Type	SuperF-UT H	SuperF-UT H
Discount group	106	106
Surface	AlTiN	AlTiN

d1	d2	d3	l1	l2	l3	Z	price per piece	
mm	mm	mm	mm	mm	mm			
6.000	6.000	5.500	57.00	13.00	21.00	4	●	●
8.000	8.000	7.500	63.00	19.00	27.00	4	●	●
10.000	10.000	9.200	72.00	22.00	32.00	4	●	●
12.000	12.000	11.200	83.00	26.00	38.00	4	●	●
16.000	16.000	15.000	92.00	32.00	44.00	4	●	●
20.000	20.000	19.000	104.00	38.00	54.00	4	●	●

SuperF-UT end mills

SuperF-UT end mills FS

Catalog no. 64558



For fine-finishing and semi-roughing upto 0,3xD in nearly all materials with not more than 50 HRC with brilliant surface finish. The unequal helix angle of 44° / 45° / 46° is one of the unique characteristics.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT FS
Spiral angle	44°/45°/46°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

SuperF-UT end mills FS

Catalog no. 64559

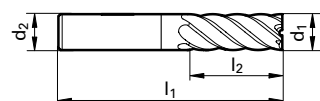


For fine-finishing and semi-roughing upto 0,3xD in nearly all materials with not more than 50 HRC with brilliant surface finish. The unequal helix angle of 44° / 45° / 46° is one of the unique characteristics.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	SuperF-UT FS
Spiral angle	44°/45°/46°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



							Catalog no.	64558	64559
							Tool material	Solid Carbide	
							Type	SuperF-UT FS	SuperF-UT FS
							Discount group	106	106
							Surface	TiAlN	TiAlN
d1	d2	d3	l1	l2	l3	Z	price per piece		
mm	mm	mm	mm	mm	mm				
8.000	8.000	7.500	63.00	19.00	27.00	6		●	●
10.000	10.000	9.200	72.00	22.00	32.00	6		●	●
12.000	12.000	11.200	83.00	26.00	38.00	6		●	●
16.000	16.000	15.000	92.00	32.00	44.00	6		●	●
20.000	20.000	19.000	104.00	38.00	54.00	6		●	●










MILLING TOOLS








Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Slot drills, 2-fluted

	N	HB	30°	Solid Carbide	bright	DIN 6527 K	2,000 - 20,000	74520	117	614
	N	HB	30°	Solid Carbide	TiAlN	DIN 6527 K	2,000 - 20,000	54520	117	614
	N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	54519	117	616
	N	HB	30°	Solid Carbide	bright	DIN 6527 L	2,000 - 20,000	74521	117	616
	N	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	54521	117	616
	N	cyl.	30°	Solid Carbide	bright	Stock std.	3,000 - 20,000	74404	117	618
	N	cyl.	30°	Solid Carbide	TiAlN	Stock std.	5,000 - 20,000	54404	117	618


Slot drills, 3-fluted

	N	HB	30°	Solid Carbide	bright	DIN 6527 K	2,000 - 20,000	74522	117	620
	N	HB	30°	Solid Carbide	TiAlN	DIN 6527 K	2,000 - 20,000	64522	117	620
	N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	54523	117	621
	N	HB	30°	Solid Carbide	bright	DIN 6527 L	2,000 - 20,000	74523	117	621
	N	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	64523	117	622



Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Slot drills, 3-fluted

	N	cyl.	30°	Solid Carbide	bright	Stock std.	3,000 - 20,000	74424	117	623
	N	cyl.	30°	Solid Carbide	TiAlN	Stock std.	3,000 - 20,000	54424	117	623



Micro Slot drills, 3-fluted

	N	HB/< 2.0 HA	30°	Solid Carbide	TiAlN	Stock std.	0,300 - 20,000	64080	117	624
	NH	HB/< 2.0 HA	45°	Solid Carbide	TiAlN	Stock std.	1,000 - 10,000	64180	106	626

Slot drills type W

	W	HB	45°	Solid Carbide	bright	DIN 6527 K	4,000 - 20,000	74204	117	628
	W	HB	45°	Solid Carbide	bright	DIN 6527 L	3,000 - 20,000	74202	117	629
	W	cyl.	45°	Solid Carbide	bright	Stock std.	5,000 - 16,000	74206	117	630
	W	HA	45°	Solid Carbide	bright	Stock std.	6,000 - 20,000	74479	106	631




Slot drills NH, 3-fluted

	NH	HB	45°	Solid Carbide	TiAlN	DIN 6527 K	3,000 - 20,000	64570	106	632
	NH	HA	45°	Solid Carbide	bright	DIN 6527 L	3,000 - 20,000	74478	106	633





Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Slot drills NH, 3-fluted

	NH	HA	45°	Solid Carbide	TiAlN	DIN 6527 L	1,500 - 20,000	64478	106	633
	NH	HB	45°	Solid Carbide	bright	DIN 6527 L	3,000 - 20,000	74471	106	634
	NH	HB	45°	Solid Carbide	TiAlN	DIN 6527 L	3,000 - 20,000	64571	106	634

End mills, 4-fluted

	N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	54524	117	635
	N	HB	30°	Solid Carbide	bright	DIN 6527 L	3,000 - 20,000	74525	117	636
	N	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	2,000 - 20,000	64525	117	636
	N	cyl.	30°	Solid Carbide	TiAlN	Stock std.	3,000 - 20,000	54444	117	637







End mills with corner radius

	N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 16,000	54522	117	638
	N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 20,000	54526	117	640
	N	HA	45°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 20,000	54206	106	642

Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Finishing End Mills, multiple fluted

	NH	HA	45°	Solid Carbide	TiAlN	Stock std.	3,000 - 20,000	54205	106	644
	NH	HB	45°	Solid Carbide	TiAlN	Stock std.	6,000 - 20,000	54201	106	644
	H	HA	55°	Solid Carbide	TiAlN	Stock std.	3,000 - 20,000	54207	106	645
	NH	HA	45°	Solid Carbide	TiAlN	Stock std.	6,000 - 20,000	54225	106	646
	NH	HB	45°	Solid Carbide	TiAlN	Stock std.	10,000 - 20,000	54221	106	646
	H	HA	55°	Solid Carbide	TiAlN	Stock std.	6,000 - 20,000	54227	106	647

Roughing end mills

	NF	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 25,000	54496	106	648
	NF	HB	45°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 25,000	54497	106	649
	WR	HB	30°	Solid Carbide	bright	DIN 6527 L	6,000 - 20,000	74203	117	650
	WR	HB	30°	Solid Carbide	bright	DIN 6527 L	6,000 - 20,000	74303	106	650
	NRf	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 20,000	64495	117	651
	NRf	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	8,000 - 16,000	64595	106	652

Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Roughing end mills



HR	HB	20°	Solid Carbide	TiAlN	DIN 6527 L	6,000 - 20,000	64497	117	653
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Ball nose end mills



N	HA	30°	Solid Carbide	bright	DIN 6527 L	3,000 - 20,000	74543	117	654
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N	HA	30°	Solid Carbide	TiAlN	DIN 6527 L	0,500 - 20,000	54541	117	654
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N	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	0,500 - 20,000	64542	117	655
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N	cyl.	30°	Solid Carbide	bright	Stock std.	3,000 - 12,000	74545	117	656
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N	cyl.	30°	Solid Carbide	TiAlN	Stock std.	3,000 - 12,000	64545	117	656
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N	cyl.	30°	Solid Carbide	bright	DIN 6528	4,000 - 16,000	74531	117	657
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N	cyl.	30°	Solid Carbide	TiAlN	DIN 6528	4,000 - 16,000	54531	117	657
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N	HB	30°	Solid Carbide	TiAlN	DIN 6527 L	3,000 - 16,000	64532	117	658
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N	cyl.	30°	Solid Carbide	TiAlN	Stock std.	3,000 - 12,000	64535	117	659
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Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Trace End Mills with Torus form

	H	HA	30°	Solid Carbide	TAIIN	Stock std.	3,000 - 16,000	54304	106	660
	H	HA	30°	Solid Carbide	TAIIN	Stock std.	6,000 - 16,000	54305	106	661
	N	HA	30°	Solid Carbide	AITIN	Stock std.	2,000 - 12,000	54302	106	662
	N	HA	30°	Solid Carbide	AITIN	Stock std.	2,000 - 12,000	54303	106	663

Trace End Mills with Ball Nose

	H	HA	30°	Solid Carbide	TAIIN	Stock std.	0,500 - 16,000	54306	106	664
	H	HA	30°	Solid Carbide	TAIIN	Stock std.	3,000 - 16,000	54307	106	665
	N	HA	30°	Solid Carbide	AITIN	Stock std.	2,000 - 12,000	54300	106	666
	N	HA	30°	Solid Carbide	AITIN	Stock std.	2,000 - 12,000	54301	106	667

Pilot drill mill 180°

	N	HA	30°	Solid Carbide	AITIN+	DIN 6527 L	1,400 - 12,000	54700	106	668
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Solid carbide milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Deburring end mill 60°



SuperAF-60	HA	0°	Solid Carbide	AlTiN	Stock std.	4,000 - 12,000	53393	117	670
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SuperAF-60	HB	0°	Solid Carbide	AlTiN	Stock std.	6,000 - 12,000	53394	117	670
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Deburring end mill 90°



SuperAF-90	HA	0°	Solid Carbide	AlTiN	Stock std.	4,000 - 12,000	53395	117	671
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SuperAF-90	>=6.0 HB	0°	Solid Carbide	AlTiN	Stock std.	4,000 - 12,000	53396	117	672
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Deburring end mill 120°



SuperAF-120	HA	0°	Solid Carbide	AlTiN	Stock std.	4,000 - 12,000	53397	117	673
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SuperAF-120	HB	0°	Solid Carbide	AlTiN	Stock std.	6,000 - 12,000	53398	117	673
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Front/back deburrer 90°









SuperAD-90	HA		Solid Carbide	AlTiN nano	Stock std.	3,000 - 12,000	52365	120	674
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High speed steel milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Slot drills, 2-fluted

	N	B	30°	M42	bright	DIN 327	1,000 - 20,000	74231	112	675
	N	B	30°	M42	TiAlN	DIN 327	1,000 - 20,000	64640	112	675
	N	B	30°	M42	bright	DIN 844 K	3,000 - 20,000	74243	112	677
	N	B	30°	M42	TiAlN	DIN 844 K	3,000 - 20,000	64670	112	677
	N	B	30°	M42	bright	DIN 844 L	3,000 - 20,000	74244	112	679
	N	B	30°	M42	TiAlN	DIN 844 L	4,000 - 20,000	64671	112	679





Slot drills, 3-fluted

	N	B	30°	M42	bright	DIN 327	2,800 - 25,000	74280	112	681
	N	B	30°	M42	TiAlN	DIN 327	2,800 - 25,000	64604	112	681
	N	B	30°	M42	bright	DIN 844 K	4,000 - 20,000	74282	112	682
	N	B	30°	M42	TiAlN	DIN 844 K	3,000 - 20,000	64641	112	682
	N	B	30°	M42	TiAlN	DIN 844 L	4,000 - 18,000	54294	112	683






High speed steel milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Micro Slot drills, 3-fluted

	N	B	30°	M42	bright	Stock std.	3,000 - 10,000	74080	112	684
	N	B	30°	M42	TiAlN	Stock std.	3,000 - 10,000	54080	112	684
	N	B	30°	M42	bright	Stock std.	3,000 - 10,000	74180	112	685
	N	B	30°	M42	TiAlN	Stock std.	3,000 - 10,000	54180	112	685

End mills, multiple fluted

	N	B	30°	M42	bright	DIN 844 K	3,000 - 25,000	74617	112	686
	N	B	30°	M42	TiAlN	DIN 844 K	3,000 - 25,000	64667	112	686
	N	B	30°	M42	bright	DIN 844 L	3,000 - 32,000	74847	112	687
	N	B	30°	M42	TiAlN	DIN 844 L	4,000 - 32,000	54847	112	687
	N	B	30°	M42	bright	Stock std.	12,000 - 20,000	74800	112	688

Roughing and Finishing End Mills, 4-fluted

	NF	B	30°	M42	bright	DIN 844 K	10,000 - 20,000	74815	112	689
	NF	B	30°	M42	TiAlN	DIN 844 K	6,000 - 25,000	54815	112	689

High speed steel milling cutters

Type	Shank form	Spiral angle	Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Roughing end mills

	NRf	B	30°	HSS-E-PM	bright	DIN 844 K	6,000 - 20,000	74825	112	690
	NRf	B	30°	HSS-E-PM	TiAlN	DIN 844 K	6,000 - 20,000	54825	112	690
	NR	B	30°	M42	bright	DIN 844 K	6,000 - 25,000	74816	112	691
	NR	B	30°	M42	TiAlN	DIN 844 K	6,000 - 20,000	54816	112	691
	NRf	B	30°	HSS-E-PM	bright	DIN 844 K	6,000 - 25,000	74845	112	692
	NRf	B	30°	HSS-E-PM	TiAlN	DIN 844 K	6,000 - 25,000	54845	112	692
	NR	B	30°	M42	bright	DIN 844 L	6,000 - 25,000	74836	112	693
	NR	B	30°	M42	TiAlN	DIN 844 L	6,000 - 25,000	54836	112	693

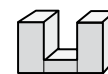
Ball nose end mills, 2-fluted

	N	B	30°	M42	TiAlN	DIN 327	2,000 - 20,000	54275	112	694
	N	B	30°	M42	bright	Stock std.	3,000 - 20,000	74276	112	695
	N	B	30°	M42	TiAlN	Stock std.	3,000 - 20,000	54276	112	695

Application recommendations for Carbide Slot Drills

		Feed column																Feed f (mm/tooth)
Code-letter		H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020	f
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030	
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038	
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047	
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064	
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080	
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100	
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120	
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140	
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190	

a_e = Width of cut
a_p = Cutting depth



a_e = 1.0 x D

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

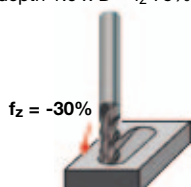
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

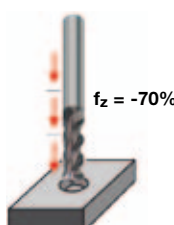
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drill- ing depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■
Kevlar	Kevlar	-		□
Glass/carbon-concentr. plastics	GFK/CFK	-		■

Slot drilling

Catalogue no.	74204	74202	74479	74520	74522	54520 54522	64522	74521	74523	74478	74471
Tool mat.	Carbide		Carbide	Carbide		Carbide		Carbide		Carbide	
Std.	6527 K	6527 L	Stock std.	6527 K		6527 K		6527 L		6527 L	
Type	W		W	N		N		N		NH	
Page	628	629	631	614	620	614/638	620	616	621	633	634



V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.
				73	O	120	O	63	N	63	N
				69	M	115	N	60	L	60	L
				73	M	120	N	63	L	63	L
				53	N	90	O	47	M	47	M
				73	M	120	N	63	L	63	L
				65	M	108	N	57	L	57	L
				53	N	90	O	47	M	47	M
				65	N	108	O	57	M	57	M
				53	N	90	O	47	M	47	M
				76	M	127	N	66	L	66	L
				65	M	108	N	57	L	57	L
				46	N	76	O	40	M	40	M
				73	M	120	N	63	L	63	L
				65	L	108	M	57	L	57	L
				65	M	108	N	57	L	57	L
				53	L	90	M	47	L	47	L
				39	N	64	O	33	M	33	M
						64	M				
				39	N	64	O	33	M	33	M
				35	L	58	M	30	L	30	L
				31	M	51	N	27	L	27	L
						64	M				
						39	M				
				92	M	152	N	80	L	80	L
				84	L	140	M	73	L	73	L
				76	M	127	N	66	L	66	L
				69	L	115	M	60	L	60	L
				46	L	76	M	40	L	40	L
				39	L	64	M	33	L	33	L
				31	L	51	M	27	L	27	L
363	R	436	T	343	O	570	P	297	N	297	N
440	R	528	T	418	O	697	P	363	N	363	N
176	Q	212	S	168	N	279	O	146	M	146	M
143	R	172	T	137	O	228	P	119	N	119	N
209	S	251	T	191	P	317	Q	165	O	165	O
99	R	119	T	92	O	152	P	80	N	80	N
88	R	106	T	76	O	127	P	66	N	66	N
83	Q	99	S	69	N	115	O	60	M	60	M
88	Q	106	S	76	N	127	O	66	M	66	M
77	P	93	S	61	M	102	N	53	L	53	L
77	Q	93	S	61	N	102	O	53	M	53	M
66	O	80	R	53	L	90	M	47	L	47	L
99	O	119	R	92	L	152	M	80	L	80	L
88	O	106	R	84	L	140	M	73	L	73	L

Application recommendations for Carbide Slot Drills

		Feed column																	
Code-letter		H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W		
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020	f (mm/tooth)	Feed
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030		
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038		
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047		
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064		
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080		
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100		
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120		
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140		
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190		

a_e = Width of cut
a_p = Cutting depth



a_e = 1.0 x D

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

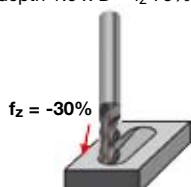
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

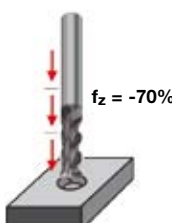
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■
Kevlar	Kevlar	-		□
Glass/carbon-concentr. plastics	GFK/CFK	-		■

Slot drilling

Catalogue no.	54523 54521 54519	64523	64478	64570 64571	74404	74424	54404	54424	64080	64180
Tool mat.	Carbide		Carbide		Carbide		Carbide		Carbide	
Std.	6527 L		6527 L		Stock std.		Stock std.		Stock std.	
Type	N		NH		N		N		N	
Page	621/616	622	633	632	618	623	618	623	624	626



V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.
105	N	105	N	50	J	80	J	95	M	105	N
99	M	99	M	45	H	75	I	90	L	100	M
105	M	105	M	50	H	80	I	95	L	105	M
77	N	77	N	35	I	60	J	70	M	75	N
105	M	105	M	50	H	80	I	95	L	105	M
94	M	94	M	40	H	70	I	85	L	95	M
77	N	77	N	35	I	60	J	70	M	75	N
94	N	94	N	40	I	70	J	85	M	95	N
77	N	77	N	35	I	60	J				
110	M	110	M	45	H	75	I	100	L	110	M
94	M	94	M	40	H	70	I	85	L	95	M
66	N	66	N	30	I	50	J				
105	M	105	M	50	H	80	I	95	L	105	M
94	L	94	L	40	H	70	H				
94	M	94	M	40	H	70	I	85	L	95	M
77	L	77	L	35	H	60	H	70	K	75	L
55	N	55	N	38	I	45	J	50	M	55	N
55	L	55	L								
55	N	55	N					50	M	55	N
50	L	50	L					45	K	50	L
44	M	44	M					40	L	45	M
55	L	55	L								
33	L	33	L							35	L
132	M	132	M	60	H	105	I	120	L	130	M
121	L	121	L	55	H	95	H	110	K	120	L
110	M	110	M	55	H	90	I	100	L	110	M
99	L	99	L	45	H	75	H	90	K	100	L
66	L	66	L					60	K	65	L
55	L	55	L	40	H	65	H	50	K	55	L
44	L	44	L	20	H	35	H	40	K	45	L
495	O	495	O					330	Q	330	Q
605	O	605	O					400	Q	400	Q
242	N	242	N					160	P	245	N
198	O	198	O					130	Q	200	O
275	P	275	P					185	R	185	R
132	O	132	O					90	Q	130	O
110	O	110	O					80	Q	110	O
99	N	99	N					70	P	75	P
110	N	110	N					80	P	110	N
88	M	88	M					70	O	90	M
88	N	88	N					70	P	70	P
77	L	77	L					60	N	60	N
132	L	132	L					90	N	90	N
121	L	121	L					80	N	80	N

Application recommendations for Carbide Slot Drills and End Mills

Feed column																			f (mm/tooth)	Feed
Code-letter	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W				
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020			
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030			
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038			
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047			
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064			
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080			
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100			
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120			
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140			
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190			

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

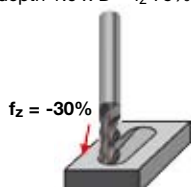
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of $1 \times D$. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth $0.5 \times D = f_z$ 100%

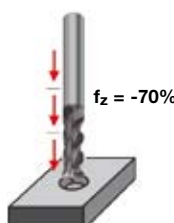
a_p = cut. depth $1.0 \times D = f_z$ 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of $0.5 \times D$.



Lubricants:

- cutting oil, highly activated ■
- soluble oil (emulsion) ■
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		■
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■
Kevlar	Kevlar	-		■
Glass/carbon-concentr. plastics	GFK/CFK	-		■


Fine finishing

Catalogue no.	74525	54526	64525 54524	74404	54444	74204	74202	74206	74479
Tool mat.	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide	Carbide
Std.	6527 L	6527 L	Stock std.	Stock std.	6527 K	6527 L	Stock std.	Stock std.	Stock std.
Type	N	N	N	N	W	W	W	W	W
Page	636	640	636/635	618	637	628	629	630	631



V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.
116	S	193	S	76	N	127	O						
106	R	176	S	70	M	116	N						
116	R	193	S	76	M	127	N						
86	Q	143	R	60	L	99	M						
116	R	193	S	76	M	127	N						
106	R	176	S	66	M	110	N						
86	Q	143	R	57	L	94	M						
103	Q	171	R	66	L	110	M						
86	P	143	Q	57	L	94	L						
129	R	215	S	73	M	121	N						
103	R	171	S	66	M	110	N						
76	Q	127	R	50	L	83	M						
116	R	193	S	76	M	127	N						
106	P	176	Q	66	L	110	L						
103	R	171	S	66	M	110	N						
86	P	143	Q	57	L	94	L						
66	Q	110	R	43	L	72	M						
66	P	110	Q										
66	Q	110	R										
57	P	94	Q										
53	Q	88	R										
39	N	55	O										
40	P	66	Q										
139	R	231	S	99	M	165	N						
139	Q	231	R	90	L	149	M						
126	R	209	S	83	M	138	N						
106	Q	176	R	70	L	116	M						
73	O	121	P										
66	P	110	Q	43	L	72	L						
53	O	88	P	33	K	55	L						
561	T	935	T	330	P	550	Q	418	U	330	P	523	U
528	S	880	T	396	O	660	P	506	T	396	O	633	T
274	S	457	S	165	N	275	O	203	T	165	N	253	T
225	S	374	T	132	O	220	P	165	T	132	P	207	T
317	T	528	T	198	P	330	Q	241	U	198	U	302	U
146	S	242	T	99	O	165	P	115	T	99	P	143	T
132	S	220	S	80	N	132	O	102	T	80	N	127	T
106	S	176	S	66	N	110	O	95	T	66	N	119	T
132	S	220	S	80	N	132	O	102	T	80	N	127	T
99	R	165	S					90	S			112	S
99	R	165	S					90	S			112	S
86	Q	143	R					76	S			95	S
146	Q	242	R					115	S			143	S
132	Q	220	R					102	S			127	S

Application recommendations for Carbide Slot Drills and End Mills

Feed column																	Feed f (mm/tooth)	
Code-letter	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W		
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020	
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030	
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038	
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047	
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064	
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080	
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100	
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120	
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140	
25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190		

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

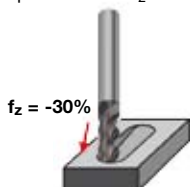
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

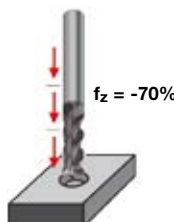
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		■
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		■
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■
Kevlar	Kevlar	-		■
Glass/carbon-concentr. plastics	GFK/CFK	-		■

Roughing

Catalogue no.	74478	74471	64478	64570 64571	74204	74202	74479	74203	74303	54496	54497	64495	64595	64497
Tool mat.	Carbide		Carbide		Carbide		Carbide	Carbide		Carbide		Carbide		Carbide
Std.	6527 L		6527 L		6527 K	6527 L	Stock std.	6527 L		6527 L		6527 L		6527 L
Type	NH		NH		W		W	WR		NF		NRf		HR
Page	633	634	633	634	628	629	631	650	650	648	649	651	652	653



V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	Feed col.
90	S	149	T							110	N	119	T	
83	S	138	S							100	M	110	S	
90	S	149	S							110	M	119	S	
66	R	110	S							80	L	88	S	
90	S	149	S							110	M	119	S	
80	S	132	S							95	M	106	S	
66	R	110	S							80	L	88	S	
80	R	132	S							95	L	106	S	
66	Q	110	R							80	K	88	R	R
99	S	165	S							120	M	132	S	
80	S	132	S							95	M	106	S	S
60	R	99	S							70	L	80	S	S
90	S	149	S							110	M	119	S	S
80	Q	132	R							95	K	106	R	R
80	S	132	S							95	M	106	S	S
66	Q	110	R							80	K	88	R	R
50	R	83	S									66		S
		83	R									66		R
50	R	83	S							60	L	66	S	S
43	Q	72	R							50	K	58	R	R
40	R	66	S							50	L	53	S	S
24	O	39	Q							30	I	31	P	P
												22	M	M
		50	R							35	M	40	R	R
116	S	193	S							140	O	154	S	S
106	R	176	S							130	N	141	S	S
96	S	160	S							115	O	128	S	S
83	R	138	S							100	N	110	S	S
57	P	94	Q									75		Q
50	Q	83	R							60	L	66	R	
40	P	66	Q							50	K	53	Q	
				363	R	455	T	550	S					
				440	R	550	T	638	S					
				176	P	220	S	264	R					
				143	Q	180	S	209	S					
				209	R	262	T	297	S					
				99	Q	125	S	143	S					
				88	P	110	S	132	R	130	O			
				83	P	104	S	121	R	105	O			
				88	P	110	S	127	R	130	O			
				77	O	97	R	110	Q	95	N			
				77	O	97	R	110	Q	95	N			
				66	N	83	Q	99	P	80	M			
				99	N	125	Q	138	P					
				88	N	110	Q	127	P					

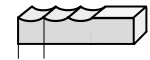
Application recommend. for Carb. Slot Drills, End Mills, Ball Nose End Mills

		Feed column															
Code-letter		H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

a_e = Width of cut
a_p = Cutting depth



a_e = 0.02 - 0.05 x D



a_e = 0.02 - 0.05 x D

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

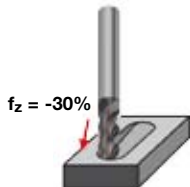
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

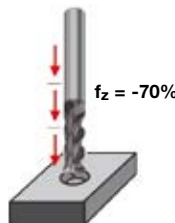
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185 (St33), 1.0486 P275N (StE285), 1.0345 P235GH (H1), 1.0425 P265GH (H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
Unalloyed tempering steels	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	■ □
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		<300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■ □
Kevlar	Kevlar	-		□
Glass/carbon-concentr. plastics	GFK/CFK	-		■

Super finishing

Copy milling

Catalogue no.	54205	54201 54206	54225	54221	54207	54227	74543	74531	64542 54541	64532 54531	74545	64545	64535
Tool mat.	Carbide		Carbide		Carbide	Carbide	Carbide		Carbide		Carbide	Carbide	
Std.	Stock std.		Stock std.		Stock std.	Stock std.	6527 L 6528		6527 L		Stock std.	Stock std.	
Type	NH		NH		H	H	N		N		N	N	
Page	644	644/642	646	646	645	647	654	657	655/654	657	656	656	659

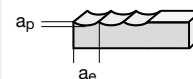


V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.
209	S	209	S					113	S	187	S	79	O
193	S	193	S					106	R	176	S	74	N
209	S	209	S					113	R	187	S	79	N
154	R	154	R					113	Q	187	R	79	M
209	S	209	S					99	R	165	S	70	N
187	S	187	S					99	R	165	S	70	N
154	R	154	R					86	Q	143	R	61	M
187	R	187	R					93	Q	154	R	65	M
154	Q	154	Q					113	P	187	Q	79	L
231	S	231	S					146	R	242	S	102	N
187	S	187	S					126	R	209	S	88	N
143	R	143	R					80	Q	132	R	55	M
209	S	209	S					106	R	176	S	74	N
187	Q	187	Q					99	P	165	Q	70	L
187	S	187	S					99	R	165	S	70	N
154	Q	154	Q	154	R	154	Q	86	P	143	Q	61	L
116	R	116	R	116	S	116	R	63	Q	105	R	44	N
116	Q	116	Q	116	R	116	Q			105	Q	44	L
116	R	116	R					63	Q	105	R	44	M
99	Q	99	Q					57	P	94	Q	40	L
94	R	94	R					50	Q	83	R	36	M
61	O	61	O	61	P	61	O			61	P	26	L
				50	M	50	L						
66	Q	66	Q					37	P	61	Q	26	L
270	S	270	S	270	S	270	S	146	R	242	S	102	N
248	R	248	R	248	S	248	R			231	R	97	M
220	S	220	S	220	S	220	S	126	R	209	S	88	N
193	R	193	R	193	S	193	R	106	Q	176	R	74	M
				121	Q	121	P			121	P	51	L
116	Q	116	Q										
94	P	94	P										
990	T	990	T					528	T	880	T	370	Q
880	T	880	T					627	T	1045	T	439	Q
495	S	495	S					251	S	418	S	176	O
396	T	396	T					212	S	352	T	148	P
550	T	550	T					297	T	495	T	208	Q
264	T	264	T					132	S	220	T	93	P
242	S	242	S					126	S	209	S	88	O
198	S	198	S					119	S	198	S	84	O
242	S	242	S					132	S	220	S	93	O
187	S	187	S					126	R	209	S	88	N
187	S	187	S					146	R	242	S	102	N
154	R	154	R					139	Q	231	R	97	M
264	R	264	R										
242	R	242	R										

Application recommendations for Carbide Trace End Mills

Feed column																	
Code-letter	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

a_e = Width of cut
a_p = Cutting depth



The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2) 1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤500 >500-850		■
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 ≥850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■ ■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■ ■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■ ■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB <300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■ ■
Chilled cast iron	-		≤350 HB	■ ■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■ ■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■ ■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■ ■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■ ■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■ ■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
long-chipping	2.0790 CuNi18Zn19Pb 2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	>600-850 ≤850 >850-1000		■ ■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■ □
Kevlar	Kevlar	-		□
Glass/carbon-concentr. plastics	GFK/CFK	-		-

High Speed Cutting

Catalogue no.	54300 54301	54302 54303
Tool mat.	Solid carbide	Solid carbide
Std.	Stock std.	Stock std.
Type	N	N
Page	666/667	662/663

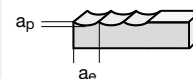


54300 54301								54302 54303							
Solid carbide								Solid carbide							
Stock std.								Stock std.							
N								N							
666/667								662/663							
Ø	2/3	4	6	8	10	12		Ø	4	6	8	10	12		
Roughing								Roughing							
eff. Ø *	-	1.74	2.99	4.21	5.27	6.63		eff. Ø *	-	-	-	-	-		
a _p mm	0.10	0.20	0.40	0.60	0.75	1.00		a _p mm	0.20	0.40	0.60	0.75	1.00		
a _e mm	0.15	0.30	0.50	0.75	1.00	1.50		a _e mm	0.30	0.50	0.75	1.00	1.50		
Fine finishing								Fine finishing							
eff. Ø *	-	1.25	1.81	2.24	2.66	3.07		eff. Ø *	-	-	-	-	-		
a _p mm	0.07	0.10	0.14	0.16	0.18	0.20		a _p mm	0.10	0.14	0.16	0.18	0.20		
a _e mm	0.05	0.07	0.10	0.15	0.20	0.25		a _e mm	0.07	0.10	0.15	0.20	0.25		
V _c m/min	V _c m/min	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	V _c m/min	V _c m/min	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	
225	310	0.03	0.03	0.05	0.06	0.08	0.1	225	310	0.03	0.05	0.06	0.08	0.1	
170	240	0.02	0.02	0.04	0.05	0.08	0.1	170	240	0.02	0.04	0.05	0.08	0.1	
170	240	0.02	0.02	0.04	0.05	0.08	0.1	170	240	0.02	0.04	0.05	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
190	240	0.02	0.02	0.04	0.05	0.08	0.1	190	240	0.02	0.04	0.05	0.08	0.1	
190	240	0.02	0.02	0.04	0.05	0.08	0.1	190	240	0.02	0.04	0.05	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
105	140	0.02	0.02	0.04	0.05	0.08	0.1	105	140	0.02	0.04	0.05	0.08	0.1	
225	310	0.03	0.03	0.05	0.06	0.08	0.1	225	310	0.03	0.05	0.06	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
105	140	0.02	0.02	0.04	0.05	0.08	0.1	105	140	0.02	0.04	0.05	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
105	140	0.02	0.02	0.04	0.05	0.08	0.1	105	140	0.02	0.04	0.05	0.08	0.1	
150	190	0.02	0.02	0.04	0.05	0.08	0.1	150	190	0.02	0.04	0.05	0.08	0.1	
105	140	0.02	0.02	0.04	0.05	0.08	0.1	105	140	0.02	0.04	0.05	0.08	0.1	
80	125	0.02	0.02	0.04	0.05	0.06	0.08	80	125	0.02	0.04	0.05	0.06	0.08	
80	125	0.02	0.02	0.04	0.05	0.06	0.08	80	125	0.02	0.04	0.05	0.06	0.08	
225	310	0.03	0.03	0.05	0.06	0.08	0.1	225	310	0.03	0.05	0.06	0.08	0.1	
105	140	0.02	0.02	0.04	0.05	0.08	0.1	105	140	0.02	0.04	0.05	0.08	0.1	
80	125	0.02	0.02	0.04	0.05	0.06	0.08	80	125	0.02	0.04	0.05	0.06	0.08	
300	450	0.04	0.04	0.06	0.08	0.1	0.13	300	450	0.04	0.06	0.08	0.1	0.13	
65	80	0.02	0.02	0.04	0.05	0.06	0.08	65	80	0.02	0.04	0.05	0.06	0.08	
300	400	0.06	0.06	0.1	0.15	0.2	0.25	300	400	0.06	0.1	0.15	0.2	0.25	
300	400	0.05	0.05	0.08	0.1	0.15	0.2	300	400	0.05	0.08	0.1	0.15	0.2	
225	325	0.05	0.05	0.08	0.1	0.12	0.15	225	325	0.05	0.08	0.1	0.12	0.15	
225	275	0.04	0.04	0.06	0.08	0.1	0.12	225	275	0.04	0.06	0.08	0.1	0.12	
80	125	0.02	0.02	0.04	0.05	0.08	0.1	80	125	0.02	0.04	0.05	0.08	0.1	
75	100	0.02	0.02	0.04	0.05	0.06	0.08	75	100	0.02	0.04	0.05	0.06	0.08	
375	500	0.04	0.04	0.06	0.08	0.1	0.15	375	500	0.04	0.06	0.08	0.1	0.15	
500	900	0.04	0.04	0.06	0.08	0.1	0.15	500	900	0.04	0.06	0.08	0.1	0.15	
300	450	0.04	0.04	0.06	0.08	0.1	0.13	300	450	0.04	0.06	0.08	0.1	0.13	
225	310	0.03	0.03	0.05	0.06	0.08	0.1	225	310	0.03	0.05	0.06	0.08	0.1	
225	310	0.03	0.03	0.05	0.06	0.08	0.1	225	310	0.03	0.05	0.06	0.08	0.1	
300	350	0.05	0.05	0.08	0.12	0.15	0.2	300	350	0.05	0.08	0.12	0.15	0.2	
225	300	0.04	0.04	0.06	0.1	0.12	0.15	225	300	0.04	0.06	0.1	0.12	0.15	
225	325	0.05	0.05	0.08	0.1	0.12	0.15	225	325	0.05	0.08	0.1	0.12	0.15	
225	275	0.04	0.04	0.06	0.08	0.1	0.12	225	275	0.04	0.06	0.08	0.1	0.12	
225	275	0.04	0.04	0.06	0.08	0.1	0.12	225	275	0.04	0.06	0.08	0.1	0.12	
150	225	0.03	0.03	0.05	0.08	0.1	0.12	150	225	0.03	0.05	0.08	0.1	0.12	

Application recommendations for Carbide Trace End Mills

Feed column																	
Code-letter	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

a_e = Width of cut
a_p = Cutting depth



The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
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Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36) 1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤850 850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30) 1.0503 C45, 1.1191 C45E (Ck45) 1.0601 C60, 1.1221 C60E (Ck60)	≤ 700 700-850 850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4 1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	850-≤1000 1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4 1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	850-≤1000 1000-1200		■ ■
Nitriding steels	1.8504 34CrAl6 1.8519 31CrMoV9, 1.8550 34CrAlNi7	≥850-≤1000 >1000-1200		■ ■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9 1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤850 >850-1000		■ ■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■ ■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■ ■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■ ■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■ ■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20) 0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		≤240 HB <300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB <300 HB	■ ■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤350 HB	■ ■
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2 3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		■ ■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■ ■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■ ■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■ ■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■ ■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■ ■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■ ■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■ ■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■ ■
Bronze, long-chipping	2.0790 CuNi18Zn19Pb 2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	>600-850 ≤850 >850-1000		■ ■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		■ □
Kevlar	Kevlar	-		□
Glass/carbon-concentr. plastics	GFK/CFK	-		-

High Speed Cutting

Catalogue no.	54306 54307	54304 54305
Tool mat.	Solid carbide	Solid carbide
Std.	Stock std.	Stock std.
Type	N	N
Page	664/665	660/661



54306 54307								54304 54305							
Solid carbide								Solid carbide							
Stock std.								Stock std.							
N								N							
664/665								660/661							
Ø	2/3	4	6	8	10	12		Ø	4	6	8	10	12		
Roughing								Roughing							
eff. Ø *	1.74	2.99	4.21	5.27	6.63	9.33		eff. Ø *	-	-	-	-	-		
a _p mm	0.20	0.40	0.60	0.75	1.00	1.50		a _p mm	0.40	0.60	0.75	1.00	1.50		
a _e mm	0.30	0.50	0.75	1.00	1.50	2.50		a _e mm	3.50	5.50	6.50	8.50	11.50		
Fine finishing								Fine finishing							
eff. Ø *	1.25	1.81	2.24	2.66	3.07	3.97		eff. Ø *	-	-	-	-	-		
a _p mm	0.10	0.14	0.16	0.18	0.20	0.25		a _p mm	0.15	0.20	0.30	0.40	0.50		
a _e mm	0.07	0.10	0.15	0.20	0.25	0.30		a _e mm	0.20	0.30	0.40	0.60	1.00		
V _c m/min	V _c m/min	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	V _c m/min	V _c m/min	fz (mm)	fz (mm)	fz (mm)	fz (mm)	fz (mm)	
300	350							200	230						
200	300							160	190						
150	250							105	125						
200	300							150	175						
150	180							75	95						
300	400							300	400						
250	325							250	325						
250	275							225	275						
150	225							150	225						
400	475							400	475						
300	350							300	350						
275	300							275	300						

Application recommendations for slot drilling

		Feed column																Feed f (mm/tooth)
Code-letter		H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020	f
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030	
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038	
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047	
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064	
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080	
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100	
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120	
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140	
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190	

a_e = Width of cut
a_p = Cutting depth



a_e = 1.0 x D

Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

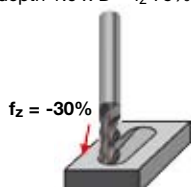
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

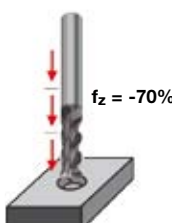
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185 (St33), 1.0486 P275N (StE285), 1.0345 P235GH (H1), 1.0425 P265GH (H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	■ □
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		<300 HB	■
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnNb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	-

Slot drilling

Catalogue no.	74231	74243	74080	54275	64670	54080	74244	74276	64671	54294	54276	54825	54845	74816	54816				
	74280	74282	74180	64640	64641	54180													
				64604															
Tool mat.	M42			M42			M42			M42			HSS-E-PM			M42		M42	
Std.	327 D	844 K	Stock	327 D	844 K	Stock	844 L		844 L		Stock	844 K		844 K		844 K			
Type	N			N			N		N		Stock	NrR		NR		NR			
Page	675/681	677/682	684/685	694/675/681	677/682	684/685	679	695	679	683	695	690	692	691	691				

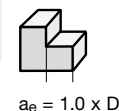
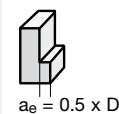


V _c m/min	Feed col.	Feed col.	V _c m/min	Feed col.	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.	V _c m/min	Feed col.
28		M	61		M	22	K	49		K	90	O	34	M	61	N
25	L		55	L		20	K	44		K	80	N	30	K	55	L
25	L		55	L		20	K	44		K	80	N	30	K	55	L
22	M		50	M		18	K	40		K	75	M	28	J	50	K
28	L		61	L		22	K	49		K	90	N	34	K	61	L
26	L		55	L		21	K	44		K	80	N	30	K	55	L
22	M		50	M		18	K	40		K	75	M	28	J	50	K
22	M		50	M		18	K	40		K	75	M	28	J	50	K
17	M		39	M		14	K	31		K	60	L	22	I	39	J
28	L		61	L		22	K	49		K	90	N	34	K	61	L
22	L		50	L		18	K	40		K	75	N	28	K	50	L
17	M		39	M		14	K	31		K	60	M	22	J	39	K
22	L		50	L		18	K	40		K	75	N	28	K	50	L
17	L		39	L		14	K	31		K	60	L	22	I	39	J
28	L		61	L		22	K	49		K	90	N	34	K	61	L
11	L		28	L		9	K	22		K	40	L	15	I	28	J
11	M		28	M		9	K	22		K	40	M	15	J	28	K
11	L		22	L							33	L			22	J
18	M		42	M							65	M	23	J	42	K
14	L		39	L							60	L	21	I	39	J
14	L		39	L							60	M	21	J	39	K
5	L		9	L							14	L			9	J
20	L		50	L		16	K	40		K	75	N	28	K	50	L
14	L		42	L		11	K	34		K	65	M			42	K
20	L		50	L		16	K	40		K	75	N	28	K	50	L
14	L		42	L		11	K	34		K	65	M			42	K
11	L		31	L							45	K			31	I
11	L		25	L							36	L	13	I	25	J
7	L		11	L							17	K			11	I
154	N		220	N												
110	N		198	N												
88	M		132	M												
44	N		121	N												
66	O		143	O												
61	N		99	N												
61	N		99	N												
39	M		94	M												
39	M		94	M												
33	L		72	L												
33	M		72	M												
17	L		44	L												

Application recommendations for HSS Milling Cutters

		Feed column															
Code-letter		H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
tool-Ø mm	2.00	0.001	0.001	0.001	0.002	0.002	0.004	0.005	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.018	0.020
	3.00	0.002	0.002	0.003	0.003	0.004	0.007	0.010	0.010	0.010	0.015	0.016	0.013	0.019	0.022	0.024	0.030
	5.00	0.005	0.006	0.007	0.009	0.010	0.014	0.020	0.020	0.022	0.025	0.026	0.026	0.028	0.030	0.032	0.038
	6.00	0.006	0.008	0.009	0.011	0.013	0.017	0.024	0.025	0.027	0.031	0.029	0.033	0.039	0.036	0.041	0.047
	8.00	0.010	0.012	0.014	0.016	0.019	0.024	0.032	0.032	0.035	0.042	0.042	0.047	0.053	0.052	0.058	0.064
	10.00	0.013	0.015	0.018	0.021	0.025	0.030	0.038	0.039	0.044	0.050	0.053	0.059	0.065	0.066	0.073	0.080
	12.00	0.010	0.018	0.022	0.026	0.030	0.036	0.046	0.048	0.052	0.059	0.063	0.072	0.079	0.085	0.090	0.100
	16.00	0.020	0.023	0.027	0.032	0.038	0.045	0.054	0.058	0.063	0.071	0.079	0.088	0.095	0.100	0.110	0.120
	20.00	0.023	0.028	0.033	0.038	0.045	0.057	0.066	0.073	0.080	0.090	0.097	0.100	0.110	0.120	0.130	0.140
	25.00	0.030	0.035	0.040	0.045	0.055	0.065	0.075	0.100	0.120	0.130	0.140	0.150	0.165	0.170	0.180	0.190

a_e = Width of cut
a_p = Cutting depth



Feed rate codes in bold are the preferred choice for the respective material group.

The new european-wide definitions according to DIN EN for steel and cast are applied for our material examples.

Oblique plunging and slot milling

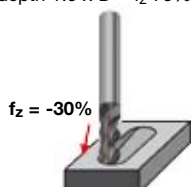
For oblique plunging the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for drilling depths in excess of 1 x D. This also applies to the transition to radial machining.

slot milling

a_p = cut. depth 0.5 x D = f_z 100%

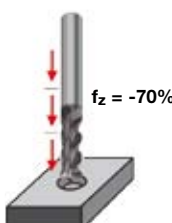
a_p = cut. depth 1.0 x D = f_z 75%



Drilling

For drilling the feed rate (v_f = mm/min) should be reduced as illustrated.

In addition, chip evacuation is required for larger drilling depths in excess of 0.5 x D.



Lubricants:

cutting oil, highly activated ■
soluble oil (emulsion) ■
air only □

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		■
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		■
	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		■
Unalloyed tempering steels	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		■
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		■
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		■
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		■
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		■
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		■
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		■
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		■
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		■
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	■
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		■
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	■ □
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	■ □
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	■
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	■
Ti and Ti-alloys	-		≤350 HB	■
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		■
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		■
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		■
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		■
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		■
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		■
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		□
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		■
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		■
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		■
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		■
	2.0790 CuNi18Zn19Pb	>600-850		■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		■
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		■
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren		-	□
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon		-	■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	■

Roughing

Catalogue no.	74617	74847	64667	54847	74800	74825	74845	54825	54845	74816 74836	74815	54816 54836	54815
Tool mat.	M42	M42	M42		M42	HSS-E-PM		HSS-E-PM		M42		M42	
Std.	844K	844 L	844 K	844 L	Stock	844 K		844 K		844 K L	844 K L	844 K L	844 K L
Type	N	N	N		N	NrF		NrF		Nr	NF	NF	
Page	686	687	686	687	688	690	692	690	692	691/693	689	691/693	689

[illegible]

Solid carbide milling cutters

Slot drills, 2-fluted

Catalog no. 74520



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 K

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted

Catalog no. 54520



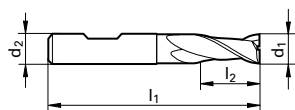
Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 K

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted



Catalog no.	74520	54520
Tool material	Solid Carbide	
Type	N	N
Discount group	117	117
Surface	bright	TiAIN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
2.000	6.000	50.00	3.00	2	○	●
2.500	6.000	50.00	3.00	2	○	
3.000	6.000	50.00	4.00	2	○	●
3.500	6.000	50.00	4.00	2	○	
4.000	6.000	54.00	5.00	2	○	●
4.500	6.000	54.00	5.00	2	○	
5.000	6.000	54.00	6.00	2	○	●
5.500	6.000	54.00	7.00	2	○	
6.000	6.000	54.00	7.00	2	○	●
6.500	8.000	58.00	8.00	2	○	
7.000	8.000	58.00	8.00	2	○	
7.500	8.000	58.00	9.00	2	○	
8.000	8.000	58.00	9.00	2	○	●
8.500	10.000	66.00	10.00	2	○	
9.000	10.000	66.00	10.00	2	○	
9.500	10.000	66.00	11.00	2	○	
10.000	10.000	66.00	11.00	2	○	●
11.000	12.000	73.00	12.00	2	○	
12.000	12.000	73.00	12.00	2	○	●
13.000	14.000	75.00	14.00	2	○	
14.000	14.000	75.00	14.00	2	○	●
15.000	16.000	82.00	16.00	2	○	
16.000	16.000	82.00	16.00	2	○	●
18.000	18.000	84.00	18.00	2	○	●
20.000	20.000	92.00	20.00	2	○	●

Solid carbide milling cutters

Slot drills, 2-fluted

Catalog no. 54519



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted

Catalog no. 74521



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted

Catalog no. 54521



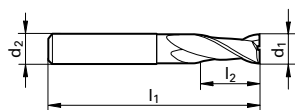
Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted



Catalog no.	54519	74521	54521
Tool material	Solid Carbide		
Type	N	N	N
Discount group	117	117	117
Surface	TiAlN	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece		
mm	mm	mm	mm				
2.000	6.000	57.00	6.00	2	●	○	●
2.500	6.000	57.00	7.00	2		○	
2.800	6.000	57.00	7.00	2	●		●
3.000	6.000	57.00	7.00	2	●	○	●
3.500	6.000	57.00	7.00	2		○	
3.800	6.000	57.00	8.00	2	●	○	●
4.000	6.000	57.00	8.00	2	●	○	●
4.500	6.000	57.00	8.00	2		○	
4.800	6.000	57.00	10.00	2	●	○	●
5.000	6.000	57.00	10.00	2	●	○	●
5.750	6.000	57.00	10.00	2		○	
6.000	6.000	57.00	10.00	2	●	○	●
6.750	8.000	63.00	13.00	2		○	
7.000	8.000	63.00	13.00	2	●	○	●
7.750	8.000	63.00	16.00	2		○	
8.000	8.000	63.00	16.00	2	●	○	●
8.700	10.000	72.00	16.00	2		○	
9.000	10.000	72.00	16.00	2	●	○	●
9.700	10.000	72.00	19.00	2		○	
10.000	10.000	72.00	19.00	2	●	○	●
11.700	12.000	83.00	22.00	2		○	
12.000	12.000	83.00	22.00	2	●	○	●
14.000	14.000	83.00	22.00	2	●	○	●
15.700	16.000	92.00	26.00	2		○	
16.000	16.000	92.00	26.00	2		○	
18.000	18.000	92.00	26.00	2	●	○	●
20.000	20.000	104.00	32.00	2	●	○	●

Solid carbide milling cutters

Slot drills, 2-fluted

Catalog no. 74404



Extra long design suitable for slot milling in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted

Catalog no. 54404



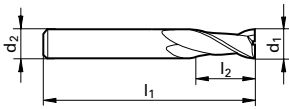
Extra long design suitable for slot milling in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron and CrNi-steels.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted



Catalog no.	74404	54404
Tool material	Solid Carbide	
Type	N	N
Discount group	117	117
Surface	bright	TiAIN

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece	
3.000	3.000	75.00	20.00	2	●	
4.000	4.000	75.00	25.00	2	●	
5.000	5.000	75.00	30.00	2	●	●
6.000	6.000	75.00	30.00	2	●	●
8.000	8.000	100.00	40.00	2	●	●
10.000	10.000	100.00	40.00	2	●	●
12.000	12.000	150.00	45.00	2	●	●
14.000	14.000	150.00	45.00	2	●	●
16.000	16.000	150.00	65.00	2	●	●
18.000	18.000	150.00	65.00	2	●	
20.000	20.000	150.00	65.00	2	●	●

Solid carbide milling cutters

Slot drills, 3-fluted

DIN 6527 K

Catalog no. 74522



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 3-fluted

DIN 6527 K

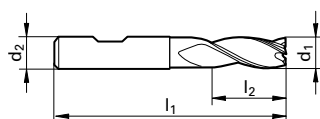
Catalog no. 64522



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74522	64522
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
2.000	6.000	50.00	3.00	3	○	○
3.000	6.000	50.00	4.00	3	○	○
4.000	6.000	54.00	5.00	3	○	○
5.000	6.000	54.00	6.00	3	○	○
6.000	6.000	54.00	7.00	3	○	○
7.000	8.000	58.00	8.00	3	○	
8.000	8.000	58.00	9.00	3	○	○
10.000	10.000	66.00	11.00	3	○	○
12.000	12.000	73.00	12.00	3	○	○
14.000	14.000	75.00	14.00	3	○	
16.000	16.000	82.00	16.00	3	○	○
18.000	18.000	84.00	18.00	3	○	
20.000	20.000	92.00	20.00	3	○	○

Solid carbide milling cutters

Slot drills, 3-fluted

Catalog no. 54523



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 3-fluted

Catalog no. 74523

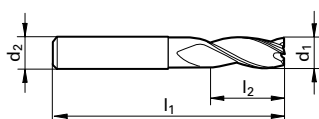


Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54523	74523
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	TiAlN	bright

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
2.000	6.000	57.00	6.00	3	●	○
2.500	6.000	57.00	7.00	3		○
3.000	6.000	57.00	7.00	3	●	○
3.500	6.000	57.00	7.00	3		○
4.000	6.000	57.00	8.00	3	●	○
4.500	6.000	57.00	8.00	3		○
5.000	6.000	57.00	10.00	3	●	○
6.000	6.000	57.00	10.00	3	●	○
8.000	8.000	63.00	16.00	3	●	○
10.000	10.000	72.00	19.00	3	●	○
12.000	12.000	83.00	22.00	3	●	○
14.000	14.000	83.00	22.00	3	●	○
16.000	16.000	92.00	26.00	3	●	○
18.000	18.000	92.00	26.00	3		○
20.000	20.000	104.00	32.00	3	●	○

Solid carbide milling cutters

Slot drills, 3-fluted

DIN 6527 L

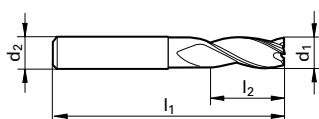
Catalog no. 64523



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64523
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
2.000	6.000	57.00	6.00	3	●
2.500	6.000	57.00	7.00	3	●
3.000	6.000	57.00	7.00	3	●
4.000	6.000	57.00	8.00	3	●
5.000	6.000	57.00	10.00	3	●
6.000	6.000	57.00	10.00	3	●
8.000	8.000	63.00	16.00	3	●
10.000	10.000	72.00	19.00	3	●
12.000	12.000	83.00	22.00	3	●
14.000	14.000	83.00	22.00	3	●
16.000	16.000	92.00	26.00	3	●
18.000	18.000	92.00	26.00	3	○
20.000	20.000	104.00	32.00	3	●

Solid carbide milling cutters

Slot drills, 3-fluted

Catalog no. 74424



Extra long design suitable for slot milling in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 3-fluted

Catalog no. 54424

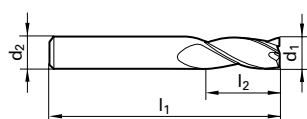


Extra long design suitable for slot milling in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron and CrNi-steels.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74424	54424
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	3.000	75.00	20.00	3	●	●
4.000	4.000	75.00	25.00	3	●	●
5.000	5.000	75.00	30.00	3	●	●
6.000	6.000	75.00	30.00	3	●	●
8.000	8.000	100.00	40.00	3	●	●
10.000	10.000	100.00	40.00	3	●	●
12.000	12.000	150.00	45.00	3	●	●
16.000	16.000	150.00	65.00	3	●	●
20.000	20.000	150.00	65.00	3	●	●

Solid carbide milling cutters

Micro Slot drills, 3-fluted

Catalog no. 64080



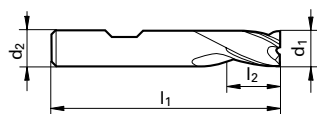
Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB/< 2.0 HA
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting

Micro Slot drills, 3-fluted



Catalog no.

64080

Tool material

Solid Carbide

Type

N

Discount group

117

Surface

TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
0.300	3.000	38.00	1.00	3	●
0.400	3.000	38.00	1.00	3	●
0.500	3.000	38.00	1.50	3	●
0.600	3.000	38.00	1.50	3	●
0.800	3.000	38.00	2.00	3	●
1.000	3.000	38.00	2.00	3	●
1.200	3.000	38.00	2.00	3	●
1.500	3.000	38.00	2.00	3	●
1.800	3.000	38.00	2.00	3	●
2.000	6.000	38.00	4.00	3	●
2.500	6.000	38.00	5.00	3	●
3.000	6.000	38.00	5.00	3	●
3.500	6.000	38.00	6.00	3	●
4.000	6.000	38.00	7.00	3	●
4.500	6.000	38.00	8.00	3	●
5.000	6.000	38.00	8.00	3	●
5.500	6.000	38.00	8.00	3	●
6.000	6.000	38.00	8.00	3	●
7.000	8.000	42.00	10.00	3	●
8.000	8.000	43.00	11.00	3	●
9.000	10.000	48.00	11.00	3	●
10.000	10.000	50.00	13.00	3	●
12.000	12.000	55.00	15.00	3	●
14.000	14.000	58.00	15.00	3	●
16.000	16.000	62.00	18.00	3	●
18.000	18.000	70.00	20.00	3	●
20.000	20.000	75.00	22.00	3	●

Solid carbide milling cutters

Micro Slot drills, 3-fluted

Catalog no. 64180



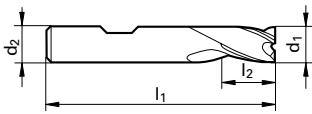
Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², CrNi steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HB/< 2.0 HA
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting

Micro Slot drills, 3-fluted



Catalog no.	64180
Tool material	Solid Carbide
Type	NH
Discount group	106
Surface	TiAlN

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece
1.000	3.000	38.00	2.00	3	●
1.200	3.000	38.00	2.00	3	●
1.500	3.000	38.00	3.00	3	●
1.800	3.000	38.00	3.00	3	●
2.000	6.000	45.00	4.00	3	●
2.500	6.000	45.00	5.00	3	●
3.000	6.000	45.00	6.00	3	●
3.500	6.000	45.00	6.00	3	●
4.000	6.000	45.00	7.00	3	●
4.500	6.000	45.00	8.00	3	●
5.000	6.000	45.00	8.00	3	●
5.500	6.000	45.00	8.00	3	●
6.000	6.000	45.00	10.00	3	●
7.000	8.000	55.00	12.00	3	●
8.000	8.000	55.00	13.00	3	●
9.000	10.000	55.00	14.00	3	●
10.000	10.000	55.00	16.00	3	●

Solid carbide milling cutters

Slot drills type W

DIN 6527 K

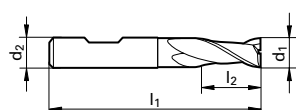
Catalog no. 74204



Suitable for milling aluminium and aluminium alloys, plastics, copper alloys and non-ferrous metals.

Tool material	Solid Carbide
Surface	bright
Type	W
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting



Catalog no.	74204
Tool material	Solid Carbide
Type	W
Discount group	117
Surface	bright

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
4.000	6.000	54.00	5.00	2	●
6.000	6.000	54.00	7.00	2	●
8.000	8.000	58.00	9.00	2	●
10.000	10.000	66.00	11.00	2	●
12.000	12.000	73.00	12.00	2	●
16.000	16.000	82.00	16.00	2	●
18.000	18.000	84.00	18.00	2	○
20.000	20.000	92.00	20.00	2	●

Solid carbide milling cutters

Slot drills type W

DIN 6527 L

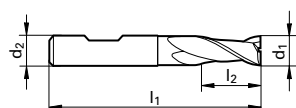
Catalog no. 74202



Suitable for milling aluminium and aluminium alloys, plastics, copper alloys and non-ferrous metals.

Tool material	Solid Carbide
Surface	bright
Type	W
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting



Catalog no.	74202
Tool material	Solid Carbide
Type	W
Discount group	117
Surface	bright

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	6.000	57.00	7.00	2	●
4.000	6.000	57.00	8.00	2	●
5.000	6.000	57.00	10.00	2	●
6.000	6.000	57.00	10.00	2	●
8.000	8.000	63.00	16.00	2	●
10.000	10.000	72.00	19.00	2	●
12.000	12.000	83.00	22.00	2	●
14.000	14.000	83.00	22.00	2	●
16.000	16.000	92.00	26.00	2	●
18.000	18.000	92.00	26.00	2	●
20.000	20.000	104.00	32.00	2	●

Solid carbide milling cutters

Slot drills type W

Catalog no. 74206

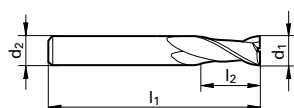
Extra long design, suitable for milling aluminium and aluminium alloys, plastics, copper alloys and non-ferrous metals.



Stock std.

Tool material	Solid Carbide
Surface	bright
Type	W
Spiral angle	45°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74206
Tool material	Solid Carbide
Type	W
Discount group	117
Surface	bright

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
5.000	5.000	75.00	30.00	2	●
6.000	6.000	75.00	30.00	2	●
8.000	8.000	100.00	40.00	2	●
10.000	10.000	100.00	40.00	2	●
12.000	12.000	150.00	45.00	2	●
16.000	16.000	150.00	65.00	2	●

Solid carbide milling cutters

Slot drills type W

Catalog no. 74479

With internal coolant.

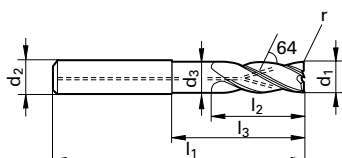
Suitable for milling Al and Al-alloys, brass, bronze, copper, Mg-alloys and plastics.



Stock std.

Tool material	Solid Carbide
Surface	bright
Type	W
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no. 74479

Tool material Solid Carbide

Type W

Discount group 106

Surface bright

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
6.000	6.000	5.700	57.00	10.00	21.00	1.000	3	6.000	○
8.000	8.000	7.700	63.00	16.00	27.00	1.000	3	8.000	○
10.000	10.000	9.500	72.00	19.00	32.00	1.500	3	10.000	○
12.000	12.000	11.500	83.00	22.00	38.00	1.500	3	12.000	○
16.000	16.000	15.500	92.00	26.00	44.00	2.000	3	16.000	○
20.000	20.000	19.500	104.00	32.00	54.00	2.500	3	20.000	○

Solid carbide milling cutters

Slot drills NH, 3-fluted

DIN 6527 K

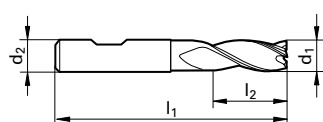
Catalog no. 64570



High-performance end mill for universal use for slotting, roughing and finishing in Steel, CrNi-steel with more than 900 N/mm² tensile strength. Stainless steel, bronze, Brass, copper and aluminium with high silicon content.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64570
Tool material	Solid Carbide
Type	NH
Discount group	106
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	6.000	50.00	4.00	3	●
4.000	6.000	54.00	5.00	3	●
5.000	6.000	54.00	6.00	3	●
6.000	6.000	54.00	7.00	3	●
8.000	8.000	58.00	9.00	3	●
10.000	10.000	66.00	11.00	3	●
12.000	12.000	73.00	12.00	3	●
16.000	16.000	82.00	16.00	3	●
18.000	18.000	84.00	18.00	3	●
20.000	20.000	92.00	20.00	3	●

Solid carbide milling cutters

Slot drills NH, 3-fluted

DIN 6527 L

Catalog no. 74478



High performance end mill for universal use for finishing and slotting in steel, CrNi-steel, stainless steel, bronze, brass and copper up to a tensile strength of 1200 N/mm²

Tool material	Solid Carbide
Surface	bright
Type	NH
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills NH, 3-fluted

DIN 6527 L

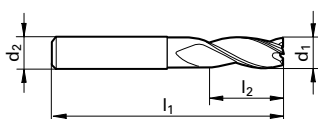
Catalog no. 64478



High-performance end mill for universal use for slotting, roughing and finishing in Steel, CrNi-steel with more than 900 N/mm² tensile strength. Stainless steel, bronze, Brass, copper and aluminium with high silicon content.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74478	64478
Tool material	Solid Carbide	Solid Carbide
Type	NH	NH
Discount group	106	106
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
1.500	3.000	38.00	3.00	3	●
2.000	6.000	57.00	6.00	3	●
2.500	6.000	57.00	7.00	3	●
3.000	6.000	57.00	7.00	3	●
3.500	6.000	57.00	7.00	3	●
4.000	6.000	57.00	8.00	3	●
4.500	6.000	57.00	8.00	3	●
5.000	6.000	57.00	10.00	3	●
6.000	6.000	57.00	10.00	3	●
8.000	8.000	63.00	16.00	3	●
10.000	10.000	72.00	19.00	3	●
12.000	12.000	83.00	22.00	3	●
14.000	14.000	83.00	22.00	3	●
16.000	16.000	92.00	26.00	3	●
18.000	18.000	92.00	26.00	3	●
20.000	20.000	104.00	32.00	3	●

Solid carbide milling cutters

Slot drills NH, 3-fluted

DIN 6527 L

Catalog no. 74471



High performance end mill for universal use for finishing and slotting in steel, CrNi-steel, stainless steel, bronze, brass and copper up to a tensile strength of 1200 N/mm²

Tool material	Solid Carbide
Surface	bright
Type	NH
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills NH, 3-fluted

DIN 6527 L

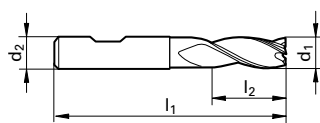
Catalog no. 64571



High-performance end mill for universal use for slotting, roughing and finishing in Steel, CrNi-steel with more than 900 N/mm² tensile strength. Stainless steel, bronze, Brass, copper and aluminium with high silicon content.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74471	64571
Tool material	Solid Carbide	Solid Carbide
Type	NH	NH
Discount group	106	106
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	57.00	7.00	3	○	●
3.500	6.000	57.00	7.00	3	○	●
4.000	6.000	57.00	8.00	3	○	●
4.500	6.000	57.00	8.00	3	○	●
5.000	6.000	57.00	10.00	3	○	●
6.000	6.000	57.00	10.00	3	○	●
7.000	8.000	63.00	13.00	3	○	
8.000	8.000	63.00	16.00	3	○	●
9.000	10.000	72.00	16.00	3	○	
10.000	10.000	72.00	19.00	3	○	●
12.000	12.000	83.00	22.00	3	○	●
14.000	14.000	83.00	22.00	3	○	
16.000	16.000	92.00	26.00	3	○	●
18.000	18.000	92.00	26.00	3	○	○
20.000	20.000	104.00	32.00	3	○	●

Solid carbide milling cutters

End mills, 4-fluted

DIN 6527 L

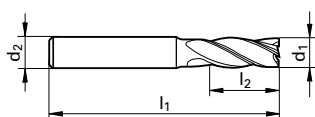
Catalog no. 54524



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54524
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
2.000	6.000	57.00	7.00	4	●
3.000	6.000	57.00	8.00	4	●
4.000	6.000	57.00	11.00	4	●
5.000	6.000	57.00	13.00	4	●
6.000	6.000	57.00	13.00	4	●
8.000	8.000	63.00	19.00	4	●
10.000	10.000	72.00	22.00	4	●
12.000	12.000	83.00	26.00	4	●
14.000	14.000	83.00	26.00	4	●
16.000	16.000	92.00	32.00	4	●
20.000	20.000	104.00	38.00	4	●

Solid carbide milling cutters

End mills, 4-fluted

Catalog no. 74525



Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

End mills, 4-fluted

Catalog no. 64525

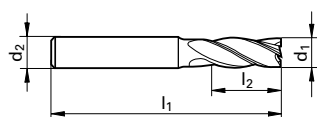


Suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74525	64525
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
2.000	6.000	57.00	7.00	4		●
3.000	6.000	57.00	8.00	4	●	●
4.000	6.000	57.00	11.00	4	●	●
5.000	6.000	57.00	13.00	4	●	●
6.000	6.000	57.00	13.00	4	●	●
8.000	8.000	63.00	19.00	4	●	●
10.000	10.000	72.00	22.00	4	●	●
12.000	12.000	83.00	26.00	4	●	●
14.000	14.000	83.00	26.00	4	●	●
16.000	16.000	92.00	32.00	4	●	●
18.000	18.000	92.00	32.00	4	●	●
20.000	20.000	104.00	38.00	4	●	●

Solid carbide milling cutters

End mills, 4-fluted

Catalog no. 54444

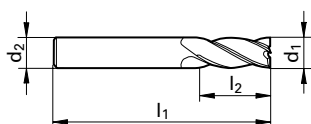


Extra long design suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54444
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	3.000	75.00	20.00	4	●
4.000	4.000	75.00	25.00	4	●
5.000	5.000	75.00	30.00	4	●
6.000	6.000	75.00	30.00	4	●
8.000	8.000	100.00	40.00	4	●
10.000	10.000	100.00	40.00	4	●
12.000	12.000	150.00	45.00	4	●
14.000	14.000	150.00	45.00	4	●
16.000	16.000	150.00	65.00	4	●
20.000	20.000	150.00	65.00	4	●

Solid carbide milling cutters

End mills with corner radius

Catalog no. 54522



2-fluted with corner radius, especially for the mould-industry.

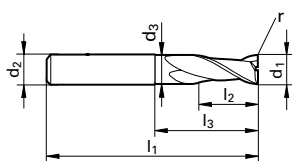
The corner radius achieves a high precision of the form and contour of the workpiece with a minimal wear and therefore a very long tool-life.

Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, Crni-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

End mills with corner radius



Catalog no. 54522

Tool material Solid Carbide

Type N

Discount group 117

Surface TiAlN

d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	l3 mm	r	teeth	Code no.	price per piece
6.000	6.000	5.700	57.00	10.00	21.00	0.500	2	6.005	●
6.000	6.000	5.700	57.00	10.00	21.00	1.000	2	6.010	●
8.000	8.000	7.700	63.00	16.00	27.00	0.500	2	8.005	●
8.000	8.000	7.700	63.00	16.00	27.00	1.000	2	8.010	●
8.000	8.000	7.700	63.00	16.00	27.00	1.500	2	8.015	●
10.000	10.000	9.500	72.00	19.00	32.00	0.500	2	10.005	●
10.000	10.000	9.500	72.00	19.00	32.00	1.000	2	10.010	●
10.000	10.000	9.500	72.00	19.00	32.00	1.500	2	10.015	●
10.000	10.000	9.500	72.00	19.00	32.00	2.000	2	10.020	●
12.000	12.000	11.500	83.00	22.00	38.00	0.500	2	12.005	●
12.000	12.000	11.500	83.00	22.00	38.00	1.000	2	12.010	●
12.000	12.000	11.500	83.00	22.00	38.00	2.000	2	12.020	●
16.000	16.000	15.500	92.00	26.00	44.00	1.000	2	16.010	●
16.000	16.000	15.500	92.00	26.00	44.00	2.000	2	16.020	●

Solid carbide milling cutters

End mills with corner radius

DIN 6527 L

Catalog no. 54526



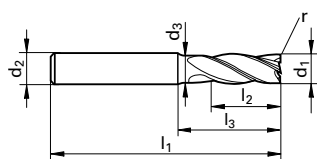
4-fluted with corner radius, especially for the mould-industry.

The corner radius achieves a high precision of the form and contour of the workpiece with a minimal wear and therefore a very long tool-life.

Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, Crni-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials. For finishing operations in materials up to 50 HRC.

Tool material	Solid Carbide
Surface	TiAIN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

End mills with corner radius



Catalog no. 54526

Tool material **Solid Carbide**

Type **N**

Discount group **117**

Surface **TiAlN**

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
6.000	6.000	5.700	57.00	13.00	21.00	0.500	4	6.005	●
6.000	6.000	5.700	57.00	13.00	21.00	1.000	4	6.010	●
8.000	8.000	7.700	63.00	19.00	27.00	0.500	4	8.005	●
8.000	8.000	7.700	63.00	19.00	27.00	1.000	4	8.010	●
8.000	8.000	7.700	63.00	19.00	27.00	1.500	4	8.015	●
8.000	8.000	7.700	63.00	19.00	27.00	2.000	4	8.020	●
10.000	10.000	9.500	72.00	22.00	32.00	0.500	4	10.005	●
10.000	10.000	9.500	72.00	22.00	32.00	0.800	4	10.008	●
10.000	10.000	9.500	72.00	22.00	32.00	1.000	4	10.010	●
10.000	10.000	9.500	72.00	22.00	32.00	1.500	4	10.015	●
10.000	10.000	9.500	72.00	22.00	32.00	2.000	4	10.020	●
12.000	12.000	11.500	83.00	26.00	38.00	0.500	4	12.005	●
12.000	12.000	11.500	83.00	26.00	38.00	0.800	4	12.008	●
12.000	12.000	11.500	83.00	26.00	38.00	1.000	4	12.010	●
12.000	12.000	11.500	83.00	26.00	38.00	1.500	4	12.015	●
12.000	12.000	11.500	83.00	26.00	38.00	2.000	4	12.020	●
16.000	16.000	15.500	92.00	32.00	44.00	1.000	4	16.010	●
16.000	16.000	15.500	92.00	32.00	44.00	2.000	4	16.020	●
20.000	20.000	19.500	104.00	38.00	54.00	1.000	4	20.010	●
20.000	20.000	19.500	104.00	38.00	54.00	2.000	4	20.020	●

Solid carbide milling cutters

End mills with corner radius

Catalog no. 54206

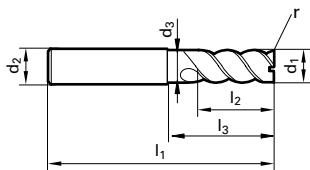


The helix angle of 45° allows a smooth cutting of the milling cutter. Therefore an outstanding quality of the surface finish is achieved.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

End mills with corner radius



Catalog no. 54206

Tool material Solid Carbide

Type N

Discount group 106

Surface TiAlN

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
6.000	6.000	5.700	57.00	13.00	21.00	0.500	6	6.005	●
6.000	6.000	5.700	57.00	13.00	21.00	1.000	6	6.010	●
8.000	8.000	7.700	63.00	19.00	27.00	0.500	6	8.005	●
8.000	8.000	7.700	63.00	19.00	27.00	1.000	6	8.010	●
8.000	8.000	7.700	63.00	19.00	27.00	1.500	6	8.015	●
8.000	8.000	7.700	63.00	19.00	27.00	2.000	6	8.020	●
10.000	10.000	9.500	72.00	22.00	32.00	0.500	6	10.005	●
10.000	10.000	9.500	72.00	22.00	32.00	0.800	6	10.008	●
10.000	10.000	9.500	72.00	22.00	32.00	1.000	6	10.010	●
10.000	10.000	9.500	72.00	22.00	32.00	1.500	6	10.015	●
10.000	10.000	9.500	72.00	22.00	32.00	2.000	6	10.020	●
12.000	12.000	11.500	83.00	26.00	38.00	0.500	6	12.005	●
12.000	12.000	11.500	83.00	26.00	38.00	0.800	6	12.008	●
12.000	12.000	11.500	83.00	26.00	38.00	1.000	6	12.010	●
12.000	12.000	11.500	83.00	26.00	38.00	1.500	6	12.015	●
12.000	12.000	11.500	83.00	26.00	38.00	2.000	6	12.020	●
16.000	16.000	15.500	92.00	32.00	44.00	1.000	6	16.010	●
16.000	16.000	15.500	92.00	32.00	44.00	2.000	6	16.020	●
20.000	20.000	19.500	104.00	38.00	54.00	1.000	8	20.010	●
20.000	20.000	19.500	104.00	38.00	54.00	2.000	8	20.020	●

Solid carbide milling cutters

Finishing End Mills, multiple fluted

Catalog no. 54205



The helix angle of 45° allows a smooth cutting of the milling cutter. Therefore an outstanding quality of the surface finish is achieved. Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials. For finishing operations in materials up to 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

Finishing End Mills, multiple fluted

Catalog no. 54201



The helix angle of 45° allows a smooth cutting of the milling cutter. Therefore an outstanding quality of the surface finish is achieved. Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials. For finishing operations in materials up to 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

					Catalog no.	54205	54201
					Tool material	Solid Carbide	Solid Carbide
					Type	NH	NH
					Discount group	106	106
					Surface	TiAlN	TiAlN
d1	d2	l1	l2	teeth	price per piece		
mm	mm	mm	mm				
3.000	6.000	57.00	8.00	6	●		
4.000	6.000	57.00	11.00	6	●		
5.000	6.000	57.00	13.00	6	●		
6.000	6.000	57.00	13.00	6	●		●
8.000	8.000	63.00	19.00	6	●		●
10.000	10.000	72.00	22.00	6	●		●
12.000	12.000	83.00	26.00	6	●		●
14.000	14.000	83.00	26.00	6	●		●
16.000	16.000	92.00	32.00	6	●		●
18.000	18.000	92.00	32.00	8	●		●
20.000	20.000	104.00	38.00	8	●		●

Solid carbide milling cutters

Finishing End Mills, multiple fluted

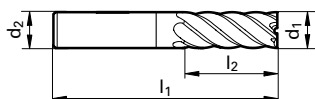
Catalog no. 54207



Excellent suitable for hard-milling and fine-finishing in hardened materials upto 62 HRC and more. Long design

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	55°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10



Catalog no.	54207
Tool material	Solid Carbide
Type	H
Discount group	106
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	6.000	57.00	8.00	6	●
4.000	6.000	57.00	11.00	6	●
5.000	6.000	57.00	13.00	6	●
6.000	6.000	57.00	13.00	6	●
8.000	8.000	63.00	19.00	6	●
10.000	10.000	72.00	22.00	6	●
12.000	12.000	83.00	26.00	6	●
14.000	14.000	83.00	26.00	6	●
16.000	16.000	92.00	32.00	6	●
18.000	18.000	92.00	32.00	8	●
20.000	20.000	104.00	38.00	8	●

Solid carbide milling cutters

Finishing End Mills, multiple fluted

Catalog no. 54225



The helix angle of 45° allows a smooth cutting of the milling cutter. Therefore an outstanding quality of the surface finish is achieved. Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials. For finishing operations in materials up to 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

Finishing End Mills, multiple fluted

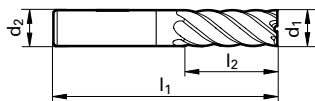
Catalog no. 54221



The helix angle of 45° allows a smooth cutting of the milling cutter. Therefore an outstanding quality of the surface finish is achieved. Suited for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials. For finishing operations in materials up to 50 HRC.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	NH
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10



Catalog no.	54225	54221
Tool material	Solid Carbide	Solid Carbide
Type	NH	NH
Discount group	106	106
Surface	TiAlN	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	75.00	30.00	6	●	
8.000	8.000	100.00	40.00	6	●	
10.000	10.000	100.00	40.00	6	●	○
12.000	12.000	150.00	45.00	6	●	○
16.000	16.000	150.00	65.00	6	●	○
20.000	20.000	150.00	65.00	8	●	○

Solid carbide milling cutters

Finishing End Mills, multiple fluted

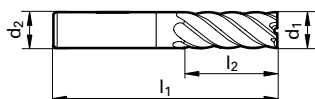
Stock std.

Catalog no. 54227



Excellent suitable for hard-milling and fine-finishing in hardened materials upto 62 HRC and more. Long design.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	55°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10



Catalog no.	54227
Tool material	Solid Carbide
Type	H
Discount group	106
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
6.000	6.000	75.00	30.00	6	●
8.000	8.000	100.00	40.00	6	●
10.000	10.000	100.00	40.00	6	●
12.000	12.000	150.00	45.00	6	●
16.000	16.000	150.00	65.00	6	●
20.000	20.000	150.00	65.00	8	●

Solid carbide milling cutters

Roughing end mills

DIN 6527 L

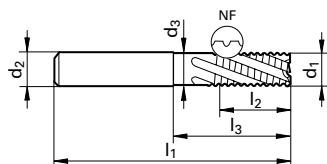
Catalog no. 54496



High-performance roughing end mill with new profile, which reduces the wear at the face due to the special design. Especially suitable for roughing operations in general steels.

Tool material	Solid Carbide
Surface	TiAlN
Type	NF
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54496
Tool material	Solid Carbide
Type	NF
Discount group	106
Surface	TiAlN

d1	d2	d3	l1	l2	l3	teeth	price per piece
mm	mm	mm	mm	mm	mm		
6.000	6.000	5.700	57.00	13.00	21.00	4	○
8.000	8.000	7.700	63.00	19.00	27.00	4	○
10.000	10.000	9.500	72.00	22.00	32.00	4	○
12.000	12.000	11.500	83.00	26.00	38.00	4	○
14.000	14.000	13.500	83.00	26.00	38.00	4	○
16.000	16.000	15.500	92.00	32.00	44.00	4	○
18.000	18.000	17.500	92.00	32.00	44.00	4	○
20.000	20.000	19.500	104.00	38.00	54.00	4	○
25.000	25.000	24.000	121.00	45.00	65.00	5	○

Solid carbide milling cutters

Roughing end mills

DIN 6527 L

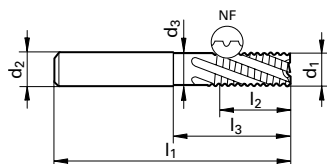
Catalog no. 54497



High-performance roughing end mill with a new profile, which reduces the wear at the face due to the special design. Especially suitable for roughing operations in general steels.

Tool material	Solid Carbide
Surface	TiAlN
Type	NF
Spiral angle	45°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	54497
Tool material	Solid Carbide
Type	NF
Discount group	106
Surface	TiAlN

d1	d2	d3	l1	l2	l3	teeth	price per piece
mm	mm	mm	mm	mm	mm		
6.000	6.000	5.700	57.00	13.00	21.00	5	○
8.000	8.000	7.700	63.00	19.00	27.00	5	○
10.000	10.000	9.500	72.00	22.00	32.00	5	○
12.000	12.000	11.500	83.00	26.00	38.00	5	○
14.000	14.000	13.500	83.00	26.00	38.00	5	○
16.000	16.000	15.500	92.00	32.00	44.00	6	○
18.000	18.000	17.500	92.00	32.00	44.00	6	○
20.000	20.000	19.500	104.00	38.00	54.00	6	○
25.000	25.000	24.000	121.00	45.00	65.00	6	○

Solid carbide milling cutters

Roughing end mills

Catalog no. 74203

Extra coarse tooth roughing profile.

Particularly suited for high outputs in aluminium and non-ferrous metals through roughing profile.



DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	WR
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Roughing end mills

Catalog no. 74303

With internal coolant.

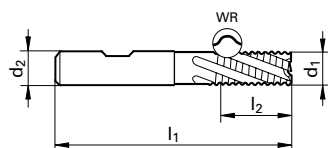
Particularly suited for high outputs in aluminium and non-ferrous metals through roughing profile.



DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	WR
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74203	74303
Tool material	Solid Carbide	Solid Carbide
Type	WR	WR
Discount group	117	106
Surface	bright	bright

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	57.00	10.00	3	○	○
8.000	8.000	63.00	16.00	3	○	○
10.000	10.000	72.00	19.00	3	○	○
12.000	12.000	83.00	22.00	3	○	○
14.000	14.000	83.00	22.00	3	○	○
16.000	16.000	92.00	26.00	3	○	○
18.000	18.000	92.00	26.00	3	○	○
20.000	20.000	104.00	32.00	3	○	○

Solid carbide milling cutters

Roughing end mills

DIN 6527 L

Catalog no. 64495

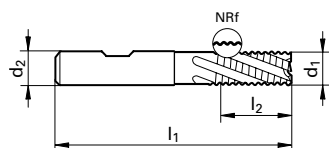


Fine tooth roughing profile.

Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	NRf
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	js16

centre cutting



Catalog no.	64495
Tool material	Solid Carbide
Type	NRf
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
6.000	6.000	57.00	13.00	4	●
8.000	8.000	63.00	19.00	4	●
10.000	10.000	72.00	22.00	4	●
12.000	12.000	83.00	26.00	4	●
14.000	14.000	83.00	26.00	4	●
16.000	16.000	92.00	32.00	4	●
20.000	20.000	104.00	38.00	4	●

Solid carbide milling cutters

Roughing end mills

DIN 6527 L

Catalog no. 64595

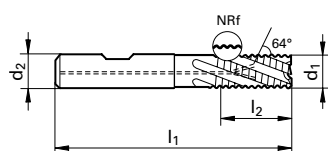


With internal coolant and fine tooth roughing profile.

Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	NRf
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64595
Tool material	Solid Carbide
Type	NRf
Discount group	106
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
8.000	8.000	63.00	19.00	4	●
10.000	10.000	72.00	22.00	4	●
12.000	12.000	83.00	26.00	4	●
16.000	16.000	92.00	32.00	4	●

Solid carbide milling cutters

Roughing end mills

DIN 6527 L

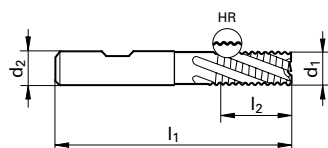
Catalog no. 64497



Fine tooth roughing profile. Especially suitable for milling steel with high tensile strength, cast iron, grey cast iron and hardened steel up to 56HRC.

Tool material	Solid Carbide
Surface	TiAlN
Type	HR
Spiral angle	20°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64497
Tool material	Solid Carbide
Type	HR
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
6.000	6.000	57.00	13.00	4	○
8.000	8.000	63.00	19.00	4	○
10.000	10.000	72.00	22.00	4	○
12.000	12.000	83.00	26.00	4	○
16.000	16.000	92.00	32.00	4	○
20.000	20.000	104.00	38.00	4	○

Solid carbide milling cutters

Ball nose end mills

Catalog no. 74543



Particularly suitable for milling flutes and producing deep, high slots in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Ball nose end mills

Catalog no. 54541

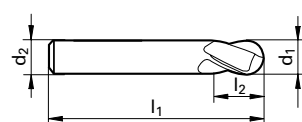


Particularly suitable for milling flutes and producing deep, high slots in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

DIN 6527 L

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74543	54541
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
0.500	3.000	38.00	1.00	2	●
0.800	3.000	38.00	1.00	2	●
1.000	3.000	38.00	2.00	2	●
1.500	3.000	38.00	3.00	2	●
2.000	6.000	57.00	6.00	2	●
3.000	6.000	57.00	7.00	2	○
4.000	6.000	57.00	8.00	2	○
5.000	6.000	57.00	10.00	2	○
6.000	6.000	57.00	10.00	2	○
8.000	8.000	63.00	16.00	2	○
10.000	10.000	72.00	19.00	2	○
12.000	12.000	83.00	22.00	2	○
14.000	14.000	83.00	22.00	2	○
16.000	16.000	92.00	26.00	2	○
18.000	18.000	92.00	26.00	2	○
20.000	20.000	104.00	32.00	2	○

Solid carbide milling cutters

Ball nose end mills

DIN 6527 L

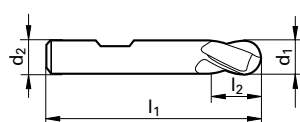
Catalog no. 64542



Particularly suitable for milling flutes and producing deep, high slots in steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64542
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
0.500	3.000	38.00	1.00	2	○
0.800	3.000	38.00	1.00	2	○
1.000	3.000	38.00	2.00	2	○
1.500	3.000	38.00	3.00	2	○
2.000	6.000	57.00	6.00	2	●
3.000	6.000	57.00	7.00	2	●
4.000	6.000	57.00	8.00	2	●
5.000	6.000	57.00	10.00	2	●
6.000	6.000	57.00	10.00	2	●
8.000	8.000	63.00	16.00	2	●
10.000	10.000	72.00	19.00	2	●
12.000	12.000	83.00	22.00	2	●
14.000	14.000	83.00	22.00	2	●
16.000	16.000	92.00	26.00	2	●
18.000	18.000	92.00	26.00	2	●
20.000	20.000	104.00	32.00	2	●

Solid carbide milling cutters

Ball nose end mills

Catalog no. 74545



Extra long design suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Ball nose end mills

Catalog no. 64545

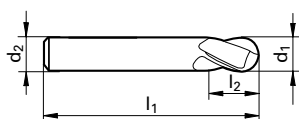


Extra long design suitable for milling steel and cast steel with tensile strengths of over 900 N/mm², grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with a high silicon content and abrasive materials.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74545	64545
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	3.000	75.00	20.00	2	●	●
4.000	4.000	75.00	25.00	2	●	●
5.000	5.000	75.00	30.00	2	●	●
6.000	6.000	75.00	30.00	2	●	●
8.000	8.000	100.00	40.00	2	●	●
10.000	10.000	100.00	40.00	2	●	●
12.000	12.000	150.00	45.00	2	●	●

Solid carbide milling cutters

Ball nose end mills

Catalog no. 74531



Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

DIN 6528

Tool material	Solid Carbide
Surface	bright
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h11

centre cutting

Ball nose end mills

Catalog no. 54531

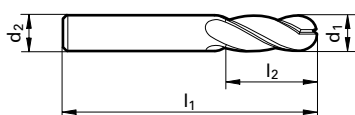


Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

DIN 6528

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74531	54531
Tool material	Solid Carbide	Solid Carbide
Type	N	N
Discount group	117	117
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
4.000	4.000	50.00	11.00	4	○	●
5.000	5.000	50.00	13.00	4	○	●
6.000	6.000	57.00	13.00	4	○	●
8.000	8.000	63.00	19.00	4	○	●
10.000	10.000	72.00	22.00	4	○	●
12.000	12.000	83.00	26.00	4	○	●
14.000	14.000	83.00	26.00	4		●
16.000	16.000	92.00	32.00	4	○	●

Solid carbide milling cutters

Ball nose end mills

DIN 6527 L

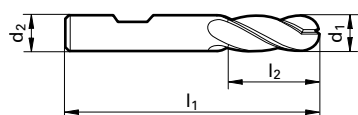
Catalog no. 64532



Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64532
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	6.000	57.00	8.00	4	●
4.000	6.000	57.00	11.00	4	●
5.000	6.000	57.00	13.00	4	●
6.000	6.000	57.00	13.00	4	●
8.000	8.000	63.00	19.00	4	●
10.000	10.000	72.00	22.00	4	●
12.000	12.000	83.00	26.00	4	●
14.000	14.000	83.00	26.00	4	●
16.000	16.000	92.00	32.00	4	●

Solid carbide milling cutters

Ball nose end mills

Catalog no. 64535

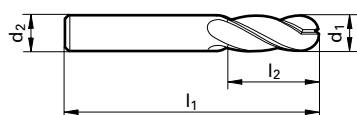
Suitable for milling steel, cast steel, grey cast iron, chilled cast iron, malleable cast iron, CrNi-steels, bronze, brass, copper, aluminium with high silicon content and abrasive materials.



Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	64535
Tool material	Solid Carbide
Type	N
Discount group	117
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
3.000	3.000	75.00	20.00	4	●
4.000	4.000	75.00	25.00	4	●
5.000	5.000	75.00	30.00	4	●
6.000	6.000	75.00	30.00	4	●
8.000	8.000	100.00	40.00	4	●
10.000	10.000	100.00	40.00	4	●
12.000	12.000	150.00	45.00	4	●

Solid carbide milling cutters

Trace End Mills with Torus form

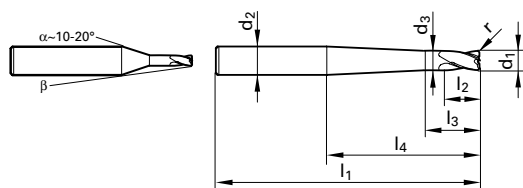
Catalog no. 54304



Particularly suitable for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. Especially to be used in cast iron and for hardened steels upto HRC62. Made out of DK500UF material, short version.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
3.000	6.000	2.700	57.00	5.00	21.00	0.500	4	3.000	●
4.000	6.000	3.700	57.00	6.00	21.00	0.500	4	4.000	●
5.000	6.000	4.700	57.00	8.00	21.00	0.500	4	5.000	●
6.000	6.000	5.700	57.00	9.00	21.00	1.000	4	6.000	●
8.000	8.000	7.700	63.00	12.00	27.00	1.000	4	8.000	●
10.000	10.000	9.500	72.00	15.00	32.00	1.500	4	10.000	●
12.000	12.000	11.500	83.00	18.00	38.00	1.500	4	12.000	●
16.000	16.000	15.500	92.00	24.00	44.00	2.000	4	16.000	●

Catalog no. 54304

Tool material Solid Carbide

Type H

Discount group 106

Surface TiAlN

Solid carbide milling cutters

Trace End Mills with Torus form

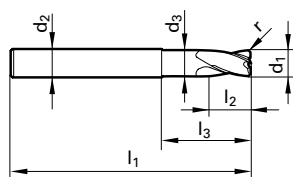
Catalog no. 54305



Particularily suitable for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. Especially to be used in cast iron and for hardened steels upto HRC62. Made out of DK500UF material, long version.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
6.000	6.000	5.700	75.00	9.00	39.00	1.000	4	6.000	●
8.000	8.000	7.700	100.00	12.00	64.00	1.000	4	8.000	●
10.000	10.000	9.500	100.00	15.00	60.00	1.500	4	10.000	●
12.000	12.000	11.500	150.00	18.00	105.00	1.500	4	12.000	●
16.000	16.000	15.500	150.00	24.00	102.00	2.000	4	16.000	●

Catalog no.	54305
Tool material	Solid Carbide
Type	H
Discount group	106
Surface	TiAlN

Solid carbide milling cutters

Trace End Mills with Torus form

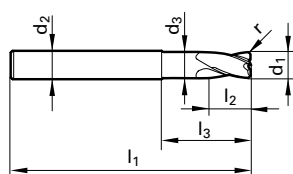
Catalog no. 54302



Particularly designed for roughing, finishing and super-finishing under HSC-conditions in the die- and mould- industry. Suitable for steel, high alloyed steels, hardened materials upto 40-54 HRC. Short version.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
2.000	6.000	1.800	57.00	3.00	20.00	0.500	2	2.000	●
3.000	6.000	2.800	57.00	3.50	20.00	0.500	2	3.000	●
4.000	6.000	3.800	57.00	4.00	20.00	1.000	2	4.000	●
6.000	6.000	5.600	57.00	6.00	20.00	2.000	2	6.000	●
8.000	8.000	7.600	63.00	7.00	26.00	2.000	2	8.000	●
10.000	10.000	9.600	72.00	8.00	30.00	3.000	2	10.000	●
12.000	12.000	11.500	83.00	10.00	35.00	4.000	2	12.000	●

Catalog no.	54302
Tool material	Solid Carbide
Type	N
Discount group	106
Surface	AlTiN

Solid carbide milling cutters

Trace End Mills with Torus form

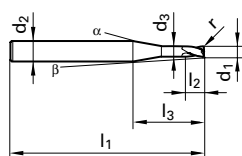
Catalog no. 54303



Particularly designed for roughing, finishing and super-finishing under HSC-conditions in the die- and mould- industry. Suitable for steel, high alloyed steels, hardened materials upto 40-54 HRC. Long version.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
2.000	6.000	1.800	80.00	3.00	40.00	0.500	2	2.000	●
3.000	6.000	2.800	80.00	3.50	40.00	0.500	2	3.000	●
4.000	6.000	3.800	80.00	4.00	40.00	1.000	2	4.000	●
6.000	8.000	5.600	100.00	6.00	60.00	2.000	2	6.000	●
8.000	10.000	7.600	120.00	7.00	75.00	2.000	2	8.000	●
10.000	12.000	9.600	120.00	8.00	70.00	3.000	2	10.000	●
12.000	16.000	11.500	150.00	10.00	100.00	4.000	2	12.000	●

Catalog no.	54303
Tool material	Solid Carbide
Type	N
Discount group	106
Surface	AlTiN

Solid carbide milling cutters

Trace End Mills with Ball Nose

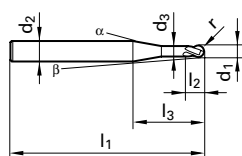
Catalog no. 54306



Particularly suitable for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. Especially to be used in cast iron and for hardened steels upto HRC62. Made out of DK500UF material, short version.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



Catalog no. 54306

Tool material Solid Carbide

Type H

Discount group 106

Surface TiAlN

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
0.500	3.000	0.400	38.00	0.75	10.00	0.250	2	0.500	●
0.800	3.000	0.700	38.00	1.20	10.00	0.400	2	0.800	●
1.000	3.000	0.900	38.00	1.50	10.00	0.500	2	1.000	●
1.500	3.000	1.400	38.00	2.25	10.00	0.750	2	1.500	●
2.000	6.000	1.900	57.00	3.00	21.00	1.000	2	2.000	●
3.000	6.000	2.700	57.00	5.00	21.00	1.500	2	3.000	●
4.000	6.000	3.700	57.00	6.00	21.00	2.000	2	4.000	●
5.000	6.000	4.700	57.00	8.00	21.00	2.500	2	5.000	●
6.000	6.000	5.700	57.00	9.00	21.00	3.000	2	6.000	●
8.000	8.000	7.700	63.00	12.00	27.00	4.000	2	8.000	●
10.000	10.000	9.500	72.00	15.00	32.00	5.000	2	10.000	●
12.000	12.000	11.500	83.00	18.00	38.00	6.000	2	12.000	●
16.000	16.000	15.500	92.00	24.00	44.00	8.000	2	16.000	●

Solid carbide milling cutters

Trace End Mills with Ball Nose

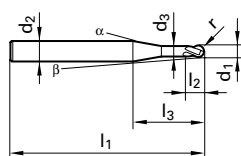
Catalog no. 54307



Particularly suitable for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. Especially to be used in cast iron and for hardened steels upto HRC62. Made out of DK500UF material, long version.

Stock std.

Tool material	Solid Carbide
Surface	TiAlN
Type	H
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



Catalog no. 54307

Tool material Solid Carbide

Type H

Discount group 106

Surface TiAlN

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
3.000	6.000	2.700	75.00	5.00	39.00	1.500	2	3.000	●
4.000	6.000	3.700	75.00	6.00	39.00	2.000	2	4.000	●
5.000	6.000	4.700	75.00	8.00	39.00	2.500	2	5.000	●
6.000	6.000	5.700	75.00	9.00	39.00	3.000	2	6.000	●
8.000	8.000	7.700	100.00	12.00	64.00	4.000	2	8.000	●
10.000	10.000	9.500	100.00	15.00	60.00	5.000	2	10.000	●
12.000	12.000	11.500	150.00	18.00	105.00	6.000	2	12.000	●
16.000	16.000	15.500	150.00	24.00	102.00	8.000	2	16.000	●

Solid carbide milling cutters

Trace End Mills with Ball Nose

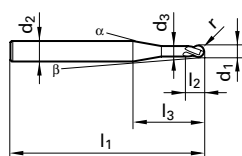
Catalog no. 54300



Particularly designed for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. To be used in cast iron and hardened materials upto 54 HRC. Short version.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



Catalog no. 54300

Tool material Solid Carbide

Type N

Discount group 106

Surface AlTiN

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
2.000	6.000	1.800	57.00	3.00	20.00	1.000	2	2.000	●
3.000	6.000	2.800	57.00	3.50	20.00	1.500	2	3.000	●
4.000	6.000	3.800	57.00	4.00	20.00	2.000	2	4.000	●
6.000	6.000	5.600	57.00	6.00	20.00	3.000	2	6.000	●
8.000	8.000	7.600	63.00	7.00	26.00	4.000	2	8.000	●
10.000	10.000	9.600	72.00	8.00	30.00	5.000	2	10.000	●
12.000	12.000	11.500	83.00	10.00	35.00	6.000	2	12.000	●

Solid carbide milling cutters

Trace End Mills with Ball Nose

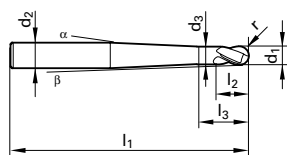
Catalog no. 54301



Particularly designed for the moulding-industry with a high accuracy of form and contour, minimal wear and a high tool life. To be used in steel, high-alloyed steels and hardened materials upto 54 HRC. Long version.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h8



Catalog no. 54301

Tool material Solid Carbide

Type N

Discount group 106

Surface AlTiN

d1	d2	d3	l1	l2	l3	r	teeth	Code no.	price per piece
mm	mm	mm	mm	mm	mm				
2.000	6.000	1.800	80.00	3.00	40.00	1.000	2	2.000	●
3.000	6.000	2.800	80.00	3.50	40.00	1.500	2	3.000	●
4.000	6.000	3.800	80.00	4.00	40.00	2.000	2	4.000	●
6.000	8.000	5.600	100.00	6.00	60.00	3.000	2	6.000	●
8.000	10.000	7.600	120.00	7.00	75.00	4.000	2	8.000	●
10.000	12.000	9.600	120.00	8.00	70.00	5.000	2	10.000	●
12.000	16.000	11.500	150.00	10.00	100.00	6.000	2	12.000	●

Solid carbide milling cutters

Pilot drill mill 180°

DIN 6527 L

Catalog no. 54700

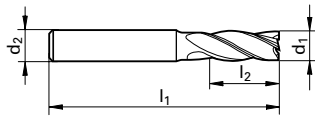


Special milling cutter for spot-facing and pilot drilling on an angle. Also suitable in combination with gun drills type Super-T or deep hole drills, type SuperV-T or SuperV-NX

Tool material	Solid Carbide
Surface	AlTiN+
Type	N
Spiral angle	30°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6

centre cutting

Pilot drill mill 180°



Catalog no.

54700

Tool material

Solid Carbide

Type

N

Discount group

106

Surface

AlTiN+

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece
1.400	3.000	38.00	3.00	4	●
1.500	3.000	38.00	4.00	4	●
1.800	3.000	38.00	6.00	4	●
2.000	3.000	38.00	7.00	4	●
2.100	3.000	38.00	7.00	4	●
2.300	3.000	38.00	7.00	4	●
2.500	3.000	38.00	7.00	4	●
2.800	3.000	38.00	7.00	4	●
3.000	6.000	57.00	8.00	4	●
3.500	6.000	57.00	10.00	4	●
4.000	6.000	57.00	11.00	4	●
4.500	6.000	57.00	11.00	4	●
5.000	6.000	57.00	13.00	4	●
5.500	6.000	57.00	13.00	4	●
6.000	8.000	63.00	13.00	4	●
6.500	8.000	63.00	13.00	4	●
7.000	8.000	63.00	16.00	4	●
7.500	8.000	63.00	16.00	4	●
8.000	10.000	72.00	19.00	4	●
8.500	10.000	72.00	19.00	4	●
9.000	10.000	72.00	19.00	4	●
10.000	12.000	83.00	22.00	4	●
11.000	12.000	83.00	26.00	4	●
12.000	14.000	83.00	26.00	4	●

Solid carbide milling cutters

Deburring end mill 60°

Catalog no. 53393



Deburring- and chamfering-mill to machine the hole entry with a 60° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-60
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6

Deburring end mill 60°

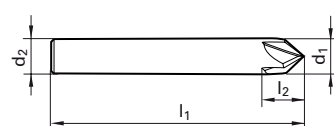
Catalog no. 53394



Deburring- and chamfering-mill to machine the hole entry with a 60° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-60
Spiral angle	0°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53393	53394
Tool material	Solid Carbide	Solid Carbide
Type	SuperAF-60	SuperAF-60
Discount group	117	117
Surface	AlTiN	AlTiN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
4.000	4.000	50.00	22.00	4	●	
6.000	6.000	57.00	21.00	4	●	
8.000	8.000	63.00	27.00	4	●	●
10.000	10.000	72.00	32.00	4	●	●
12.000	12.000	83.00	38.00	4	●	●

Solid carbide milling cutters

Deburring end mill 90°

Catalog no. 53395



Deburring- and chamfering-mill to machine the hole entry with a 90° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-90
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53395
Tool material	Solid Carbide
Type	SuperAF-90
Discount group	117
Surface	AlTiN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
4.000	4.000	50.00	22.00	4	●
6.000	6.000	57.00	21.00	4	●
8.000	8.000	63.00	27.00	4	●
10.000	10.000	72.00	32.00	4	●
12.000	12.000	83.00	38.00	4	●

Solid carbide milling cutters

Deburring end mill 90°

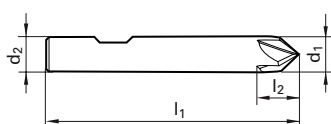
Catalog no. 53396



Deburring- and chamfering-mill to machine the hole entry with a 90° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-90
Spiral angle	0°
Shank form	>=6.0 HB
Cutting direction	right-hand
Tolerance on Ø	js9



Catalog no.	53396
Tool material	Solid Carbide
Type	SuperAF-90
Discount group	117
Surface	AlTiN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
4.000	4.000	54.00	9.20	4	●
6.000	6.000	57.00	21.00	4	●
8.000	8.000	63.00	27.00	4	●
10.000	10.000	72.00	32.00	4	●
12.000	12.000	83.00	38.00	4	●

Solid carbide milling cutters

Deburring end mill 120°

Catalog no. 53397



Deburring- and chamfering-mill to machine the hole entry with a 120° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-120
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6

Deburring end mill 120°

Catalog no. 53398



Deburring- and chamfering-mill to machine the hole entry with a 120° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-120
Spiral angle	0°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53397	53398
Tool material	Solid Carbide	Solid Carbide
Type	SuperAF-120	SuperAF-120
Discount group	117	117
Surface	AlTiN	AlTiN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
4.000	4.000	50.00	22.00	4	●	
6.000	6.000	57.00	21.00	4	●	
8.000	8.000	63.00	27.00	4	●	●
10.000	10.000	72.00	32.00	4	●	●
12.000	12.000	83.00	38.00	4	●	●

Solid carbide milling cutters

Front/back deburrer 90°

Catalog no. 52365

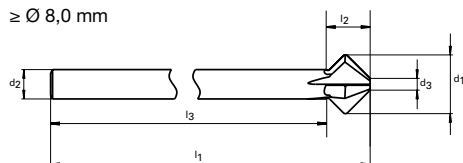


This tool is designed for deburring and chamfering of the hole-entry and -exit with an angle of 90°

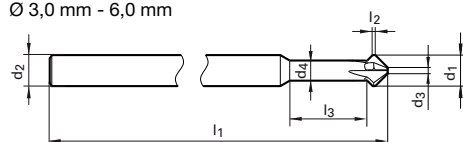
Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperAD-90
Spiral angle	
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	

≥ Ø 8,0 mm



Ø 3,0 mm - 6,0 mm



Catalog no.

52365

Tool material

Solid Carbide

Type

SuperAD-90

Discount group

120

Surface

AlTiN nano

d1 h8 mm	d2 h6 mm	d3 mm	d4 mm	l1 mm	l2 mm	l3 mm	price per piece
3.000	4.000	0.600	2.200	75.00	0.50	9.40	●
4.000	4.000	0.800	2.900	75.00	0.50	12.40	●
5.000	5.000	1.000	3.900	75.00	0.50	15.00	●
6.000	6.000	1.200	3.900	100.00	0.50	14.30	●
8.000	6.000	1.600		100.00	0.50	59.00	●
10.000	6.000	2.000		100.00	0.50	53.00	●
12.000	6.000	2.400		100.00	0.50	46.00	●

High speed steel milling cutters

Slot drills, 2-fluted

Catalog no. 74231



Suitable for milling materials with tensile strengths of up to approx. 1200N/mm². For producing deep, high-precision keyways/slots (P9).

DIN 327

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 2-fluted

Catalog no. 64640



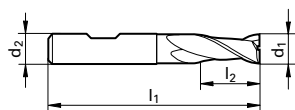
Suitable for milling materials with tensile strengths of up to approx. 1200N/mm². For producing deep, high-precision keyways/slots (P9).

DIN 327

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 2-fluted



Catalog no.	74231	64640
Tool material	M42	
Type	N	N
Discount group	112	112
Surface	bright	TiAIN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
1.000	6.000	47.00	2.00	2	●	○
1.500	6.000	47.00	3.00	2	●	○
2.000	6.000	48.00	4.00	2	●	○
2.500	6.000	49.00	5.00	2	●	○
3.000	6.000	49.00	5.00	2	●	○
3.500	6.000	50.00	6.00	2		○
4.000	6.000	51.00	7.00	2	●	○
4.500	6.000	51.00	7.00	2		○
5.000	6.000	52.00	8.00	2	●	○
5.500	6.000	52.00	8.00	2		○
6.000	6.000	52.00	8.00	2	●	○
7.000	10.000	60.00	10.00	2	●	○
8.000	10.000	61.00	11.00	2	●	○
9.000	10.000	61.00	11.00	2		○
10.000	10.000	63.00	13.00	2	●	○
12.000	12.000	73.00	16.00	2	●	○
14.000	12.000	73.00	16.00	2	●	○
16.000	16.000	79.00	19.00	2	●	○
18.000	16.000	79.00	19.00	2		○
20.000	20.000	88.00	22.00	2	●	○

High speed steel milling cutters

Slot drills, 2-fluted

Catalog no. 74243



Suitable for milling materials with low to medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots.

DIN 844 K

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 2-fluted

Catalog no. 64670



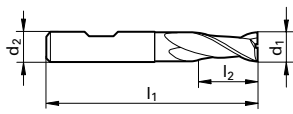
Suitable for milling materials with low to medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots.

DIN 844 K

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 2-fluted



Catalog no.	74243	64670
Tool material	M42	
Type	N	N
Discount group	112	112
Surface	bright	TiAIN

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece	
3.000	6.000	52.00	8.00	2	●	○
3.500	6.000	54.00	10.00	2	●	
4.000	6.000	55.00	11.00	2	●	○
4.500	6.000	55.00	11.00	2	●	
5.000	6.000	57.00	13.00	2	●	○
5.500	6.000	57.00	13.00	2	●	
6.000	6.000	57.00	13.00	2	●	○
7.000	10.000	66.00	16.00	2	●	
8.000	10.000	69.00	19.00	2	●	○
10.000	10.000	72.00	22.00	2	●	○
12.000	12.000	83.00	26.00	2	●	○
14.000	12.000	83.00	26.00	2	●	
16.000	16.000	92.00	32.00	2	●	○
18.000	16.000	92.00	32.00	2	●	
20.000	20.000	104.00	38.00	2	●	○

High speed steel milling cutters

Slot drills, 2-fluted

Catalog no. 74244



Suitable for milling materials with low to medium tensile strengths of up to approx. 1000 N/mm². For producing deep, high-precision keyways/slots.

DIN 844 L

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Slot drills, 2-fluted

Catalog no. 64671



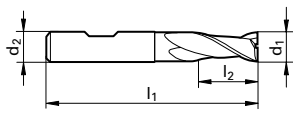
Suitable for milling materials with low to medium tensile strengths of up to approx. 1000 N/mm². For producing deep, high-precision keyways/slots.

DIN 844 L

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	h10

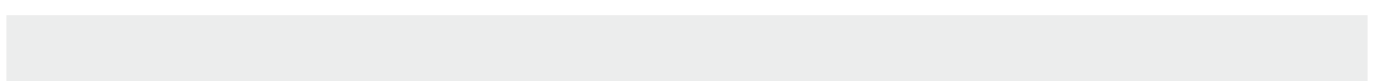
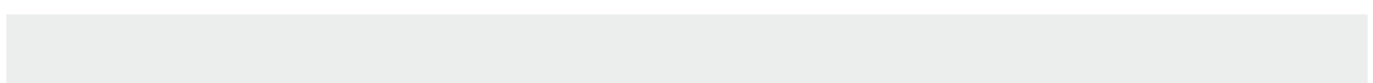
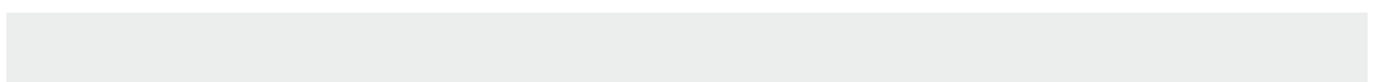
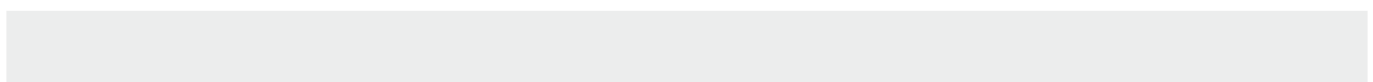
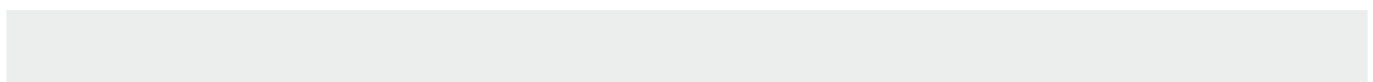
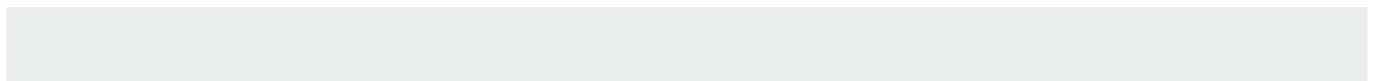
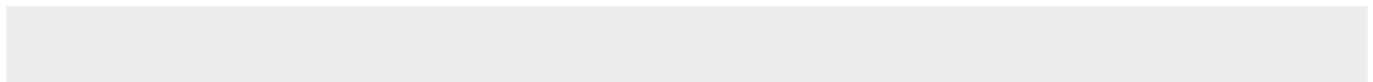
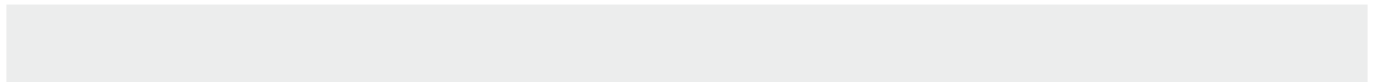
centre cutting

Slot drills, 2-fluted



Catalog no.	74244	64671
Tool material	M42	
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece	
3.000	6.000	56.00	12.00	2	●	
4.000	6.000	63.00	19.00	2	●	○
5.000	6.000	68.00	24.00	2	●	○
6.000	6.000	68.00	24.00	2	●	○
8.000	10.000	88.00	38.00	2	●	○
10.000	10.000	95.00	45.00	2	●	○
12.000	12.000	110.00	53.00	2	●	○
14.000	12.000	110.00	53.00	2	●	○
16.000	16.000	123.00	63.00	2	●	○
18.000	16.000	123.00	63.00	2	●	○
20.000	20.000	141.00	75.00	2	●	○



High speed steel milling cutters

Slot drills, 3-fluted

Catalog no. 74280



Suitable for milling materials with low and medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots (P 9). Also suitable for face and contour milling. High cutting performance, very smooth operation giving excellent surface finish.

DIN 327

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 3-fluted

Catalog no. 64604

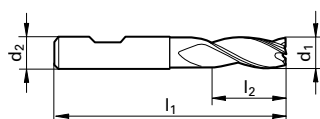


Suitable for milling materials with low and medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots (P 9). Also suitable for face and contour milling. High cutting performance, very smooth operation giving excellent surface finish.

DIN 327

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting



Catalog no.	74280	64604
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
2.800	6.000	49.00	5.00	3	○	○
3.000	6.000	49.00	5.00	3	○	○
3.800	6.000	51.00	7.00	3	○	○
4.000	6.000	51.00	7.00	3	●	○
4.800	6.000	52.00	8.00	3	●	○
5.000	6.000	52.00	8.00	3	●	○
6.000	6.000	52.00	8.00	3	●	○
7.000	10.000	60.00	10.00	3	○	○
8.000	10.000	61.00	11.00	3	●	○
9.700	10.000	63.00	13.00	3	●	○
10.000	10.000	63.00	13.00	3	●	○
11.700	12.000	70.00	13.00	3	●	○
12.000	12.000	73.00	16.00	3	●	○
14.000	12.000	73.00	16.00	3	○	○
16.000	16.000	79.00	19.00	3	●	○
18.000	16.000	79.00	19.00	3	●	○
20.000	20.000	88.00	22.00	3	●	○
25.000	25.000	102.00	26.00	3	●	○

High speed steel milling cutters

Slot drills, 3-fluted

Catalog no. 74282



Suitable for milling materials with low and medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots (P 9). Also suitable for face and contour milling. High cutting performance, very smooth operation giving excellent surface finish.

DIN 844 K

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting

Slot drills, 3-fluted

Catalog no. 64641

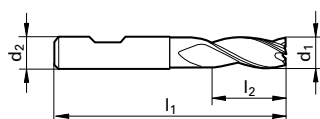


Suitable for milling materials with low and medium tensile strengths of up to approx. 1200 N/mm². For producing deep, high-precision keyways/slots (P 9). Also suitable for face and contour milling. High cutting performance, very smooth operation giving excellent surface finish.

DIN 844 K

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting



Catalog no.	74282	64641
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	52.00	8.00	3		●
4.000	6.000	55.00	11.00	3	●	●
5.000	6.000	57.00	13.00	3	●	●
6.000	6.000	57.00	13.00	3	●	●
7.000	10.000	66.00	16.00	3	●	
8.000	10.000	69.00	19.00	3	●	●
10.000	10.000	72.00	22.00	3	●	●
12.000	12.000	83.00	26.00	3	●	●
13.700	12.000	83.00	26.00	3	●	
14.000	12.000	83.00	26.00	3	●	●
16.000	16.000	92.00	32.00	3	●	●
18.000	16.000	92.00	32.00	3	●	○
20.000	20.000	104.00	38.00	3	●	●

High speed steel milling cutters

Slot drills, 3-fluted

DIN 844 L

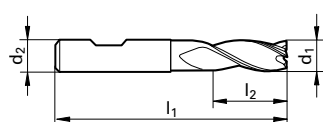
Catalog no. 54294



Suitable for milling materials with low and medium tensile strengths of up to approx. 1000 N/mm². For producing deep, high-precision keyways/slots (P 9). Also suitable for face and contour milling. High cutting performance, very smooth operation giving excellent surface finish.

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting



Catalog no.	54294
Tool material	M42
Type	N
Discount group	112
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
4.000	6.000	63.00	19.00	3	○
5.000	6.000	68.00	24.00	3	○
6.000	6.000	68.00	24.00	3	○
8.000	10.000	88.00	38.00	3	○
10.000	10.000	95.00	45.00	3	○
12.000	12.000	110.00	53.00	3	○
14.000	12.000	110.00	53.00	3	○
16.000	16.000	123.00	63.00	3	○
18.000	16.000	123.00	63.00	3	○

High speed steel milling cutters

Micro Slot drills, 3-fluted

Catalog no. 74080



Short design.

Especially suitable for milling materials with medium to high tensile strengths of up to approx. 1200 N/mm².

Stock std.

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting

Micro Slot drills, 3-fluted

Catalog no. 54080



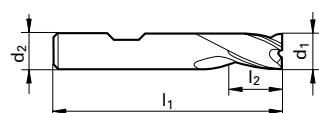
Short design.

Especially suitable for milling materials with medium to high tensile strengths of up to approx. 1200 N/mm².

Stock std.

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting



Catalog no.	74080	54080
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	36.00	5.00	3	○	●
4.000	6.000	38.00	7.00	3	○	●
5.000	6.000	39.00	8.00	3	○	●
6.000	6.000	39.00	8.00	3	○	●
8.000	8.000	43.00	11.00	3	○	●
10.000	10.000	50.00	13.00	3	○	●

High speed steel milling cutters

Micro Slot drills, 3-fluted

Catalog no. 74180



Short design.

Especially suitable for milling materials with medium to high tensile strengths of up to approx. 1200 N/mm².

Stock std.

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting

Micro Slot drills, 3-fluted

Catalog no. 54180



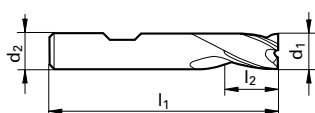
Short design.

Especially suitable for milling materials with medium to high tensile strengths of up to approx. 1200 N/mm².

Stock std.

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8

centre cutting



Catalog no.	74180	54180
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	39.00	8.00	3	○	●
4.000	6.000	42.00	11.00	3	○	●
5.000	6.000	44.00	13.00	3	○	●
6.000	6.000	44.00	13.00	3	○	●
8.000	8.000	51.00	19.00	3	○	●
10.000	10.000	59.00	22.00	3	○	●

High speed steel milling cutters

End mills, multiple fluted

Catalog no. 74617



Suitable for milling materials with tensile strengths of up to 1200 N/mm², Titanium and Ti-alloys, non-ferrous metals and spheroidal graphite iron.

DIN 844 K

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting

End mills, multiple fluted

Catalog no. 64667

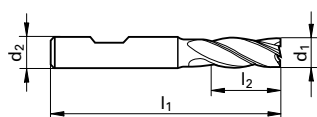


Suitable for milling materials with tensile strengths of up to 1200 N/mm², Titanium and Ti-alloys, non-ferrous metals and spheroidal graphite iron.

DIN 844 K

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting



Catalog no.	74617	64667
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	52.00	8.00	4	●	●
4.000	6.000	55.00	11.00	4	●	●
5.000	6.000	57.00	13.00	4	●	●
6.000	6.000	57.00	13.00	4	●	●
8.000	10.000	69.00	19.00	4	●	●
10.000	10.000	72.00	22.00	4	●	●
11.000	12.000	79.00	22.00	4		●
12.000	12.000	83.00	26.00	4	●	●
14.000	12.000	83.00	26.00	4	●	●
16.000	16.000	92.00	32.00	4	●	●
18.000	16.000	92.00	32.00	4	●	●
20.000	20.000	104.00	38.00	4	●	●
25.000	25.000	121.00	45.00	6	●	●

High speed steel milling cutters

End mills, multiple fluted

Catalog no. 74847



Suitable for milling materials with tensile strengths of up to 1000 N/mm², Titanium and Ti-alloys, non-ferrous metals and spheroidal graphite iron (GGG).

DIN 844 L

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting

End mills, multiple fluted

Catalog no. 54847

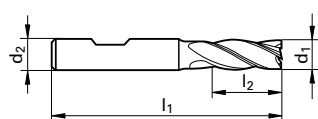


Suitable for milling materials with tensile strengths of up to 1000 N/mm², Titanium and Ti-alloys, non-ferrous metals and spheroidal graphite iron (GGG).

DIN 844 L

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting



Catalog no.	74847	54847
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	56.00	12.00	4	●	
4.000	6.000	63.00	19.00	4	●	○
5.000	6.000	68.00	24.00	4	●	○
6.000	6.000	68.00	24.00	4	●	○
7.000	10.000	80.00	30.00	4	●	○
8.000	10.000	88.00	38.00	4	●	○
9.000	10.000	88.00	38.00	4	●	
10.000	10.000	95.00	45.00	4	●	○
11.000	12.000	102.00	45.00	4	○	
12.000	12.000	110.00	53.00	4	●	○
14.000	12.000	110.00	53.00	4	●	
15.000	12.000	110.00	53.00	4	○	
16.000	16.000	123.00	63.00	4	●	○
18.000	16.000	123.00	63.00	4	●	
20.000	20.000	141.00	75.00	4	●	○
25.000	25.000	166.00	90.00	6	●	○
32.000	32.000	186.00	106.00	6	●	○

High speed steel milling cutters

End mills, multiple fluted

Catalog no. 74800

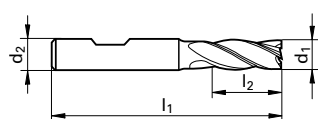


Suitable for milling materials with tensile strengths of up to 1000 N/mm², Titanium and Ti-alloys, non-ferrous metals and spheroidal graphite iron (GGG).

Stock std.

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting



Catalog no.	74800
Tool material	M42
Type	N
Discount group	112
Surface	bright

d1 mm	d2 mm	l1 mm	l2 mm	teeth	price per piece
12.000	12.000	125.00	71.00	4	○
14.000	12.000	125.00	71.00	4	○
16.000	16.000	141.00	80.00	4	○
18.000	16.000	141.00	80.00	4	○
20.000	20.000	163.00	100.00	4	○

High speed steel milling cutters

Roughing and Finishing End Mills, 4-fluted

DIN 844 K

Catalog no. 74815



Standard roughing-finishing design.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

Tool material	M42
Surface	bright
Type	NF
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting

Roughing and Finishing End Mills, 4-fluted

DIN 844 K

Catalog no. 54815

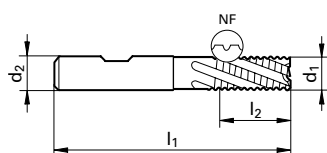


Standard roughing-finishing design.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

Tool material	M42
Surface	TiAlN
Type	NF
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting



Catalog no.	74815	54815
Tool material	M42	M42
Type	NF	NF
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
6.000	6.000	57.00	13.00	4	●
8.000	10.000	69.00	19.00	4	●
10.000	10.000	72.00	22.00	4	○
12.000	12.000	83.00	26.00	4	○
14.000	12.000	83.00	26.00	4	○
16.000	16.000	92.00	32.00	4	○
18.000	16.000	92.00	32.00	4	●
20.000	20.000	104.00	38.00	4	○
25.000	25.000	121.00	45.00	4	○

High speed steel milling cutters

Roughing end mills

Catalog no. 74825



Fine tooth roughing profile.

Suitable for milling materials with tensile strengths of up to 1400 N/mm², Titanium and Ti-alloys, cast and grey cast iron.

DIN 844 K

Tool material	HSS-E-PM
Surface	bright
Type	NRf
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting

Roughing end mills

Catalog no. 54825



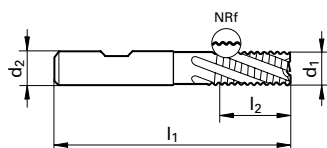
Fine tooth roughing profile.

Suitable for milling materials with tensile strengths of up to 1400 N/mm², Titanium and Ti-alloys, cast and grey cast iron.

DIN 844 K

Tool material	HSS-E-PM
Surface	TiAlN
Type	NRf
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k10

centre cutting



Catalog no.	74825	54825
Tool material	HSS-E-PM	HSS-E-PM
Type	NRf	NRf
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	57.00	13.00	3	○	○
8.000	10.000	69.00	19.00	3	○	○
10.000	10.000	72.00	22.00	3	○	○
12.000	12.000	83.00	26.00	3	○	○
14.000	12.000	83.00	26.00	3	○	○
16.000	16.000	92.00	32.00	3	○	○
18.000	16.000	92.00	32.00	3	○	○
20.000	20.000	104.00	38.00	3	○	○

High speed steel milling cutters

Roughing end mills

DIN 844 K

Catalog no. 74816



Coarse tooth roughing profile.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

Tool material	M42
Surface	bright
Type	NR
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting

Roughing end mills

DIN 844 K

Catalog no. 54816

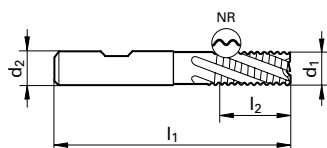


Coarse tooth roughing profile.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

Tool material	M42
Surface	TiAlN
Type	NR
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting



Catalog no.	74816	54816
Tool material	M42	M42
Type	NR	NR
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	57.00	13.00	4	●	●
7.000	10.000	66.00	16.00	4	○	
8.000	10.000	69.00	19.00	4	●	●
10.000	10.000	72.00	22.00	4	●	●
12.000	12.000	83.00	26.00	4	●	●
14.000	12.000	83.00	26.00	4	●	●
16.000	16.000	92.00	32.00	4	●	●
18.000	16.000	92.00	32.00	4	●	●
20.000	20.000	104.00	38.00	4	●	●
25.000	25.000	121.00	45.00	4	●	

High speed steel milling cutters

Roughing end mills

Catalog no. 74845



Fine tooth roughing profile.

Suitable for milling materials with tensile strengths of up to 1400 N/mm², Titanium and Ti-alloys, cast and grey cast iron.

DIN 844 K

Tool material	HSS-E-PM
Surface	bright
Type	NRf
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting

Roughing end mills

Catalog no. 54845



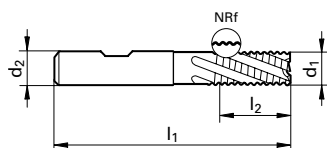
Fine tooth roughing profile.

Suitable for milling materials with tensile strengths of up to 1400 N/mm², Titanium and Ti-alloys, cast and grey cast iron.

DIN 844 K

Tool material	HSS-E-PM
Surface	TiAlN
Type	NRf
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting



Catalog no.	74845	54845
Tool material	HSS-E-PM	HSS-E-PM
Type	NRf	NRf
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	57.00	13.00	4	○	●
8.000	10.000	69.00	19.00	4	○	●
10.000	10.000	72.00	22.00	4	○	●
12.000	12.000	83.00	26.00	4	○	●
14.000	12.000	83.00	26.00	4	○	●
16.000	16.000	92.00	32.00	4	○	●
18.000	16.000	92.00	32.00	4	○	●
20.000	20.000	104.00	38.00	4	○	●
25.000	25.000	121.00	45.00	5	○	●

High speed steel milling cutters

Roughing end mills

Catalog no. 74836



Coarse tooth roughing profile.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

DIN 844 L

Tool material	M42
Surface	bright
Type	NR
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting

Roughing end mills

Catalog no. 54836



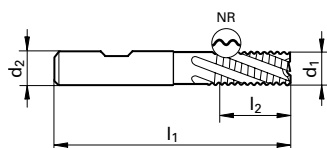
Coarse tooth roughing profile.

Suitable for milling difficult to cut materials with tensile strengths of up to 1200 N/mm², as well as Titanium and Ti-alloys.

DIN 844 L

Tool material	M42
Surface	TiAlN
Type	NR
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	k12

centre cutting



Catalog no.	74836	54836
Tool material	M42	M42
Type	NR	NR
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
6.000	6.000	68.00	24.00	4	○	○
8.000	10.000	88.00	38.00	4	○	○
10.000	10.000	95.00	45.00	4	○	○
12.000	12.000	110.00	53.00	4	○	○
14.000	12.000	110.00	53.00	4	○	○
16.000	16.000	123.00	63.00	4	○	○
18.000	16.000	123.00	63.00	4	○	○
20.000	20.000	141.00	75.00	4	○	○
25.000	25.000	166.00	90.00	4	○	○

High speed steel milling cutters

Ball nose end mills, 2-fluted

Catalog no. 54275

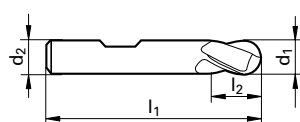


Suitable for milling materials of low to medium tensile strengths up to approx. 1200 N/mm². Particularly suitable for copy and profile milling.

DIN 327

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	e8/h10

centre cutting



Catalog no.	54275
Tool material	M42
Type	N
Discount group	112
Surface	TiAlN

d1	d2	l1	l2	teeth	price per piece
mm	mm	mm	mm		
2.000	6.000	48.00	4.00	2	○
3.000	6.000	49.00	5.00	2	○
4.000	6.000	51.00	7.00	2	○
5.000	6.000	52.00	8.00	2	○
6.000	6.000	52.00	8.00	2	○
7.000	10.000	60.00	10.00	2	○
8.000	10.000	61.00	11.00	2	○
10.000	10.000	63.00	13.00	2	○
12.000	12.000	73.00	16.00	2	○
13.000	12.000	73.00	16.00	2	○
14.000	12.000	73.00	16.00	2	○
15.000	12.000	73.00	16.00	2	○
16.000	16.000	79.00	19.00	2	○
20.000	20.000	88.00	22.00	2	○

High speed steel milling cutters

Ball nose end mills, 2-fluted

Catalog no. 74276



Suitable for milling materials with low to medium tensile strengths of up to approx. 1000 N/mm². Particularly suitable for copy and profile milling.

Stock std.

Tool material	M42
Surface	bright
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting

Ball nose end mills, 2-fluted

Catalog no. 54276

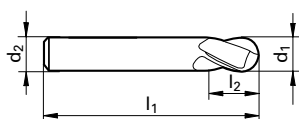


Suitable for milling materials with low to medium tensile strengths of up to approx. 1000 N/mm². Particularly suitable for copy and profile milling.

Stock std.

Tool material	M42
Surface	TiAlN
Type	N
Spiral angle	30°
Shank form	B
Cutting direction	right-hand
Tolerance on Ø	h10

centre cutting



Catalog no.	74276	54276
Tool material	M42	M42
Type	N	N
Discount group	112	112
Surface	bright	TiAlN

d1	d2	l1	l2	teeth	price per piece	
mm	mm	mm	mm			
3.000	6.000	56.00	8.00	2	○	●
4.000	6.000	63.00	11.00	2	○	●
5.000	6.000	68.00	13.00	2	○	●
6.000	6.000	68.00	13.00	2	○	●
7.000	10.000	80.00	16.00	2		●
8.000	10.000	88.00	19.00	2	○	●
10.000	10.000	95.00	22.00	2	○	●
12.000	12.000	110.00	26.00	2	○	●
14.000	12.000	110.00	26.00	2	○	●
16.000	16.000	123.00	32.00	2	○	●
18.000	16.000	123.00	32.00	2		●
20.000	20.000	141.00	38.00	2	○	●



Chip – by Chip – to the Top



DIE AND MOLD INDUSTRY









REAMING & COUNTERSINKING



Carbide reamers

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Solid carbide high performance reamers

	SuperR-HS-S	Solid Carbide	AlTiN nano	Stock std.	3,000 - 20,000	72870	166	708
	SuperR-HS-D	Solid Carbide	AlTiN nano	Stock std.	3,000 - 20,000	72871	166	708
	SuperR-HS-S	Solid Carbide	AlTiN nano	Stock std.	2,970 - 12,030	72872	166	710
	SuperR-HS-D	Solid Carbide	AlTiN nano	Stock std.	2,970 - 12,030	72873	166	710

NC machine chucking reamers

		Solid Carbide	bright	Stock std.	0,980 - 12,050	72920	120	712
		Solid Carbide	bright	Stock std.	3,000 - 12,000	72930	120	712

Carbide brazed machine reamers

	A	Carbide	bright	~ DIN 8050	5,000 - 20,000	72868	120	716
	B	Carbide	bright	~ DIN 8050	5,000 - 20,000	72867	120	716
	A	Carbide	bright	~ DIN 8093	1,200 - 16,000	72880	120	718
	B	Carbide	bright	~ DIN 8093	1,000 - 16,000	72881	120	718
	A	Carbide	bright	~ DIN 8051	10,000 - 30,000	72860	120	720

Carbide reamers

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
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Carbide brazed machine reamers



B		Carbide	bright	~ DIN 8051	6,000 - 32,000	72859	120	720
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High speed steel reamers

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
------	------	--	---------------	---------	----------	---------------------	-------------	----------------	----------------------

NC machine chucking reamers

									
B			HSS-E	bright	DIN 212-3	1,000 - 12,030	72900	105	722
									
B			HSS-E	bright	DIN 212-3	1,500 - 20,000	72910	105	722

Machine reamers

									
B			HSS-E	bright	DIN 212-2	0,980 - 12,000	72654	105	726
									
A			HSS-E	bright	DIN 212-2	2,200 - 20,000	72640	105	729
									
B			HSS-E	bright	DIN 212-2	2,200 - 20,000	72650	105	731
									
A			HSS-E	bright	DIN 208	8,000 - 30,000	72660	105	733
									
B			HSS-E	bright	DIN 208	5,000 - 34,000	72670	105	733

Quick spiral reamers

									
C			HSS-E	bright	DIN 212-2	4,000 - 13,000	72690	105	735

Machine bridge reamers

									
			HSS	nitrided	DIN 311	9,500 - 37,000	72680	105	736

High speed steel reamers

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
------	------	--	---------------	---------	----------	---------------------	-------------	----------------	----------------------

Taper pin reamers



taper 1:50

HSS-E

bright

DIN 2179

2,000 - 10,000

72741

105

737



taper 1:50

HSS-E

bright

DIN 2180

8,000 - 16,000

72742

105

738

Hand taper reamers



A

taper 1:50

HSS

bright

DIN 9

1,000 - 16,000

72730

105

739

Hand reamers



A

HSS

bright

DIN 206

2,500 - 28,000

72600

105

740



B

HSS

bright

DIN 206

2,000 - 25,000

72610



105

742




Countersinks

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
------	------	--	---------------	---------	----------	---------------------	-------------	----------------	----------------------



Countersinks 60°

	C		HSS	bright	DIN 334	6,300 - 25,000	72326	105	744
	C		HSS	TiN	DIN 334	6,300 - 25,000	62327	105	744

Countersinks 90°

	C		HSS	bright	DIN 335	4,300 - 31,000	72346	105	745
	C		HSS	TiN	DIN 335	4,300 - 25,000	62347	105	745
	D		HSS	bright	DIN 335	20,500 - 80,000	72356	105	747

Countersink sets 90°

	C		HSS	bright	DIN 335	6,300 - 20,500	72399	105	748
	C		HSS	TiN	DIN 335	6,300 - 20,500	62399	105	748

Counterbores with fixed pilot for fine tolerances

			HSS	bright	DIN 373	6,000 - 20,000	72304	105	749
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Counterbores with fixed pilot for med. tolerances

			HSS	bright	DIN 373	6,000 - 18,000	72305	105	750
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Deburring- and chamfering tools

Form	Type		Tool material	Surface	Standard	Diameter range (mm)	Catalog no.	Discount group	Standard range, page
------	------	--	---------------	---------	----------	---------------------	-------------	----------------	----------------------

Deburring end mill 60°



SuperAF-60

Solid Carbide

AlTiN

Stock std.

4,000 - 12,000

53393

117

751



SuperAF-60

Solid Carbide

AlTiN

Stock std.

6,000 - 12,000

53394

117

751

Deburring end mill 90°



SuperAF-90

Solid Carbide

AlTiN

Stock std.

4,000 - 12,000

53395

117

752



SuperAF-90

Solid Carbide

AlTiN

Stock std.

4,000 - 12,000

53396

117

753

Deburring end mill 120°



SuperAF-120

Solid Carbide

AlTiN

Stock std.

4,000 - 12,000

53397

117

754



SuperAF-120

Solid Carbide

AlTiN

Stock std.

6,000 - 12,000

53398

117

754

Front/back deburrer 90°



SuperAD-90

Solid Carbide

AlTiN nano

Stock std.

3,000 - 12,000

52365

120

755

Deburring forks



SuperE-U

Solid Carbide

bright

Stock std.

2,000 - 8,000

52360

120

756

Application recommendations for reamers

Feed column no.							
Code letter	E	F	G	H	I	J	
reamer-Ø mm	3.15	0.080	0.100	0.125	0.300	0.500	0.800
	4.00	0.100	0.125	0.160	0.300	0.500	1.000
	5.00	0.100	0.125	0.160	0.400	0.600	1.000
	6.30	0.125	0.160	0.200	0.400	0.700	1.200
	8.00	0.160	0.200	0.250	0.600	1.000	1.800
	10.00	0.200	0.250	0.315	0.600	1.200	1.800
	12.50	0.200	0.250	0.315	0.800	1.200	2.000
	16.00	0.250	0.315	0.400	0.800	1.400	2.200
	20.00	0.315	0.400	0.500	0.800	1.400	2.200

Tools with feed column no. in bold are preferred choices for listed material group.

Diameter Allowance of undersizes (recommended values)

< 6 mm	0.1 - 0.2 mm
< 10 mm	0.2 mm
< 16 mm	0.2 - 0.3 mm
< 25 mm	0.3 - 0.4 mm
> 25 mm	0.4 mm

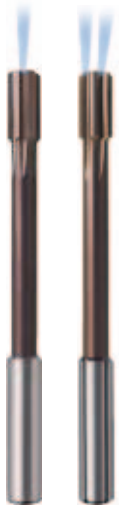
Lubricants:

- cutting oil, highly activated, surface active lubricant with effective additives which chemically react and result in a special adhesive and abrasion reducing lubricant film.
- soluble oil (emulsion)
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		
	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		
Unalloyed tempering steels	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		
Hardened steels	-		≤40-48 HRC >48-60 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	
Ti and Ti-alloys	-		≤350 HB	
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnNb	≤400		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	>600-850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		
Kevlar	Kevlar	-		
Glass/carbon-concentr. plastics	GFK/CFK	-		

SuperR-HS Reamers

Catalog no.	72870	72871
Tool material	Carbide	
Surface finish	AlTiN nano	
DIN	Stock	Stock
Form		
Page	708	708



72872	72873
Carbide	
AlTiN nano	
Stock	Stock
710	710



NC Reamers

72920	72930
Carbide	
bright	bright
Stock	Stock
712	712



Machine Reamers

72868	72867	72860	72859	72880	72881
Carbide					
bright	bright	bright	bright	bright	bright
8050	8050	8051	8051	8093	8093
A	B	A	B	A	B
716	716	720	720	718	718



V _c m/min	Feed column no.		V _c m/min	Feed column no.		V _c m/min	Feed column no.		V _c m/min	Feed column no.					
185	I-J	I-J	185	I-J	I-J	18	F	F	18	F	F	F	F	F	F
185	I-J	I-J	185	I-J	I-J	16	F	F	16	F	F	F	F	F	F
185	I-J	I-J	185	I-J	I-J	18	F	F	18	F	F	F	F	F	F
185	I-J	I-J	185	I-J	I-J	16	F	F	16	F	F	F	F	F	F
185	I-J	I-J	185	I-J	I-J	18	E	E	18	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	16	F	F	16	F	F	F	F	F	F
185	I-J	I-J	185	I-J	I-J	14	E	E	14	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	14	E	E	14	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	12	E	E	12	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	18	E	E	18	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	14	E	E	14	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	12	E	E	12	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	14	E	E	14	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	12	E	E	12	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	10	E	E	10	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	10	E	E	10	E	E	E	E	E	E
90	I-J	I-J	90	I-J	I-J										
45	G-H	G-H	45	G-H	G-H	8	E	E	8	E	E	E	E	E	E
90	H-I	H-I	90	H-I	H-I	6	E	E	6	E	E	E	E	E	E
60	H-I	H-I	60	H-I	H-I	6	E	E	6	E	E	E	E	E	E
90	H-I	H-I	90	H-I	H-I										
50	G-H	G-H	50	G-H	G-H										
45	G-H	G-H	45	G-H	G-H										
100	I-J	I-J	100	I-J	I-J	20	E	E	20	E	E	E	E	E	E
100	I-J	I-J	100	I-J	I-J	18	E	E	18	E	E	E	E	E	E
185	I-J	I-J	185	I-J	I-J	20	E	E	20	E	E	E	E	E	E
90	I-J	I-J	90	I-J	I-J	18	E	E	18	E	E	E	E	E	E
40	H-I	H-I	40	H-I	H-I										
60	H-I	H-I	60	H-I	H-I	10	E	E	10	E	E	E	E	E	E
60	H-I	H-I	60	H-I	H-I	10	E	E	10	E	E	E	E	E	E
						30	G	G	30	G	G	G	G	G	G
						30	G	G	30	G	G	G	G	G	G
						40	F	F	40	F	F	F	F	F	F
						30	F	F	30	F	F	F	F	F	F
						25	F	F	25	F	F	F	F	F	F
120	I-J	I-J	120	I-J	I-J	25	F	F	25	F	F	F	F	F	F
						35	F	F	35	F	F	F	F	F	F
175	I-J	I-J	175	I-J	I-J	30	F	F	30	F	F	F	F	F	F
						35	F	F	35	F	F	F	F	F	F
175	I-J	I-J	175	I-J	I-J	30	F	F	30	F	F	F	F	F	F
175	I-J	I-J	175	I-J	I-J	30	F	F	30	F	F	F	F	F	F
						25	F	F	25	F	F	F	F	F	F
140	I-J	I-J	140	I-J	I-J	20	G	G	20	G	G	G	G	G	G
140	I-J	I-J	140	I-J	I-J	20	G	G	20	G	G	G	G	G	G

Application recommendations for reamers

Feed column no.							
Code letter	E	F	G	H	I	J	
reamer-Ø mm	3.15	0.080	0.100	0.125	0.300	0.500	0.800
	4.00	0.100	0.125	0.160	0.300	0.500	1.000
	5.00	0.100	0.125	0.160	0.400	0.600	1.000
	6.30	0.125	0.160	0.200	0.400	0.700	1.200
	8.00	0.160	0.200	0.250	0.600	1.000	1.800
	10.00	0.200	0.250	0.315	0.600	1.200	1.800
	12.50	0.200	0.250	0.315	0.800	1.200	2.000
	16.00	0.250	0.315	0.400	0.800	1.400	2.200
	20.00	0.315	0.400	0.500	0.800	1.400	2.200

Tools with feed column no. in bold are preferred choices for listed material group.

Diameter Allowance of undersizes (recommended values)

< 6 mm	0.1 - 0.2 mm
< 10 mm	0.2 mm
< 16 mm	0.2 - 0.3 mm
< 25 mm	0.3 - 0.4 mm
> 25 mm	0.4 mm

Lubricants:

- cutting oil, highly activated, surface active lubricant with effective additives which chemically react and result in a special adhesive and abrasion reducing lubricant film.
- soluble oil (emulsion)
- without lubricant
- air only

Material group	Materials examples, new designations (old designation in brackets) Figures in bold = material no. to DIN EN	Tensile strength MPa (N/mm ²)	Hard- ness	Coolant
General purpose steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500-850		
Unalloyed tempering steels	1.0718 11SMnPB30 (9SMnPB28), 1.0736 11SMn37 (9SMn36)	≤850		
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	850-1000		
	1.0402 C22, 1.1178 C30E (Ck30)	≤ 700		
	1.0503 C45, 1.1191 C45E (Ck45)	700-850		
	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		
Alloyed tempering steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-≤1000		
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		
Unalloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		
Alloyed case hardened steels	1.7043 38Cr4	850-≤1000		
	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		
Nitriding steels	1.8504 34CrAl6	≥850-≤1000		
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	>1000-1200		
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	>850-1000		
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≥650-1000		
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤330 HB	
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤850		
martensitic	1.4057 X20CrNi 17.2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		
Hardened steels	-		≤40-48 HRC >48-60 HRC	
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		
Cast iron	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)		≤240 HB	
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)		<300 HB	
Spheroidal graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB	
Chilled cast iron	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		<300 HB	
Ti and Ti-alloys	-		≤350 HB	
	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	>850-1200		
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤450		
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		
> 10 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤450		
Copper, low alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPB	≤400		
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		
Bronze, short-chipping	2.1090 CuSn7ZnPB, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		
	2.0790 CuNi18Zn19Pb	>600-850		
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		
	2.0980 CuAl11Ni, 2.1247 CuBe2	>850-1000		
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	-		
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	-		
Kevlar	Kevlar	-		
Glass/carbon-concentr. plastics	GFK/CFK	-		

72690
HSS-E
bright
212
E
735



V_c m/min	Feed col. no.
16	G
12	G
12	G
14	G
12	G
16	G
10	G
5	E
22	G
22	G
20	G
16	G
18	G
12	G
14	G

Carbide reamers

Solid carbide high performance reamers

Catalog no. 72870



STC high-performance reamers with axial coolant for operating in blind holes. The straight fluted SuperR-HS-S with extreme unequal pitch can be used in nearly all materials also with interrupted cut or with instable machine-conditions.

The STC high-performance reamers SuperR-HS-S allows highest cutting-parameters and gains high-quality holes. Therefore considerable savings of the processing-costs are possible. Ensures also high process-security.

With cylindrical shank tol. h6 for clamping in hydraulic or shrink fit chucks.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperR-HS-S
Form	
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

straight shank-tol. h6 for usage in hydraulic chucks or shrinking chucks

Solid carbide high performance reamers

Catalog no. 72871



STC high-performance reamers with axial coolant for operating in through holes. The straight fluted SuperR-HS-D with extreme unequal pitch can be used in nearly all materials also with interrupted cut or with instable machine-conditions.

The STC high-performance reamers SuperR-HS-D allows highest cutting-parameters and gains high-quality holes. Therefore considerable savings of the processing-costs are possible. Ensures also high process-security.

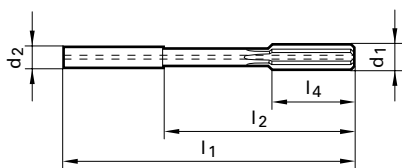
With cylindrical shank tol. h6 for clamping in hydraulic or shrink fit chucks.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperR-HS-D
Form	
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

straight shank-tol. h6 for usage in hydraulic chucks or shrinking chucks

Solid carbide high performance reamers



Catalog no.	72870	72871
Tool material	Solid Carbide	
Discount group	166	166
Surface	AlTiN nano	AlTiN nano
Form		

d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
3.000	4.000	68.00	40.00	12.00	4	●	●
3.500	4.000	68.00	40.00	12.00	4	●	●
4.000	4.000	68.00	40.00	12.00	4	●	●
4.500	6.000	76.00	40.00	12.00	4	●	●
5.000	6.000	76.00	40.00	12.00	4	●	●
5.500	6.000	76.00	40.00	12.00	4	●	●
6.000	6.000	76.00	40.00	12.00	4	●	●
6.500	8.000	101.00	65.00	16.00	6	●	●
7.000	8.000	101.00	65.00	16.00	6	●	●
7.500	8.000	101.00	65.00	16.00	6	●	●
8.000	8.000	101.00	65.00	16.00	6	●	●
8.500	10.000	101.00	61.00	19.00	6	●	●
9.000	10.000	101.00	61.00	19.00	6	●	●
9.500	10.000	101.00	61.00	19.00	6	●	●
10.000	10.000	101.00	61.00	19.00	6	●	●
10.500	12.000	130.00	85.00	19.00	6	●	●
11.000	12.000	130.00	85.00	19.00	6	●	●
11.500	12.000	130.00	85.00	19.00	6	●	●
12.000	12.000	130.00	85.00	19.00	6	●	●
13.000	14.000	130.00	85.00	22.00	6	●	●
14.000	14.000	130.00	85.00	22.00	6	●	●
15.000	16.000	150.00	102.00	22.00	6	●	●
16.000	16.000	150.00	102.00	22.00	6	●	●
17.000	18.000	150.00	102.00	25.00	6	●	●
18.000	18.000	150.00	102.00	25.00	6	●	●
19.000	20.000	150.00	100.00	25.00	6	●	●
20.000	20.000	150.00	100.00	25.00	6	●	●

Carbide reamers

Solid carbide high performance reamers

Catalog no. 72872



STC high-performance reamers with axial coolant for operating in blind holes. The straight fluted SuperR-HS-S with extreme unequal pitch can be used in nearly all materials also with interrupted cut or with instable machine-conditions.

The STC high-performance reamers SuperR-HS-S allows highest cutting-parameters and gains high-quality holes. Therefore considerable savings of the processing-costs are possible. Ensures also high process-security.

With cylindrical shank tol. h6 for clamping in hydraulic or shrink fit chucks.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperR-HS-S
Form	
Cutting direction	right-hand
Tolerance on Ø	+0,005
Flutes	straight

Solid carbide high performance reamers

Catalog no. 72873



STC high-performance reamers with axial coolant for operating in through holes. The straight fluted SuperR-HS-D with extreme unequal pitch can be used in nearly all materials also with interrupted cut or with instable machine-conditions.

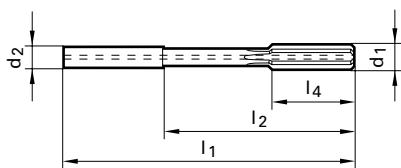
The STC high-performance reamers SuperR-HS-D allows highest cutting-parameters and gains high-quality holes. Therefore considerable savings of the processing-costs are possible. Ensures also high process-security.

With cylindrical shank tol. h6 for clamping in hydraulic or shrink fit chucks.

Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperR-HS-D
Form	
Cutting direction	right-hand
Tolerance on Ø	+0,005
Flutes	straight

Solid carbide high performance reamers



Catalog no.						72872	72873
Tool material						Solid Carbide	
Discount group						166	166
Surface						AlTiN nano	AlTiN nano
Form							
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
2.970	4.000	68.00	40.00	12.00	4	●	●
2.980	4.000	68.00	40.00	12.00	4	●	●
2.990	4.000	68.00	40.00	12.00	4	●	●
3.000	4.000	68.00	40.00	12.00	4	●	●
3.010	4.000	68.00	40.00	12.00	4	●	●
3.020	4.000	68.00	40.00	12.00	4	●	●
3.030	4.000	68.00	40.00	12.00	4	●	●
3.970	4.000	68.00	40.00	12.00	4	●	●
3.980	4.000	68.00	40.00	12.00	4	●	●
3.990	4.000	68.00	40.00	12.00	4	●	●
4.000	4.000	68.00	40.00	12.00	4	●	●
4.010	4.000	68.00	40.00	12.00	4	●	●
4.020	4.000	68.00	40.00	12.00	4	●	●
4.030	4.000	68.00	40.00	12.00	4	●	●
4.970	6.000	76.00	40.00	12.00	4	●	●
4.980	6.000	76.00	40.00	12.00	4	●	●
4.990	6.000	76.00	40.00	12.00	4	●	●
5.000	6.000	76.00	40.00	12.00	4	●	●
5.010	6.000	76.00	40.00	12.00	4	●	●
5.020	6.000	76.00	40.00	12.00	4	●	●
5.030	6.000	76.00	40.00	12.00	4	●	●
5.970	6.000	76.00	40.00	12.00	4	●	●
5.980	6.000	76.00	40.00	12.00	4	●	●
5.990	6.000	76.00	40.00	12.00	4	●	●
6.000	6.000	76.00	40.00	12.00	4	●	●
6.010	6.000	76.00	40.00	12.00	4	●	●
6.020	6.000	76.00	40.00	12.00	4	●	●
6.030	6.000	76.00	40.00	12.00	4	●	●
7.000	8.000	101.00	65.00	16.00	6	●	●
7.970	8.000	101.00	65.00	16.00	6	●	●
7.980	8.000	101.00	65.00	16.00	6	●	●
7.990	8.000	101.00	65.00	16.00	6	●	●
8.000	8.000	101.00	65.00	16.00	6	●	●
8.010	8.000	101.00	65.00	16.00	6	●	●
8.020	8.000	101.00	65.00	16.00	6	●	●
8.030	8.000	101.00	65.00	16.00	6	●	●
9.000	10.000	101.00	61.00	19.00	6	●	●
9.970	10.000	101.00	61.00	19.00	6	●	●
9.980	10.000	101.00	61.00	19.00	6	●	●
9.990	10.000	101.00	61.00	19.00	6	●	●
10.000	10.000	101.00	61.00	19.00	6	●	●
10.010	10.000	101.00	61.00	19.00	6	●	●
10.020	10.000	101.00	61.00	19.00	6	●	●
10.030	10.000	101.00	61.00	19.00	6	●	●
11.000	12.000	130.00	85.00	19.00	6	●	●
11.970	12.000	130.00	85.00	19.00	6	●	●
11.980	12.000	130.00	85.00	19.00	6	●	●
11.990	12.000	130.00	85.00	19.00	6	●	●
12.000	12.000	130.00	85.00	19.00	6	●	●
12.010	12.000	130.00	85.00	19.00	6	●	●
12.020	12.000	130.00	85.00	19.00	6	●	●
12.030	12.000	130.00	85.00	19.00	6	●	●

Carbide reamers

NC machine chucking reamers

Catalog no. 72920



For all ferrous and non-ferrous materials, as well as for hard and soft plastics. For mass production on automatic lathes. Straight shank for use in hydraulic chucks or shrinking systems.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	8° LH spiral

Tolerance d2: h6
Tolerance d1:
from Ø 1,00 - 5,03 mm 0,000/+0,004
from Ø 5,97 - 12,00 mm 0,000/+0,005

NC machine chucking reamers

Catalog no. 72930



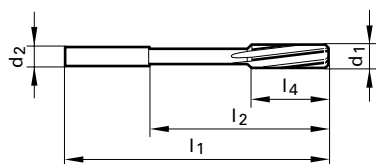
For all ferrous and non-ferrous materials, as well as for hard and soft plastics. For mass production on automatic lathes. Straight shank for use in hydraulic chucks or shrinking systems.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	
Form	
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	8° LH spiral

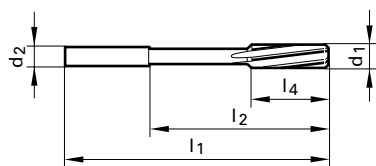
Tolerance d2: h6

NC machine chucking reamers



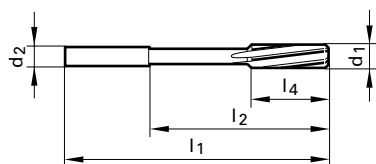
Catalog no.						72920	72930
Tool material						Solid Carbide	
Discount group						120	120
Surface						bright	bright
Form							
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
0.980	4.000	50.00	22.00	6.00	3	●	
0.990	4.000	50.00	22.00	6.00	3	●	
1.000	4.000	50.00	22.00	6.00	3	●	
1.010	4.000	50.00	22.00	6.00	3	●	
1.020	4.000	50.00	22.00	6.00	3	●	
1.030	4.000	50.00	22.00	9.00	3	●	
1.480	4.000	50.00	22.00	9.00	3	●	
1.490	4.000	50.00	22.00	9.00	3	●	
1.500	4.000	50.00	22.00	9.00	3	●	
1.510	4.000	50.00	22.00	9.00	3	●	
1.520	4.000	50.00	22.00	9.00	3	●	
1.530	4.000	50.00	22.00	9.00	3	●	
1.980	4.000	50.00	22.00	12.00	4	●	
1.990	4.000	50.00	22.00	12.00	4	●	
2.000	4.000	50.00	22.00	12.00	4	●	
2.010	4.000	50.00	22.00	12.00	4	●	
2.020	4.000	50.00	22.00	12.00	4	●	
2.030	4.000	50.00	22.00	12.00	4	●	
2.480	4.000	60.00	32.00	16.00	4	●	
2.490	4.000	60.00	32.00	16.00	4	●	
2.500	4.000	60.00	32.00	16.00	4	●	
2.510	4.000	60.00	32.00	16.00	4	●	
2.520	4.000	60.00	32.00	16.00	4	●	
2.530	4.000	60.00	32.00	16.00	4	●	
2.970	4.000	64.00	36.00	17.00	6	●	
2.980	4.000	64.00	36.00	17.00	6	●	
2.990	4.000	64.00	36.00	17.00	6	●	
3.000	4.000	64.00	36.00	17.00	6	●	●
3.010	4.000	64.00	36.00	17.00	6	●	
3.020	4.000	64.00	36.00	17.00	6	●	
3.030	4.000	64.00	36.00	17.00	6	●	
3.100	4.000	68.00	40.00	18.00	6		●
3.200	4.000	68.00	40.00	18.00	6		●
3.300	4.000	68.00	40.00	18.00	6		●
3.400	4.000	74.00	46.00	20.00	6		●
3.500	4.000	74.00	46.00	20.00	6		●
3.600	4.000	74.00	46.00	20.00	6		●
3.700	4.000	74.00	46.00	20.00	6		●
3.800	4.000	77.00	45.00	21.00	6		●
3.900	4.000	77.00	45.00	21.00	6		●
3.970	4.000	77.00	45.00	21.00	6	●	
3.980	4.000	77.00	45.00	21.00	6	●	
3.990	4.000	77.00	45.00	21.00	6	●	
4.000	4.000	77.00	45.00	21.00	6	●	●
4.010	4.000	77.00	45.00	21.00	6	●	
4.020	4.000	77.00	45.00	21.00	6	●	
4.030	4.000	77.00	45.00	21.00	6	●	
4.100	6.000	82.00	50.00	23.00	6		●
4.200	6.000	82.00	50.00	23.00	6		●
4.300	6.000	82.00	50.00	23.00	6		●
4.400	6.000	82.00	50.00	23.00	6		●
4.500	6.000	82.00	50.00	23.00	6		●
4.600	6.000	82.00	50.00	23.00	6		●
4.700	6.000	82.00	50.00	23.00	6		●
4.800	6.000	93.00	59.00	26.00	6		●
4.900	6.000	93.00	59.00	26.00	6		●
4.970	6.000	93.00	59.00	26.00	6	●	
4.980	6.000	93.00	59.00	26.00	6	●	
4.990	6.000	93.00	59.00	26.00	6	●	
5.000	6.000	93.00	59.00	26.00	6	●	●

NC machine chucking reamers



Catalog no.						72920	72930
Tool material						Solid Carbide	
Discount group						120	120
Surface						bright	bright
Form							
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
5.010	6.000	93.00	59.00	26.00	6	●	
5.020	6.000	93.00	59.00	26.00	6	●	
5.030	6.000	93.00	59.00	26.00	6	●	
5.100	6.000	93.00	59.00	26.00	6		●
5.200	6.000	93.00	59.00	26.00	6		●
5.300	6.000	93.00	59.00	26.00	6		●
5.400	6.000	93.00	57.00	26.00	6		●
5.500	6.000	93.00	57.00	26.00	6		●
5.600	6.000	93.00	57.00	26.00	6		●
5.700	6.000	93.00	57.00	26.00	6		●
5.800	6.000	93.00	57.00	26.00	6		●
5.900	6.000	93.00	57.00	26.00	6		●
5.970	6.000	93.00	57.00	26.00	6	●	
5.980	6.000	93.00	57.00	26.00	6	●	
5.990	6.000	93.00	57.00	26.00	6	●	
6.000	6.000	93.00	57.00	26.00	6	●	●
6.010	6.000	93.00	57.00	26.00	6	●	
6.020	6.000	93.00	57.00	26.00	6	●	
6.030	6.000	93.00	57.00	26.00	6	●	
6.100	8.000	101.00	63.00	28.00	6		●
6.200	8.000	101.00	63.00	28.00	6		●
6.300	8.000	101.00	63.00	28.00	6		●
6.400	8.000	101.00	63.00	28.00	6		●
6.500	8.000	101.00	63.00	28.00	6		●
6.600	8.000	101.00	63.00	28.00	6		●
6.700	8.000	101.00	63.00	28.00	6		●
6.800	8.000	109.00	69.00	31.00	6		●
6.900	8.000	109.00	69.00	31.00	6		●
7.000	8.000	109.00	69.00	31.00	6	●	●
7.100	8.000	109.00	69.00	31.00	6		●
7.200	8.000	109.00	69.00	31.00	6		●
7.300	8.000	109.00	69.00	31.00	6		●
7.400	8.000	109.00	69.00	31.00	6		●
7.500	8.000	109.00	69.00	31.00	6		●
7.600	8.000	109.00	69.00	31.00	6		●
7.700	8.000	117.00	75.00	33.00	6		●
7.800	8.000	117.00	75.00	33.00	6		●
7.900	8.000	117.00	75.00	33.00	6		●
7.970	8.000	117.00	75.00	33.00	6	●	
7.980	8.000	117.00	75.00	33.00	6	●	
7.990	8.000	117.00	75.00	33.00	6	●	
8.000	8.000	117.00	75.00	33.00	6	●	●
8.010	8.000	117.00	75.00	33.00	6	●	
8.020	8.000	117.00	75.00	33.00	6	●	
8.030	8.000	117.00	75.00	33.00	6	●	
8.040	8.000	117.00	75.00	33.00	6	●	
8.100	10.000	117.00	75.00	33.00	6		●
8.200	10.000	117.00	75.00	33.00	6		●
8.300	10.000	117.00	75.00	33.00	6		●
8.400	10.000	117.00	75.00	33.00	6		●
8.500	10.000	117.00	75.00	33.00	6		●
8.600	10.000	117.00	75.00	33.00	6		●
8.700	10.000	125.00	81.00	36.00	6		●
8.800	10.000	125.00	81.00	36.00	6		●
8.900	10.000	125.00	81.00	36.00	6		●
9.000	10.000	125.00	81.00	36.00	6	●	●
9.100	10.000	125.00	81.00	36.00	6		●
9.200	10.000	125.00	81.00	36.00	6		●
9.300	10.000	125.00	81.00	36.00	6		●
9.400	10.000	125.00	81.00	36.00	6		●

NC machine chucking reamers



Catalog no.						72920	72930
Tool material						Solid Carbide	
Discount group						120	120
Surface						bright	bright
Form							
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
9.500	10.000	125.00	81.00	36.00	6		●
9.600	10.000	125.00	81.00	36.00	6		●
9.700	10.000	133.00	87.00	38.00	6		●
9.800	10.000	133.00	87.00	38.00	6		●
9.900	10.000	133.00	87.00	38.00	6		●
9.970	10.000	133.00	87.00	38.00	6	●	
9.980	10.000	133.00	87.00	38.00	6	●	
9.990	10.000	133.00	87.00	38.00	6	●	
10.000	10.000	133.00	87.00	38.00	6	●	●
10.010	10.000	133.00	87.00	38.00	6	●	
10.020	10.000	133.00	87.00	38.00	6	●	
10.030	10.000	133.00	87.00	38.00	6	●	
10.040	10.000	133.00	87.00	38.00	6	●	
10.050	10.000	133.00	87.00	38.00	6	●	
10.100	10.000	133.00	87.00	38.00	6		●
10.200	10.000	133.00	87.00	38.00	6		●
10.300	10.000	133.00	87.00	38.00	6		●
10.400	10.000	133.00	87.00	38.00	6		●
10.500	10.000	133.00	87.00	38.00	6		●
10.600	10.000	133.00	87.00	38.00	6		●
10.700	10.000	142.00	96.00	41.00	6		●
10.800	10.000	142.00	96.00	41.00	6		●
10.900	10.000	142.00	96.00	41.00	6		●
11.000	10.000	142.00	96.00	41.00	6		●
11.100	10.000	142.00	96.00	41.00	6		●
11.200	10.000	142.00	96.00	41.00	6		●
11.300	10.000	142.00	96.00	41.00	6		●
11.400	10.000	142.00	96.00	41.00	6		●
11.500	10.000	142.00	96.00	41.00	6		●
11.600	10.000	142.00	96.00	41.00	6		●
11.700	10.000	142.00	96.00	41.00	6		●
11.800	10.000	142.00	96.00	41.00	6		●
11.900	12.000	151.00	105.00	44.00	6		●
11.970	12.000	151.00	105.00	44.00	6	●	
11.980	12.000	151.00	105.00	44.00	6	●	
11.990	12.000	151.00	105.00	44.00	6	●	
12.000	12.000	151.00	105.00	44.00	6	●	●
12.010	12.000	151.00	105.00	44.00	6	●	
12.020	12.000	151.00	105.00	44.00	6	●	
12.030	12.000	151.00	105.00	44.00	6	●	
12.040	12.000	151.00	105.00	44.00	6	●	
12.050	12.000	151.00	105.00	44.00	6	●	

Carbide reamers

Carbide brazed machine reamers

~ DIN 8050

Catalog no. 72868



For steels with tensile strengths of up to 1000 N/mm², grey cast iron of more than approx. 240 Brinell, manganese steels, AlSi-alloys as well as hard and abrasive plastics. For mass production. not suitable for interrupted holes, e.g. with key ways, intersecting holes and similar.

Tool material	Carbide
Surface	bright
Type	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

Carbide brazed machine reamers

~ DIN 8050

Catalog no. 72867

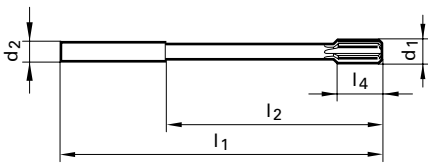


Short bevel lead, 45°.

For steels with tensile strengths of up to 1000 N/mm², grey cast iron of more than approx. 240 brinell, manganese steels, AlSi-alloys as well as hard and abrasive plastics. For mass production.

Tool material	Carbide
Surface	bright
Type	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

Carbide brazed machine reamers



Catalog no.						72868	72867
Tool material						Carbide	
Discount group						120	120
Surface						bright	bright
Form						A	B
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
5.000	5.000	86.00	52.00	12.00	6	●	●
6.000	5.600	93.00	57.00	12.00	6	●	●
7.000	7.100	109.00	69.00	16.00	6	●	●
8.000	8.000	117.00	75.00	16.00	6	●	●
9.000	9.000	125.00	81.00	19.00	6	●	●
10.000	10.000	133.00	87.00	12.00	6	●	●
11.000	10.000	142.00	96.00	12.00	6		●
12.000	10.000	151.00	105.00	12.00	6	●	●
13.000	10.000	151.00	105.00	12.00	6		●
14.000	12.000	160.00	110.00	16.00	6	●	●
15.000	12.000	162.00	112.00	16.00	6	●	●
16.000	12.000	170.00	120.00	19.00	6	●	●
18.000	14.000	182.00	130.00	19.00	6		●
20.000	16.000	195.00	137.00	19.00	6	●	●

Carbide reamers

Carbide brazed machine reamers

~ DIN 8093

Catalog no. 72880



Short bevel lead, 45°.

For steels with tensile strengths of up to 1400 N/mm², grey cast iron of more than approx. 240 Brinell, manganese steels, AISi-alloys as well as hard and abrasive plastics, i.e. in materials and under machining conditions for which the tool life of HSS-E reamers is not economical. For mass production.

Not suitable for interrupted holes, e.g. with key ways, intersecting holes and similar.

Note: Reamers with highly unequal flute spacing greatly improve circular precision and surface finish quality.

Tool material	Carbide
Surface	bright
Type	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight
extreme unequal pitch	

Carbide brazed machine reamers

~ DIN 8093

Catalog no. 72881



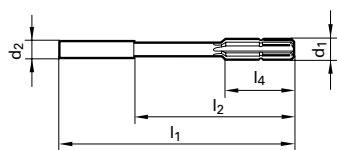
Short bevel lead, 45°.

For steels with a tensile strength of up to 1400 N/mm², grey cast iron of more than approx. 240 Brinell, manganese steels, AISi-alloys as well as hard and abrasive plastics, i.e. in materials and under machining conditions for which the tool life of HSS-E reamers is not economical. For mass production.

Note: Reamers with highly unequal flute spacing greatly improve circular precision and surface finish quality.

Tool material	Carbide
Surface	bright
Type	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral
extreme unequal pitch	

Carbide brazed machine reamers



Catalog no.						72880	72881
Tool material						Carbide	
Discount group						120	120
Surface						bright	bright
Form						A	B
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
1.000	1.000	34.00	15.00	5.50	3		●
1.200	1.200	38.00	16.50	7.50	3	●	●
1.500	1.500	40.00	18.00	8.00	3	●	●
1.600	1.600	43.00	20.00	9.00	3	●	
2.000	2.000	49.00	24.00	11.00	4	●	●
2.500	2.500	57.00	29.00	14.00	4	●	●
3.000	3.000	61.00	33.00	15.00	6	●	●
3.500	3.500	70.00	36.00	18.00	6	●	●
4.000	4.000	75.00	43.00	19.00	6	●	●
4.500	4.500	80.00	47.00	21.00	6	●	●
5.000	5.000	86.00	52.00	23.00	6	●	●
6.000	5.600	93.00	57.00	26.00	6	●	●
7.000	7.100	109.00	69.00	31.00	6	●	●
8.000	8.000	117.00	75.00	33.00	6	●	●
9.000	9.000	125.00	81.00	36.00	6	●	●
10.000	10.000	133.00	87.00	38.00	6	●	●
11.000	10.000	142.00	96.00	41.00	6	●	●
12.000	10.000	151.00	105.00	44.00	6	●	●
13.000	10.000	151.00	105.00	44.00	6	●	●
14.000	12.000	160.00	110.00	47.00	6	●	●
16.000	12.000	170.00	120.00	52.00	6	●	●

Carbide reamers

Carbide brazed machine reamers

~ DIN 8051

Catalog no. 72860



For steels with tensile strengths of up to 1000 N/mm², grey cast iron of more than approx. 240 Brinell, manganese steels, AlSi-alloys as well as hard and abrasive plastics. For mass production. not suitable for interrupted holes, e.g. with key ways, intersecting holes and similar.

Tool material	Carbide
Surface	bright
Type	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

Carbide brazed machine reamers

~ DIN 8051

Catalog no. 72859

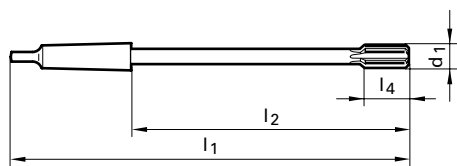


Short bevel lead, 45°.

For steels with tensile strengths of up to 1000 N/mm², grey cast iron of more than approx. 240 brinell, manganese steels, AlSi-alloys as well as hard and abrasive plastics. For mass production.

Tool material	Carbide
Surface	bright
Type	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

Carbide brazed machine reamers



Catalog no.						72860	72859
Tool material						Carbide	
Discount group						120	120
Surface						bright	bright
Form						A	B
d1	MT	l1	l2	l4	Z	price per piece	
mm		mm	mm	mm			
6.000	1	138.00	72.50	12.00	6		●
8.000	1	156.00	90.50	16.00	6		●
10.000	1	168.00	102.50	12.00	6	○	●
11.000	1	175.00	109.50	12.00	6		●
12.000	1	182.00	116.50	12.00	6	○	●
13.000	1	182.00	116.50	12.00	6		●
14.000	1	189.00	123.50	16.00	6	○	●
15.000	2	204.00	124.00	16.00	6	○	●
16.000	2	210.00	130.00	19.00	6	○	●
17.000	2	214.00	134.00	19.00	6		●
18.000	2	219.00	139.00	19.00	6	○	●
20.000	2	228.00	148.00	19.00	6	○	●
21.000	2	232.00	152.00	22.00	6		●
22.000	2	237.00	157.00	22.00	6	○	●
23.000	2	241.00	161.00	22.00	6		●
24.000	3	268.00	169.00	22.00	8	○	●
25.000	3	268.00	169.00	22.00	8	○	●
26.000	3	273.00	174.00	22.00	8	○	●
27.000	3	277.00	178.00	25.00	8		●
28.000	3	277.00	178.00	25.00	8	○	
30.000	3	281.00	182.00	25.00	8	○	●
32.000	4	317.00	193.00	25.00	8		●

High speed steel reamers

NC machine chucking reamers

Catalog no. 72900



For all ferrous and non-ferrous materials, as well as for hard and soft plastics. For mass production on automatic lathes. Straight shank for use in hydraulic chucks or shrinking systems.

DIN 212-3

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on Ø	
Flutes	7° LH spiral

Tolerance d2: h6
Tolerance d1:
from Ø 1,00 - 5,03 mm 0,000/+0,004
from Ø 5,97 - 12,00 mm 0,000/+0,005

NC machine chucking reamers

Catalog no. 72910



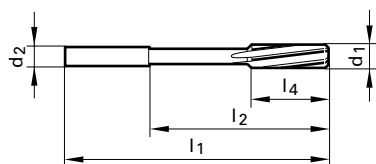
For all ferrous and non-ferrous materials, as well as for hard and soft plastics. For mass production on automatic lathes. Straight shank for use in hydraulic chucks or shrinking systems.

DIN 212-3

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

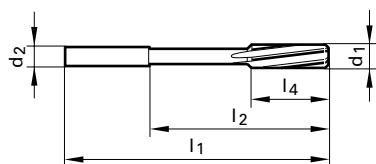
Tolerance d2: h6

NC machine chucking reamers



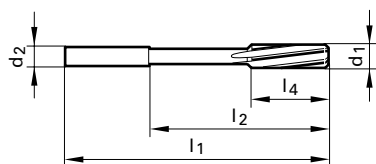
Catalog no.						72900	72910
Tool material						HSS-E	
Discount group						105	105
Surface						bright	bright
Form						B	B
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
1.000	1.000	34.00	15.00	5.50	3	●	
1.010	1.000	34.00	15.00	5.50	3	●	
1.020	1.000	34.00	15.00	5.50	3	●	
1.030	1.000	34.00	15.00	5.50	3	●	
1.500	2.000	40.00	18.00	8.00	3	●	●
1.510	2.000	43.00	20.00	9.00	3	●	
1.520	2.000	43.00	20.00	9.00	3	●	
1.530	2.000	43.00	20.00	9.00	3	●	
1.600	2.000	43.00	20.00	9.00	3		●
1.700	2.000	43.00	20.00	9.00	3		●
1.800	2.000	46.00	22.00	10.00	4		●
1.900	2.000	46.00	22.00	10.00	4		●
1.970	2.000	49.00	24.00	11.00	4	●	
1.980	2.000	49.00	24.00	11.00	4	●	
1.990	2.000	49.00	24.00	11.00	4	●	
2.000	2.000	49.00	24.00	11.00	4	●	●
2.010	2.000	49.00	24.00	11.00	4	●	
2.020	2.000	49.00	24.00	11.00	4	●	
2.030	2.000	49.00	24.00	11.00	4	●	
2.100	2.000	49.00	24.00	11.00	4		●
2.200	3.000	53.00	25.00	12.00	4		●
2.300	3.000	53.00	25.00	12.00	4		●
2.400	3.000	57.00	29.00	14.00	4		●
2.470	3.000	57.00	29.00	14.00	4	●	
2.480	3.000	57.00	29.00	14.00	4	●	
2.490	3.000	57.00	29.00	14.00	4	●	
2.500	3.000	57.00	29.00	14.00	4	●	●
2.510	3.000	57.00	29.00	14.00	4	●	
2.520	3.000	57.00	29.00	14.00	4	●	
2.530	3.000	57.00	29.00	14.00	4	●	
2.600	3.000	57.00	29.00	14.00	4		●
2.700	3.000	61.00	33.00	15.00	6		●
2.800	3.000	61.00	33.00	15.00	6		●
2.900	3.000	61.00	33.00	15.00	6		●
2.970	3.000	61.00	33.00	15.00	6	●	
2.980	3.000	61.00	33.00	15.00	6	●	
2.990	3.000	61.00	33.00	15.00	6	●	
3.000	3.000	61.00	33.00	15.00	6	●	●
3.010	4.000	65.00	37.00	16.00	6	●	
3.020	4.000	65.00	37.00	16.00	6	●	
3.030	4.000	65.00	37.00	16.00	6	●	
3.100	4.000	65.00	37.00	16.00	6		●
3.200	4.000	65.00	37.00	16.00	6		●
3.300	4.000	65.00	37.00	16.00	6		●
3.400	4.000	70.00	42.00	18.00	6		●
3.500	4.000	70.00	42.00	18.00	6		●
3.600	4.000	70.00	42.00	18.00	6		●
3.700	4.000	70.00	42.00	18.00	6		●
3.800	4.000	75.00	47.00	19.00	6		●
3.900	4.000	75.00	47.00	19.00	6		●
3.970	4.000	75.00	47.00	19.00	6	●	
3.980	4.000	75.00	47.00	19.00	6	●	
3.990	4.000	75.00	47.00	19.00	6	●	
4.000	4.000	75.00	47.00	19.00	6	●	●
4.010	4.000	75.00	47.00	19.00	6	●	
4.020	4.000	75.00	47.00	19.00	6	●	
4.030	4.000	75.00	47.00	19.00	6	●	
4.100	4.000	75.00	47.00	19.00	6		●
4.200	4.000	75.00	47.00	19.00	6		●
4.300	5.000	80.00	52.00	21.00	6		●

NC machine chucking reamers



Catalog no.						72900	72910
Tool material						HSS-E	
Discount group						105	105
Surface						bright	bright
Form						B	B
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
4.400	5.000	80.00	52.00	21.00	6		●
4.500	5.000	80.00	52.00	21.00	6		●
4.600	5.000	80.00	52.00	21.00	6		●
4.700	5.000	80.00	52.00	21.00	6		●
4.800	5.000	86.00	58.00	23.00	6		●
4.900	5.000	86.00	58.00	23.00	6		●
4.970	5.000	86.00	58.00	23.00	6	●	
4.980	5.000	86.00	58.00	23.00	6	●	
4.990	5.000	86.00	58.00	23.00	6	●	
5.000	5.000	86.00	58.00	23.00	6	●	●
5.010	5.000	86.00	58.00	23.00	6	●	
5.020	5.000	86.00	58.00	23.00	6	●	
5.030	5.000	86.00	58.00	23.00	6	●	
5.100	5.000	86.00	58.00	23.00	6		●
5.200	5.000	86.00	58.00	23.00	6		●
5.300	5.000	86.00	58.00	23.00	6		●
5.400	6.000	93.00	57.00	26.00	6		●
5.500	6.000	93.00	57.00	26.00	6		●
5.600	6.000	93.00	57.00	26.00	6		●
5.700	6.000	93.00	57.00	26.00	6		●
5.800	6.000	93.00	57.00	26.00	6		●
5.900	6.000	93.00	57.00	26.00	6		●
5.970	6.000	93.00	57.00	26.00	6	●	
5.980	6.000	93.00	57.00	26.00	6	●	
5.990	6.000	93.00	57.00	26.00	6	●	
6.000	6.000	93.00	57.00	26.00	6	●	●
6.010	6.000	101.00	65.00	28.00	6	●	
6.020	6.000	101.00	65.00	28.00	6	●	
6.030	6.000	101.00	65.00	28.00	6	●	
6.100	6.000	101.00	65.00	28.00	6		●
6.200	6.000	101.00	65.00	28.00	6		●
6.300	6.000	101.00	65.00	28.00	6		●
6.400	6.000	101.00	65.00	28.00	6		●
6.500	6.000	101.00	65.00	28.00	6		●
6.600	6.000	101.00	65.00	28.00	6		●
6.700	6.000	101.00	65.00	28.00	6		●
6.800	8.000	109.00	73.00	31.00	6		●
6.900	8.000	109.00	73.00	31.00	6		●
7.000	8.000	109.00	73.00	31.00	6		●
7.100	8.000	109.00	73.00	31.00	6		●
7.200	8.000	109.00	73.00	31.00	6		●
7.300	8.000	109.00	73.00	31.00	6		●
7.400	8.000	109.00	73.00	31.00	6		●
7.500	8.000	109.00	73.00	31.00	6		●
7.600	8.000	117.00	81.00	33.00	6		●
7.700	8.000	117.00	81.00	33.00	6		●
7.800	8.000	117.00	81.00	33.00	6		●
7.900	8.000	117.00	81.00	33.00	6		●
7.970	8.000	117.00	81.00	33.00	6	●	
7.980	8.000	117.00	81.00	33.00	6	●	
7.990	8.000	117.00	81.00	33.00	6	●	
8.000	8.000	117.00	81.00	33.00	6	●	●
8.010	8.000	117.00	81.00	33.00	6	●	
8.020	8.000	117.00	81.00	33.00	6	●	
8.030	8.000	117.00	81.00	33.00	6	●	
8.100	8.000	117.00	81.00	33.00	6		●
8.200	8.000	117.00	81.00	33.00	6		●
8.300	8.000	117.00	81.00	33.00	6		●
8.400	8.000	117.00	81.00	33.00	6		●
8.500	8.000	117.00	81.00	33.00	6		●

NC machine chucking reamers



Catalog no.						72900	72910
Tool material						HSS-E	
Discount group						105	105
Surface						bright	bright
Form						B	B
d1	d2	l1	l2	l4	Z	price per piece	
mm	mm	mm	mm	mm			
8.600	10.000	125.00	85.00	36.00	6		●
8.700	10.000	125.00	85.00	36.00	6		●
8.800	10.000	125.00	85.00	36.00	6		●
8.900	10.000	125.00	85.00	36.00	6		●
9.000	10.000	125.00	85.00	36.00	6	●	●
9.010	10.000	125.00	85.00	36.00	6	●	
9.020	10.000	125.00	85.00	36.00	6	●	
9.030	10.000	125.00	85.00	36.00	6	●	
9.100	10.000	125.00	85.00	36.00	6		●
9.200	10.000	125.00	85.00	36.00	6		●
9.300	10.000	125.00	85.00	36.00	6		●
9.400	10.000	125.00	85.00	36.00	6		●
9.500	10.000	125.00	85.00	36.00	6		●
9.600	10.000	133.00	93.00	38.00	6		●
9.700	10.000	133.00	93.00	38.00	6		●
9.800	10.000	133.00	93.00	38.00	6		●
9.900	10.000	133.00	93.00	38.00	6		●
9.970	10.000	133.00	93.00	38.00	6	●	
9.980	10.000	133.00	93.00	38.00	6	●	
9.990	10.000	133.00	93.00	38.00	6	●	
10.000	10.000	133.00	93.00	38.00	6	●	●
10.010	10.000	133.00	93.00	38.00	6	●	
10.020	10.000	133.00	93.00	38.00	6	●	
10.030	10.000	133.00	93.00	38.00	6	●	
11.000	10.000	142.00	102.00	41.00	6		●
11.970	10.000	151.00	111.00	44.00	6	●	
11.980	10.000	151.00	111.00	44.00	6	●	
11.990	10.000	151.00	111.00	44.00	6	●	
12.000	10.000	151.00	111.00	44.00	6	●	●
12.010	10.000	151.00	111.00	44.00	6	●	
12.020	10.000	151.00	111.00	44.00	6	●	
12.030	10.000	151.00	111.00	44.00	6	●	
13.000	10.000	151.00	111.00	44.00	6		●
14.000	14.000	160.00	115.00	47.00	8		●
15.000	14.000	162.00	117.00	50.00	8		●
16.000	14.000	170.00	125.00	52.00	8		●
17.000	14.000	175.00	130.00	54.00	8		●
18.000	14.000	182.00	137.00	56.00	8		●
19.000	16.000	189.00	141.00	58.00	8		●
20.000	16.000	195.00	147.00	60.00	8		●

High speed steel reamers

Machine reamers

Catalog no. 72654



Short bevel lead, $\leq \varnothing 3,75$ mm: 15° , $> \varnothing 3,75$ mm: 45° .

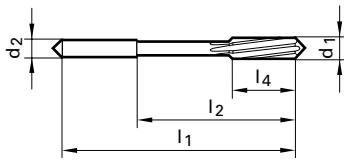
For all ferrous and non-ferrous metals, as well as for hard and soft plastics. For serial production on NC-machines.

DIN 212-2

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on \varnothing	
Flutes	7° LH spiral

Tolerance d1:
from $\varnothing 0,98 - 5,50$ mm $0,000/+0,004$
from $\varnothing 6,01 - 12,00$ mm $0,000/+0,005$

Machine reamers



Catalog no.

72654

Tool material

HSS-E

Discount group

105

Surface

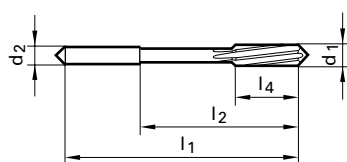
bright

Form

B

d1	d2	l1	l2	l4	Z	price per piece
mm	mm	mm	mm	mm		
0.980	1.000	34.00	15.00	5.50	3	●
0.990	1.000	34.00	15.00	5.50	3	●
1.000	1.000	34.00	15.00	5.50	3	●
1.010	1.100	34.00	15.00	5.50	3	●
1.020	1.100	34.00	15.00	5.50	3	●
1.100	1.100	34.00	15.50	6.50	3	●
1.200	1.200	38.00	16.50	7.50	3	●
1.300	1.300	38.00	16.50	7.50	3	●
1.400	1.400	40.00	18.00	8.00	3	●
1.480	1.500	40.00	18.00	8.00	3	●
1.490	1.500	40.00	18.00	8.00	3	●
1.500	1.500	40.00	18.00	8.00	3	●
1.510	1.600	43.00	20.00	9.00	3	●
1.520	1.600	43.00	20.00	9.00	3	●
1.600	1.600	43.00	20.00	9.00	3	●
1.700	1.700	43.00	20.00	9.00	3	●
1.800	1.800	46.00	22.00	10.00	4	●
1.980	2.000	49.00	24.00	11.00	4	●
1.990	2.000	49.00	24.00	11.00	4	●
2.000	2.000	49.00	24.00	11.00	4	●
2.010	2.100	49.00	24.00	11.00	4	●
2.030	2.100	49.00	24.00	11.00	4	●
2.100	2.000	49.00	24.00	11.00	4	●
2.200	2.200	53.00	25.00	12.00	4	●
2.300	2.300	53.00	25.00	12.00	4	●
2.400	2.500	57.00	29.00	14.00	4	●
2.500	2.500	57.00	29.00	14.00	4	●
2.600	2.500	57.00	29.00	14.00	4	●
2.700	2.800	61.00	33.00	15.00	6	●
2.750	2.800	61.00	33.00	15.00	6	●
2.800	2.800	61.00	33.00	15.00	6	●
2.900	3.000	61.00	33.00	15.00	6	●
2.980	3.000	61.00	33.00	15.00	6	●
2.990	3.000	61.00	33.00	15.00	6	●
3.000	3.000	61.00	33.00	15.00	6	●
3.010	3.200	65.00	37.00	16.00	6	●
3.020	3.200	65.00	37.00	16.00	6	●
3.050	3.200	65.00	37.00	16.00	6	●
3.100	3.200	65.00	37.00	16.00	6	●
3.200	3.200	65.00	37.00	16.00	6	●
3.300	3.200	65.00	37.00	16.00	6	●
3.400	3.500	70.00	42.00	18.00	6	●
3.500	3.500	70.00	42.00	18.00	6	●
3.600	3.500	70.00	42.00	18.00	6	●
3.700	3.500	70.00	42.00	18.00	6	●
3.800	4.000	75.00	47.00	19.00	6	●
3.900	4.000	75.00	47.00	19.00	6	●
3.970	4.000	75.00	47.00	19.00	6	●
3.980	4.000	75.00	47.00	19.00	6	●
3.990	4.000	75.00	47.00	19.00	6	●
4.000	4.000	75.00	47.00	19.00	6	●
4.010	4.000	75.00	47.00	19.00	6	●
4.020	4.000	75.00	47.00	19.00	6	●
4.030	4.000	75.00	47.00	19.00	6	●
4.100	4.000	75.00	47.00	19.00	6	●
4.200	4.000	75.00	47.00	19.00	6	●
4.500	4.500	80.00	52.00	21.00	6	●
4.800	5.000	86.00	58.00	23.00	6	●
4.980	5.000	86.00	58.00	23.00	6	●
4.990	5.000	86.00	58.00	23.00	6	●

Machine reamers



Catalog no. 72654

Tool material HSS-E

Discount group 105

Surface bright

Form B

d1	d2	l1	l2	l4	Z	price per piece
mm	mm	mm	mm	mm		
5.000	5.000	86.00	58.00	23.00	6	●
5.010	5.000	86.00	58.00	23.00	6	●
5.020	5.000	86.00	58.00	23.00	6	●
5.030	5.000	86.00	58.00	23.00	6	●
5.100	5.000	86.00	58.00	23.00	6	●
5.200	5.000	86.00	58.00	23.00	6	●
5.500	5.600	93.00	57.00	26.00	6	●
5.800	5.600	93.00	57.00	26.00	6	●
5.980	5.600	93.00	57.00	26.00	6	●
5.990	5.600	93.00	57.00	26.00	6	●
6.000	5.600	93.00	57.00	26.00	6	●
6.010	6.300	101.00	65.00	28.00	6	●
6.020	6.300	101.00	65.00	28.00	6	●
6.100	6.300	101.00	65.00	28.00	6	●
6.200	6.300	101.00	65.00	28.00	6	●
6.500	6.300	101.00	65.00	28.00	6	●
7.000	7.100	109.00	73.00	31.00	6	●
7.010	7.100	109.00	73.00	31.00	6	●
7.020	7.100	109.00	73.00	31.00	6	●
7.100	7.100	109.00	73.00	31.00	6	●
7.500	7.100	109.00	73.00	31.00	6	●
7.980	8.000	117.00	81.00	33.00	6	●
8.000	8.000	117.00	81.00	33.00	6	●
8.010	8.000	117.00	81.00	33.00	6	●
8.020	8.000	117.00	81.00	33.00	6	●
8.030	8.000	117.00	81.00	33.00	6	●
8.050	8.000	117.00	81.00	33.00	6	●
8.100	8.000	117.00	81.00	33.00	6	●
8.200	8.000	117.00	81.00	33.00	6	●
8.500	8.000	117.00	81.00	33.00	6	●
8.900	9.000	125.00	85.00	36.00	6	●
9.000	9.000	125.00	85.00	36.00	6	●
9.010	9.000	125.00	85.00	36.00	6	●
9.020	9.000	125.00	85.00	36.00	6	●
9.500	9.000	125.00	85.00	36.00	6	●
9.980	10.000	133.00	93.00	38.00	6	●
10.000	10.000	133.00	93.00	38.00	6	●
10.010	10.000	133.00	93.00	38.00	6	●
10.020	10.000	133.00	93.00	38.00	6	●
10.030	10.000	133.00	93.00	38.00	6	●
10.500	10.000	133.00	93.00	38.00	6	●
11.000	10.000	142.00	102.00	41.00	6	●
11.010	10.000	142.00	102.00	41.00	6	●
11.020	10.000	142.00	102.00	41.00	6	●
11.500	10.000	142.00	102.00	41.00	6	●
12.000	10.000	151.00	111.00	44.00	6	●

High speed steel reamers

Machine reamers

Catalog no. 72640



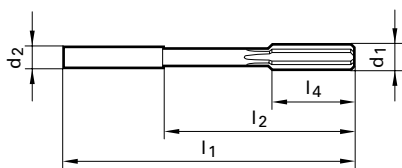
Short bevel lead, 45°.

For all ferrous and non-ferrous metals, as well as for hard and soft plastics. For blind and through holes in small batch and mass production. For interrupted holes, e.g. holes with key ways, intersection holes and similar, we recommend catalogue no. 72650.

DIN 212-2

Tool material	HSS-E
Surface	bright
Type	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

Machine reamers



Catalog no.	72640
Tool material	HSS-E
Discount group	105
Surface	bright
Form	A

d1	d2	l1	l2	l4	Z	price per piece
mm	mm	mm	mm	mm		
2.200	2.200	53.00	25.00	12.00	4	○
2.800	2.800	61.00	33.00	15.00	6	○
3.000	3.000	61.00	33.00	15.00	6	○
3.200	3.200	65.00	37.00	16.00	6	○
3.500	3.500	70.00	42.00	18.00	6	○
4.000	4.000	75.00	47.00	19.00	6	○
4.500	4.500	80.00	52.00	21.00	6	○
5.000	5.000	86.00	58.00	23.00	6	○
6.000	5.600	93.00	57.00	26.00	6	○
7.000	7.100	109.00	73.00	31.00	6	○
8.000	8.000	117.00	81.00	33.00	6	○
9.000	9.000	125.00	85.00	36.00	6	○
10.000	10.000	133.00	93.00	38.00	6	○
11.000	10.000	142.00	102.00	41.00	6	○
12.000	10.000	151.00	111.00	44.00	6	○
13.000	10.000	151.00	111.00	44.00	6	○
14.000	12.500	160.00	115.00	47.00	8	○
15.000	12.500	162.00	117.00	50.00	8	○
16.000	12.500	170.00	125.00	52.00	8	○
17.000	14.000	175.00	130.00	54.00	8	○
18.000	14.000	182.00	137.00	56.00	8	○
19.000	16.000	189.00	141.00	58.00	8	○
20.000	16.000	195.00	147.00	60.00	8	○

High speed steel reamers

Machine reamers

Catalog no. 72650



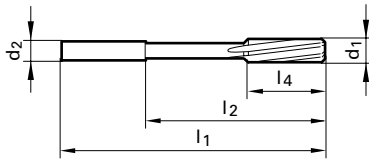
Short bevel lead, 45°.

For all ferrous and non-ferrous metals, as well as for hard and soft plastics. For blind and through holes in small batch and mass production.

DIN 212-2

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

Machine reamers



Catalog no.

72650

Tool material

HSS-E

Discount group

105

Surface

bright

Form

B

d1 mm	d2 mm	l1 mm	l2 mm	l4 mm	Z	price per piece
2.200	2.200	53.00	25.00	12.00	6	○
2.800	2.800	61.00	33.00	15.00	6	○
3.200	3.200	65.00	37.00	16.00	6	○
4.000	4.000	75.00	47.00	19.00	6	●
4.500	4.500	80.00	52.00	21.00	6	○
5.000	5.000	86.00	58.00	23.00	6	●
5.500	5.600	93.00	57.00	26.00	6	○
6.000	5.600	93.00	57.00	26.00	6	●
6.500	6.300	101.00	65.00	28.00	6	○
7.000	7.100	109.00	73.00	31.00	6	●
8.000	8.000	117.00	81.00	33.00	6	●
9.000	9.000	125.00	85.00	36.00	6	●
10.000	10.000	133.00	93.00	38.00	6	●
11.000	10.000	142.00	102.00	41.00	6	●
12.000	10.000	151.00	111.00	44.00	6	●
13.000	10.000	151.00	111.00	44.00	6	●
14.000	12.500	160.00	115.00	47.00	8	●
15.000	12.500	162.00	117.00	50.00	8	●
16.000	12.500	170.00	125.00	52.00	8	●
18.000	14.000	182.00	137.00	56.00	8	○
20.000	16.000	195.00	147.00	60.00	8	○

High speed steel reamers

Machine reamers

Catalog no. 72660



Short bevel lead, 45°.

For all ferrous and non-ferrous metals, as well as for hard and soft plastics. For blind and through holes in small batch and mass production. For interrupted holes, e.g. holes with key ways, intersection holes and similar, we recommend catalogue no. 72670.

DIN 208

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

Machine reamers

Catalog no. 72670



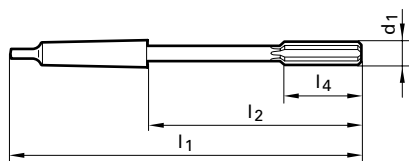
Short bevel lead, 45°.

For all ferrous and non-ferrous metals, as well as for hard and soft plastics. For through holes in small batch or mass production.

DIN 208

Tool material	HSS-E
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

Machine reamers



Catalog no.						72660	72670
Tool material						HSS-E	
Discount group						105	105
Surface						bright	bright
Form						A	B
d1	MT	l1	l2	l4	Z	price per piece	
mm		mm	mm	mm			
5.000	1	133.00	67.50	23.00	6		●
6.000	1	138.00	72.50	26.00	6		●
7.000	1	150.00	84.50	31.00	6		●
8.000	1	156.00	90.50	33.00	6	○	●
9.000	1	162.00	96.50	36.00	6	○	●
10.000	1	168.00	102.50	38.00	6	○	●
11.000	1	175.00	109.50	41.00	6	○	●
12.000	1	182.00	116.50	44.00	6	○	●
13.000	1	182.00	116.50	44.00	6	○	●
14.000	1	189.00	123.50	47.00	8	○	●
15.000	2	204.00	124.00	50.00	8	○	●
16.000	2	210.00	130.00	52.00	8	○	●
17.000	2	214.00	134.00	54.00	8	○	●
18.000	2	219.00	139.00	56.00	8	○	●
19.000	2	223.00	143.00	58.00	8	○	●
20.000	2	228.00	148.00	60.00	8	○	●
21.000	2	232.00	152.00	62.00	8	○	●
22.000	2	237.00	157.00	64.00	8	○	●
23.000	2	241.00	161.00	66.00	8	○	●
24.000	3	268.00	169.00	68.00	8	○	●
25.000	3	268.00	169.00	68.00	8	○	●
26.000	3	273.00	174.00	70.00	8	○	●
27.000	3	277.00	178.00	71.00	10		●
28.000	3	277.00	178.00	71.00	10	○	●
29.000	3	281.00	182.00	73.00	10		●
30.000	3	281.00	182.00	73.00	10	○	●
31.000	3	285.00	186.00	75.00	10		●
32.000	4	317.00	193.00	77.00	10		●
33.000	4	317.00	193.00	77.00	10		●
34.000	4	321.00	197.00	78.00	10		●

High speed steel reamers

Quick spiral reamers

DIN 212-2

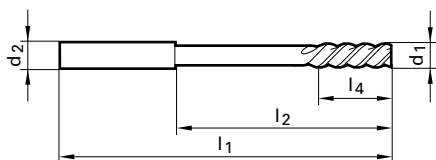
Catalog no. 72690



Taper lead, appr. 1/6 of cutting length tapered.

For steels up to approx. 700 N/mm². For Al- and Al-alloys, copper, soft plastics. For through holes in mass production. Higher cutting feed is recommended (approx. 50%) and 50-100% larger portion to be reamed compared to conventional reamers is necessary.

Tool material	HSS-E
Surface	bright
Type	
Form	C
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	45° LH spiral



Catalog no.	72690
Tool material	HSS-E
Discount group	105
Surface	bright
Form	C

d1	d2	l1	l2	l4	Z	price per piece
mm	mm	mm	mm	mm		
4.000	4.000	75.00	47.00	19.00	3	●
4.500	4.500	80.00	52.00	21.00	3	●
5.000	5.000	86.00	58.00	23.00	3	●
5.500	5.600	93.00	57.00	26.00	3	●
6.000	5.600	93.00	57.00	26.00	3	●
7.000	7.100	109.00	73.00	31.00	3	●
8.000	8.000	117.00	81.00	33.00	3	●
9.000	9.000	125.00	85.00	36.00	3	●
10.000	10.000	133.00	93.00	38.00	3	●
12.000	10.000	151.00	111.00	44.00	3	●
13.000	10.000	151.00	111.00	44.00	3	●

High speed steel reamers

Machine bridge reamers

DIN 311

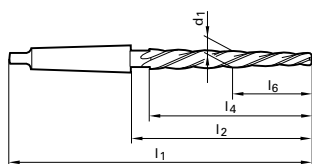
Catalog no. 72680



Long taper lead 1:10.

For all ferrous and non-ferrous metals, hard and soft plastics. Correct hole displacement of sandwiched sheet metal parts to the required hole Ø (e.g. for rivets and screws). Mainly used in the steel construction, boiler, vessel and ship building industries. Tool with high metal removal rate. Also suitable for slow rotating hand drilling machines.

Tool material	HSS
Surface	nitrided
Type	
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	25° LH spiral



Catalog no.	72680
Tool material	HSS
Discount group	105
Surface	nitrided
Form	

d1 mm	MT	l1 mm	l2 mm	l4 mm	l6 mm	Z	price per piece
9.500	1	166.00	104.00	90.00	27.00	4	○
10.000	1	171.00	109.00	95.00	30.00	4	○
12.000	2	199.00	124.00	105.00	39.00	4	○
13.000	2	199.00	124.00	105.00	39.00	4	○
14.000	2	209.00	134.00	115.00	42.00	5	○
17.000	3	251.00	157.00	135.00	51.00	5	○
19.000	3	261.00	167.00	145.00	58.00	5	○
20.000	3	271.00	177.00	155.00	62.00	5	○
27.000	3	311.00	217.00	195.00	78.00	5	○
36.000	4	364.00	246.50	220.00	88.00	5	○
37.000	4	364.00	246.50	220.00	88.00	5	○

High speed steel reamers

Taper pin reamers

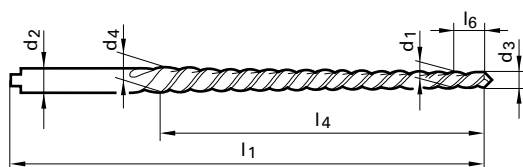
DIN 2179

Catalog no. 72741



For all ferrous and non-ferrous metals, for hard and soft plastics. For small batch productions and repairs. For reaming of holes to suit taper pins (DIN 1, 258, 7977 and 7978). Pre-drilling: cylindrical.

Tool material	HSS-E
Surface	bright
Type	taper 1:50
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	45° LH spiral



Catalog no.	72741
Tool material	HSS-E
Discount group	105
Surface	bright
Form	

d1 mm	d2 mm	d3 mm	d4 mm	l1 mm	l4 mm	l6 mm	Z	price per piece
2.000	3.150	1.900	2.860	86.00	48.00	5.00	3	○
3.000	4.000	2.900	4.060	100.00	58.00	5.00	3	○
4.000	5.000	3.900	5.260	112.00	68.00	5.00	3	○
5.000	6.300	4.900	6.360	122.00	73.00	5.00	3	○
6.000	8.000	5.900	8.000	160.00	105.00	5.00	3	○
8.000	10.000	7.900	10.800	207.00	145.00	5.00	3	○
10.000	12.500	9.900	13.400	245.00	175.00	5.00	3	○

High speed steel reamers

Taper pin reamers

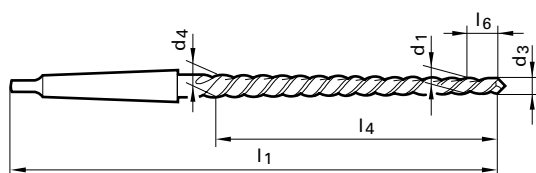
DIN 2180

Catalog no. 72742



For all ferrous and non-ferrous metals, for hard and soft plastics. For small batch productions and repairs. For reaming of holes to suit taper pins (DIN 1, 258, 7977 and 7978). Pre-drilling: cylindrical.

Tool material	HSS-E
Surface	bright
Type	taper 1:50
Form	
Cutting direction	right-hand
Tolerance on Ø	
Flutes	45° LH spiral



Catalog no.	72742
Tool material	HSS-E
Discount group	105
Surface	bright
Form	

d1 mm	MT	d3 mm	d4 mm	l1 mm	l4 mm	l6 mm	Z	price per piece
8.000	1	7.900	10.800	227.00	145.00	5.00	3	○
10.000	1	9.900	13.400	257.00	175.00	5.00	3	○
12.000	2	11.800	16.000	315.00	210.00	10.00	3	○
14.000	2	13.860	17.740	295.00	194.00	10.00	3	○
16.000	2	15.800	20.400	335.00	230.00	10.00	3	○

High speed steel reamers

Hand taper reamers

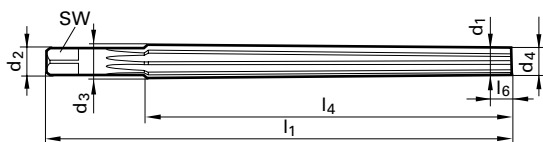
DIN 9

Catalog no. 72730



For all ferrous and non-ferrous metals, for hard and soft plastics. For small batch productions and repairs. For reaming of holes to suit taper pins (DIN 1, 258, 7977 and 7978). Pre-drilling: cylindrical.

Tool material	HSS
Surface	bright
Type	taper 1:50
Form	A
Cutting direction	right-hand
Tolerance on Ø	
Flutes	straight



d1	d2	d3	d4	SW	l1	l4	l6	Z	price per piece
mm	mm	mm	mm		mm	mm	mm		
1.000	3.150	1.460	0.900	2.40	46.00	28.00	5.00	3	●
1.200	3.150	1.740	1.100	2.40	50.00	32.00	5.00	3	●
2.000	3.150	2.860	1.900	2.40	68.00	48.00	5.00	3	●
3.000	4.000	4.060	2.900	3.00	80.00	58.00	5.00	5	●
4.000	5.000	5.260	3.900	3.80	93.00	68.00	5.00	5	●
5.000	6.300	6.360	4.900	4.90	100.00	73.00	5.00	5	●
6.000	8.000	8.000	5.900	6.20	135.00	105.00	5.00	6	●
8.000	10.000	10.800	7.900	8.00	180.00	145.00	5.00	6	●
10.000	12.500	13.400	9.900	10.00	215.00	175.00	5.00	6	●
12.000	14.000	16.000	11.800	11.00	255.00	210.00	10.00	8	●
16.000	18.000	20.400	15.800	14.50	280.00	230.00	10.00	8	●

Catalog no.	72730
Tool material	HSS
Discount group	105
Surface	bright
Form	A

High speed steel reamers

Hand reamers

Catalog no. 72600



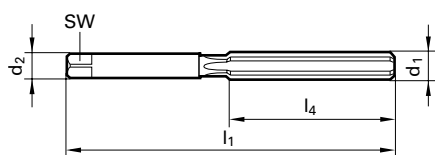
Long taper lead, appr. 1/3 of cutting length tapered.

For all ferrous and non-ferrous metals, for hard and soft plastics. For small batch productions and repairs. Due to long lead not suitable for blind holes. For interrupted holes and similar, we recommend catalogue no. 72610.

DIN 206

Tool material	HSS
Surface	bright
<i>Type</i>	
Form	A
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	straight

Hand reamers



Catalog no.	72600
Tool material	HSS
Discount group	105
Surface	bright
Form	A

d1 mm	d2 mm	SW	l1 mm	l4 mm	Z	price per piece
2.500	2.500	2.10	58.00	29.00	4	○
3.000	3.000	2.40	62.00	32.50	6	○
4.000	4.000	3.00	76.00	38.00	6	○
4.500	4.500	3.40	81.00	41.00	6	○
5.000	5.000	3.80	87.00	44.00	6	○
5.500	5.500	4.30	93.00	47.00	6	○
6.000	6.000	4.90	93.00	47.00	6	○
8.000	8.000	6.20	115.00	58.00	6	○
9.000	9.000	7.00	124.00	62.00	6	○
10.000	10.000	8.00	133.00	66.00	6	○
11.000	11.000	9.00	142.00	71.00	6	○
12.000	12.000	9.00	152.00	76.00	6	○
13.000	13.000	10.00	152.00	76.00	6	○
14.000	14.000	11.00	163.00	81.00	6	○
15.000	15.000	12.00	163.00	81.00	8	○
16.000	16.000	12.00	175.00	87.00	8	○
17.000	17.000	13.00	175.00	87.00	8	○
18.000	18.000	14.50	188.00	93.00	6	○
19.000	19.000	14.50	188.00	93.00	8	○
20.000	20.000	16.00	201.00	100.00	8	○
24.000	24.000	18.00	231.00	115.00	8	○
25.000	25.000	20.00	231.00	115.00	8	○
28.000	28.000	22.00	247.00	124.00	10	○

High speed steel reamers

Hand reamers

Catalog no. 72610



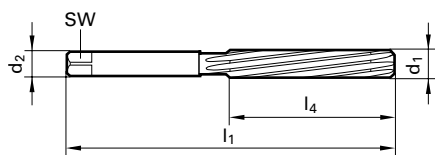
Long taper lead, approx. 1/3 of cutting length tapered.

For all ferrous and non-ferrous metals, for hard and soft plastics. For small batch productions and repairs. For interrupted hole e.g. split workpieces, hole interruptions, intersecting holes and similar. The feed rate is higher than that of the straight-fluted reamer, which generally improves the reaming results. Due to long taper lead not suitable for blind holes.

DIN 206

Tool material	HSS
Surface	bright
<i>Type</i>	
Form	B
Cutting direction	right-hand
Tolerance on Ø	H7
Flutes	7° LH spiral

Hand reamers



Catalog no.	72610
Tool material	HSS
Discount group	105
Surface	bright
Form	B

d1 mm	d2 mm	SW	l1 mm	l4 mm	Z	price per piece
2.000	2.000	1.60	50.00	25.00	4	●
2.800	2.800	2.10	62.00	32.50	6	○
3.000	3.000	2.40	62.00	32.50	6	●
4.000	4.000	3.00	76.00	38.00	6	●
4.500	4.500	3.40	81.00	41.00	6	○
5.000	5.000	3.80	87.00	44.00	6	●
6.000	6.000	4.90	93.00	47.00	6	●
7.000	7.000	5.50	107.00	54.00	6	●
8.000	8.000	6.20	115.00	58.00	6	●
9.000	9.000	7.00	124.00	62.00	6	●
10.000	10.000	8.00	133.00	66.00	6	●
12.000	12.000	9.00	152.00	76.00	6	●
13.000	13.000	10.00	152.00	76.00	6	○
14.000	14.000	11.00	163.00	81.00	8	●
15.000	15.000	12.00	163.00	81.00	8	●
16.000	16.000	12.00	175.00	87.00	8	●
18.000	18.000	14.50	188.00	93.00	8	●
19.000	19.000	14.50	188.00	93.00	6	○
20.000	20.000	16.00	201.00	100.00	8	●
22.000	22.000	18.00	215.00	107.00	8	●
25.000	25.000	20.00	231.00	115.00	8	●

Countersinks

Countersinks 60°

Catalog no. 72326



For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/de-burring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.

DIN 334

Tool material	HSS
Surface	bright
Form	C

Flute form: straight
Relief: axial, radial

Countersinks 60°

Catalog no. 62327

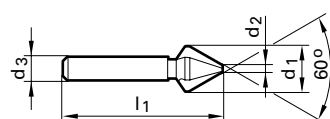


For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/de-burring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.

DIN 334

Tool material	HSS
Surface	TiN
Form	C

Flute form: straight
Relief: axial, radial



Catalog no.	72326	62327
Tool material	HSS	HSS
Discount group	105	105
Surface	bright	TiN
Form	C	C

d1	d2	d3	l1	Z	price per piece
mm	mm	mm	mm		
6.300	1.600	5.000	45.00	3	●
8.000	2.000	6.000	50.00	3	●
12.500	3.200	8.000	56.00	3	●
16.000	4.000	10.000	63.00	3	●
20.000	5.000	10.000	67.00	3	●
25.000	6.300	10.000	71.00	3	●

Countersinks

Countersinks 90°

Catalog no. 72346



For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/de-burring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.

DIN 335

Tool material	HSS
Surface	bright
Form	C

Flute form: straight
Relief: axial, radial

Countersinks 90°

Catalog no. 62347



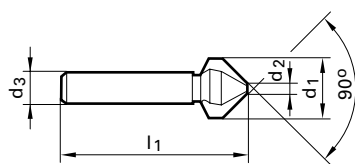
For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/de-burring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.

DIN 335

Tool material	HSS
Surface	TiN
Form	C

Flute form: straight
Relief: axial, radial

Countersinks 90°



Catalog no.	72346	62347
Tool material	HSS	
Discount group	105	105
Surface	bright	TiN
Form	C	C

d1 mm	d2 mm	d3 mm	l1 mm	Z	price per piece	
4.300	1.300	4.000	40.00	3	●	○
5.000	1.500	4.000	40.00	3	●	
5.300	1.500	4.000	40.00	3	●	
5.800	1.500	5.000	45.00	3	●	
6.000	1.500	5.000	45.00	3	●	
6.300	1.500	5.000	45.00	3	●	●
7.000	1.800	6.000	50.00	3	●	
7.300	1.800	6.000	50.00	3	●	○
8.000	2.000	6.000	50.00	3	●	●
8.300	2.000	6.000	50.00	3	●	●
9.400	2.200	6.000	50.00	3	●	●
10.000	2.500	6.000	50.00	3	●	●
10.400	2.500	6.000	50.00	3	●	●
11.500	2.800	8.000	56.00	3	●	●
12.400	2.800	8.000	56.00	3	●	●
13.400	2.900	8.000	56.00	3	●	
15.000	3.200	10.000	60.00	3	●	●
16.500	3.200	10.000	60.00	3	●	●
19.000	3.500	10.000	63.00	3	●	●
20.500	3.500	10.000	63.00	3	●	●
23.000	3.800	10.000	67.00	3	●	
25.000	3.800	10.000	67.00	3	●	●
26.000	3.800	10.000	67.00	3	●	
28.000	4.000	12.000	71.00	3	●	
30.000	4.200	12.000	71.00	3	●	
31.000	4.200	12.000	71.00	3	●	

Countersinks

Countersinks 90°

DIN 335

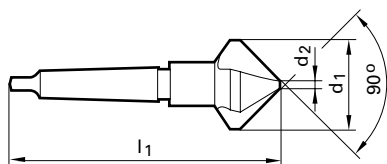
Catalog no. 72356



For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/de-burring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.

Tool material	HSS
Surface	bright
Form	D

Flute form: straight
Relief: axial, radial



Catalog no.	72356
Tool material	HSS
Discount group	105
Surface	bright
Form	D

d1 mm	MT	d2 mm	l1 mm	Z	price per piece
20.500	2	3.500	100.00	3	●
25.000	2	3.800	106.00	3	●
30.000	2	4.200	112.00	3	●
31.000	2	4.200	112.00	3	●
34.000	2	4.500	118.00	3	●
37.000	2	4.800	118.00	3	●
40.000	3	10.000	140.00	3	●
50.000	3	14.000	150.00	3	●
63.000	4	16.000	180.00	3	●
80.000	4	22.000	190.00	3	●

Countersinks

Countersink sets 90°

Catalog no. 72399

Set in case, consisting of Ø 6,3 / 8,3 / 10,4 / 12,4 / 16,5 / 20,5 mm.

For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/deburring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.



DIN 335

Tool material	HSS
Surface	bright
Form	C

Countersink sets 90°

Catalog no. 62399

Set in case, consisting of Ø 6,3 / 8,3 / 10,4 / 12,4 / 16,5 / 20,5 mm.

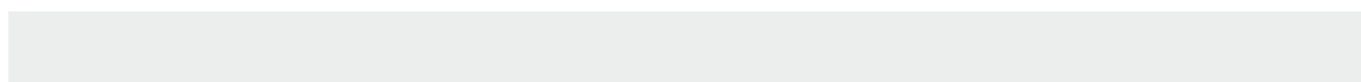
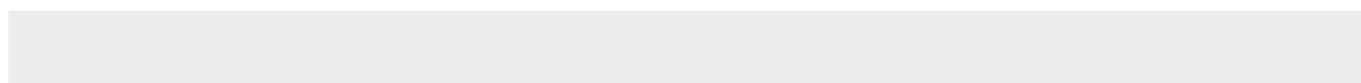
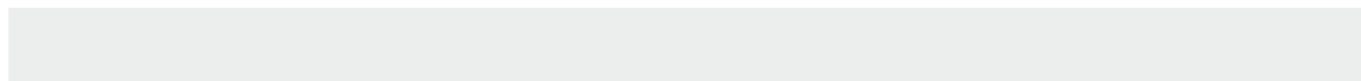
For all ferrous and non-ferrous metals as well as for hard and soft plastics. General purpose chamfering/deburring and countersinking tool, e.g. for tapping size holes. These countersinks are especially suited for their „chatter-free“ operation and are easy to re-sharpen.



DIN 335

Tool material	HSS
Surface	TiN
Form	C

	Catalog no.	72399	62399
	Tool material	HSS	
	Discount group	105	105
	Surface	bright	TiN
	Form	C	C
Code no.	Price per set		
8.000		●	●



Countersinks

Counterbores with fixed pilot for fine tolerances

DIN 373

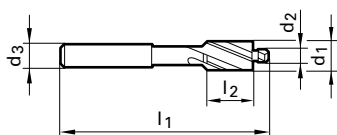
Catalog no. 72304



For clearance holes to DIN ISO 273, in all ferrous and non-ferrous metals, in soft and hard plastics. For small batch or mass production as well as for tool/ die making.

Tool material	HSS
Surface	bright
Form	

Helix angle: standard
Flute form: RH spiral



Catalog no.	72304
Tool material	HSS
Discount group	105
Surface	bright
Form	

d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	Z	thread	price per piece
6.000	3.200	5.000	71.00	14.00	3	M 3	●
8.000	4.300	5.000	71.00	14.00	3	M 4	●
10.000	5.300	8.000	80.00	18.00	3	M 5	●
11.000	6.400	8.000	80.00	18.00	3	M 6	●
15.000	8.400	12.500	100.00	22.00	3	M 8	●
18.000	10.500	12.500	100.00	22.00	3	M10	●
20.000	13.000	12.500	100.00	22.00	3	M12	●

Countersinks

Counterbores with fixed pilot for med. tolerances

DIN 373

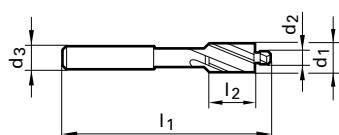
Catalog no. 72305



For clearance holes to DIN ISO 273, in all ferrous and non-ferrous metals, in soft and hard plastics. For small batch or mass production as well as for tool/ die making.

Tool material	HSS
Surface	bright
Form	

Helix angle: standard
Flute form: RH spiral



Catalog no.	72305
Tool material	HSS
Discount group	105
Surface	bright
Form	

d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	Z	thread	price per piece
6.000	3.400	5.000	71.00	14.00	3	M 3	●
8.000	4.500	5.000	71.00	14.00	3	M 4	●
10.000	5.500	8.000	80.00	18.00	3	M 5	●
11.000	6.600	8.000	80.00	18.00	3	M 6	●
15.000	9.000	12.500	100.00	22.00	3	M 8	●
18.000	11.000	12.500	100.00	22.00	3	M10	●

Deburring- and chamfering tools

Deburring end mill 60°

Catalog no. 53393



Deburring- and chamfering-mill to machine the hole entry with a 60° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-60
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6

Deburring end mill 60°

Catalog no. 53394



Deburring- and chamfering-mill to machine the hole entry with a 60° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-60
Spiral angle	0°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53393	53394
Tool material	Solid Carbide	Solid Carbide
Type	SuperAF-60	SuperAF-60
Discount group	117	117
Surface	AlTiN	AlTiN

d1	d2	l1	l2	Z	price per piece	
mm	mm	mm	mm			
4.000	4.000	50.00	22.00	4	●	
6.000	6.000	57.00	21.00	4	●	
8.000	8.000	63.00	27.00	4	●	●
10.000	10.000	72.00	32.00	4	●	●
12.000	12.000	83.00	38.00	4	●	●

Deburring- and chamfering tools

Deburring end mill 90°

Catalog no. 53395



Deburring- and chamfering-mill to machine the hole entry with a 90° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-90
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53395
Tool material	Solid Carbide
Type	SuperAF-90
Discount group	117
Surface	AlTiN

d1	d2	l1	l2	Z	price per piece
mm	mm	mm	mm		
4.000	4.000	50.00	22.00	4	●
6.000	6.000	57.00	21.00	4	●
8.000	8.000	63.00	27.00	4	●
10.000	10.000	72.00	32.00	4	●
12.000	12.000	83.00	38.00	4	●

Deburring- and chamfering tools

Deburring end mill 90°

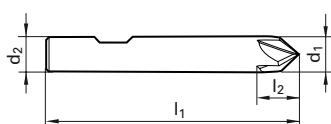
Catalog no. 53396



Deburring- and chamfering-mill to machine the hole entry with a 90° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-90
Spiral angle	0°
Shank form	>=6.0 HB
Cutting direction	right-hand
Tolerance on Ø	js9



Catalog no.	53396
Tool material	Solid Carbide
Type	SuperAF-90
Discount group	117
Surface	AlTiN

d1	d2	l1	l2	Z	price per piece
mm	mm	mm	mm		
4.000	4.000	54.00	9.20	4	●
6.000	6.000	57.00	21.00	4	●
8.000	8.000	63.00	27.00	4	●
10.000	10.000	72.00	32.00	4	●
12.000	12.000	83.00	38.00	4	●

Deburring- and chamfering tools

Deburring end mill 120°

Catalog no. 53397



Deburring- and chamfering-mill to machine the hole entry with a 120° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-120
Spiral angle	0°
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	h6

Deburring end mill 120°

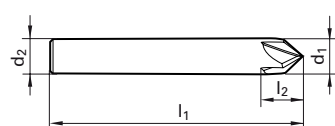
Catalog no. 53398



Deburring- and chamfering-mill to machine the hole entry with a 120° angle

Stock std.

Tool material	Solid Carbide
Surface	AlTiN
Type	SuperAF-120
Spiral angle	0°
Shank form	HB
Cutting direction	right-hand
Tolerance on Ø	h6



Catalog no.	53397	53398
Tool material	Solid Carbide	Solid Carbide
Type	SuperAF-120	SuperAF-120
Discount group	117	117
Surface	AlTiN	AlTiN

d1	d2	l1	l2	Z	price per piece	
mm	mm	mm	mm			
4.000	4.000	50.00	22.00	4	●	
6.000	6.000	57.00	21.00	4	●	
8.000	8.000	63.00	27.00	4	●	●
10.000	10.000	72.00	32.00	4	●	●
12.000	12.000	83.00	38.00	4	●	●

Deburring- and chamfering tools

Front/back deburrer 90°

Catalog no. 52365

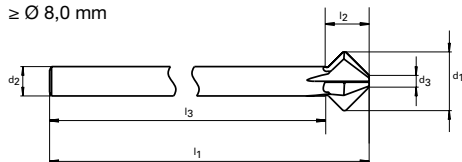


This tool is designed for deburring and chamfering of the hole-entry and -exit with an angle of 90°

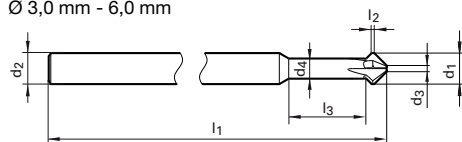
Stock std.

Tool material	Solid Carbide
Surface	AlTiN nano
Type	SuperAD-90
Spiral angle	
Shank form	HA
Cutting direction	right-hand
Tolerance on Ø	

≥ Ø 8,0 mm



Ø 3,0 mm - 6,0 mm



Catalog no.

52365

Tool material

Solid Carbide

Type

SuperAD-90

Discount group

120

Surface

AlTiN nano

d1 h8 mm	d2 h6 mm	d3 mm	d4 mm	l1 mm	l2 mm	l3 mm	price per piece
3.000	4.000	0.600	2.200	75.00	0.50	9.40	●
4.000	4.000	0.800	2.900	75.00	0.50	12.40	●
5.000	5.000	1.000	3.900	75.00	0.50	15.00	●
6.000	6.000	1.200	3.900	100.00	0.50	14.30	●
8.000	6.000	1.600		100.00	0.50	59.00	●
10.000	6.000	2.000		100.00	0.50	53.00	●
12.000	6.000	2.400		100.00	0.50	46.00	●

Deburring- and chamfering tools

Deburring forks

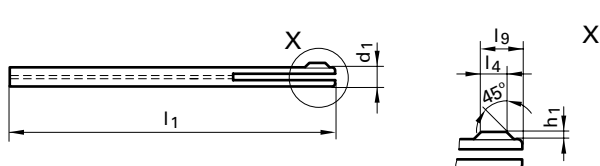
Catalog no. 52360



This tool is designed for deburring the hole-entry and -exit as well as cross holes.

Stock std.

Tool material	Solid Carbide
Surface	bright
Type	SuperE-U
Spiral angle	
Shank form	cyl.
Cutting direction	right-hand
Tolerance on Ø	

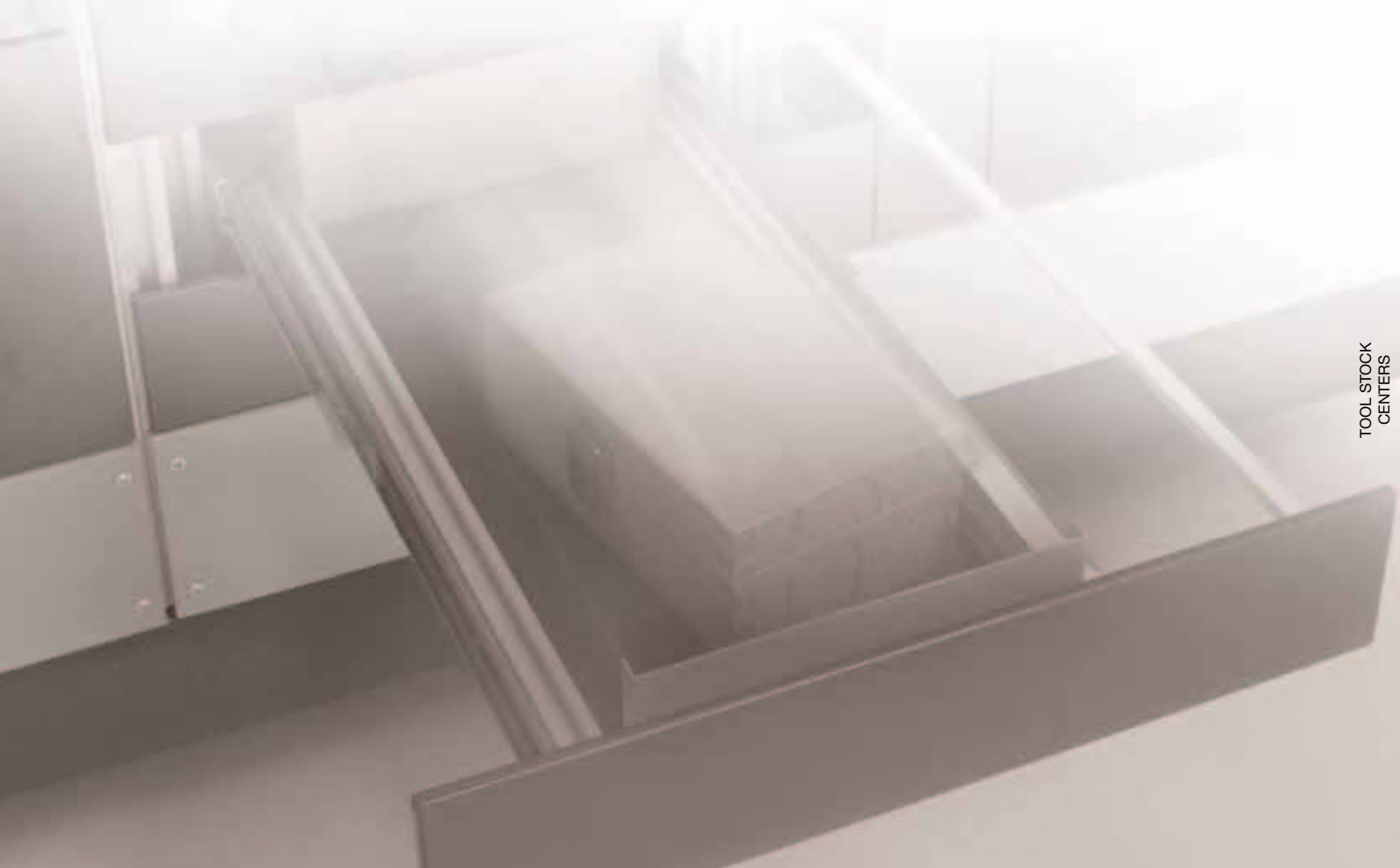


Catalog no.	52360
Tool material	Solid Carbide
Type	SuperE-U
Discount group	120
Surface	bright

Nom. Ø mm	d1 mm	for Ø-range mm	l1 mm	l4 mm	l9 mm	h1 mm	price per piece
2.000	1.900	1,91 - 2,15	80.00	1.00	2.05	0.35	●
2.250	2.100	2,16 - 2,40	80.00	1.50	2.60	0.40	●
2.500	2.400	2,41 - 2,70	80.00	1.50	2.90	0.40	●
2.750	2.600	2,71 - 2,90	90.00	1.50	2.95	0.45	●
3.000	2.900	2,91 - 3,25	90.00	2.00	3.65	0.45	●
3.500	3.200	3,26 - 3,60	90.00	2.00	3.80	0.60	●
4.000	3.600	3,61 - 4,25	90.00	2.00	4.10	0.70	●
4.500	4.200	4,26 - 4,75	90.00	2.50	4.60	0.70	●
5.000	4.700	4,76 - 5,30	100.00	2.50	4.85	0.75	●
5.500	5.200	5,31 - 5,80	100.00	2.50	4.85	0.75	●
6.000	5.600	5,81 - 6,20	110.00	3.00	5.80	0.80	●
6.500	6.000	6,21 - 6,70	110.00	3.00	5.90	0.90	●
7.000	6.500	6,71 - 7,10	110.00	3.00	5.85	0.85	●
7.500	6.900	7,11 - 7,60	110.00	3.50	6.95	0.95	●
8.000	7.300	7,61 - 8,05	110.00	3.50	7.00	1.00	●



TOOL STOCK CENTERS



TSC - Tool STOCK Center

Intelligent tool management - 24 h / 7 days!

Now you can concentrate on your own core activities, Stock does not only supply high-tech cutting tools but also offers intelligent systems to store, manage and distribute tools:

- **TSC mini - Tool STOCK Center mini**
- **TSC midi - Tool STOCK Center midi**

The main advantages of the TSC are:

- all stored items are controlled available 24hrs
- EDP-supported management of the inventory
- permanent monitoring function of consumption (protocolled)
- electronically locked compartments
- easy handling due to the TSC-software
- administration of measuring instruments and reworked tools
- high storage capacity
- simple structure of the drawers
- lockable compartments with flaps (on request)
- administration of regrinding tools
- online/network-connection possible
- interface to almost all ERP-systems
- modular expandable
- implementation of third-party items
- administration of external stock areas possible



TSC midi



TSC mini

Examples of usage

The adaptability of TSC is very comprehensive in respect of individual demands for the usage. There are no limits to extend the systems with different modules..



the TSC finds its place nearly everywhere



Adequate extensions on demand available



drawer with 10 spirals for 100% access-control



extension-module for long items such as gun drills.



There is no better way to store/administrate Stock-tools

The TSC Software - Basis



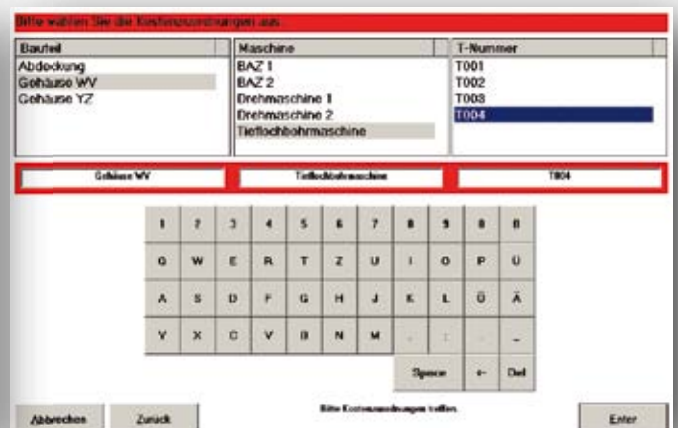
optimization of the storage due to stock-customization



safe choice thanks to visual information



administration for components as well as for stock lists

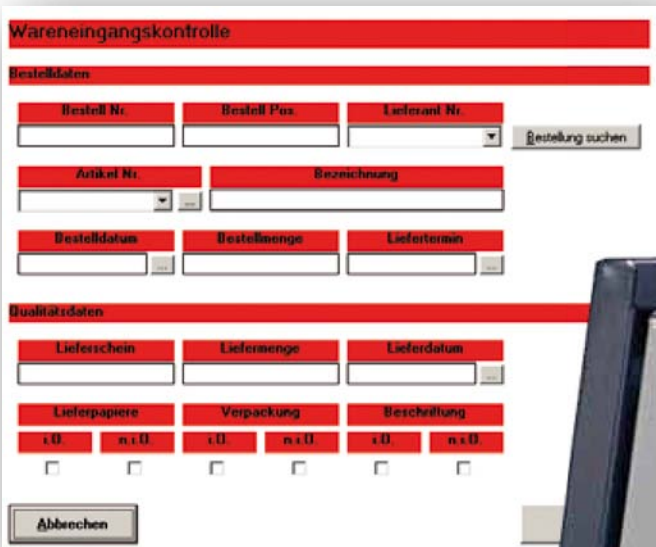


cost-allocation on upto 5 levels

The TSC Software - additional modules

The identical software for all TSC gains you the following advantages:

- continuous monitoring of tool consumption (recording all tool movement data)
- allocation of tooling costs to cost groups (i.e. cost centers, components)
- ABC-analysis, i.e. cost centres/cost units, tools
- interfaces to external WWS/ERP-systems
- online connection to suppliers via the Internet
- return transfer of tools
- administration of reworked tools (dispensing of reworked tool prior to new tool)
- open system (can include several suppliers)
- administration of tools not in the machine
- re-grind administration
- measuring gauge and instrument administration, i.e. calibration
- personnel awareness regarding tool cost (i.e. by displaying tool cost)
- PC, touch-screen and barcode-scanner are integrated in the TSC Tool STOCK Centers



Goods inward inspection for certified companies



Vendor rating



Individual customized software-modules



TSC mini

The basic system ist the Tool STOCK Center mini. It offers the following facilities:

- electronically locking tool dispensing system made of robust sheet steel
- drawers fully extractable (max. load per drawer 180 kg)
- dividers for individual drawer compartments
- option of lockable storage compartments for individual drawers
- Stock TSC software
- operation via touch-screen monitor and barcode-scanner
- online connection to one or several suppliers via the Internet
- interfaces to external WWS/ERP-systems
- PC with MS Windows XP operating system
- system expandable via additional modules

The TSC mini offers the following specific advantages:

- transparency regarding tool consumption, cost allocation and stock control
- 24 hour-controlled tool availability
- prevention of production stoppages through monitoring minimum stock levels
- reduction in stocking and administration costs
- personnel awareness regarding tool costs (i.e. by displaying tool costs)
- open system (can include several suppliers)
- datas can be applied in other ERP/PPS systems



Partition/compartment examples

Lockable compartments



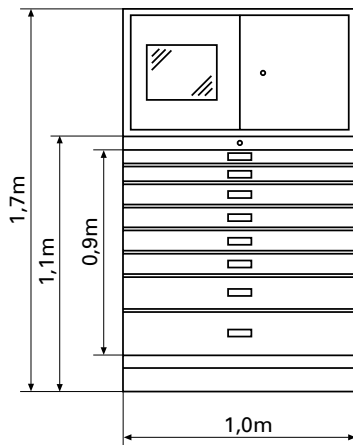
Non-slip mat



Channel sets



Options and dimensions



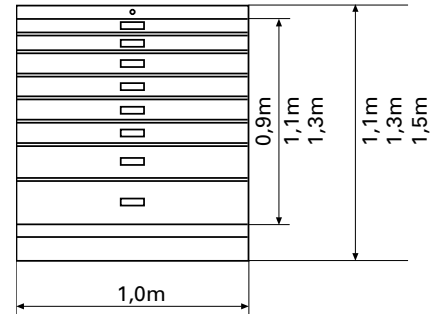
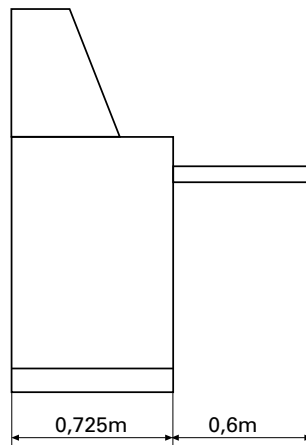
Base unit TSC mini

Width:

1.0 m

Height:

1.1 m + 0.6 m (control unit)



Additional unit TSC mini

Width:

1.0 m

Height:

1.1 m / 1.3 m / 1.5 m

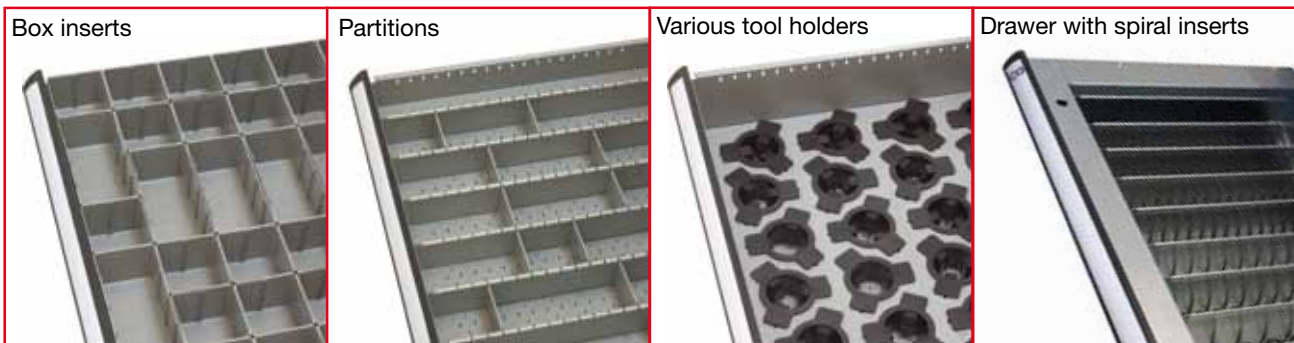
- Drawer height:
75 mm / 100 mm / 125 mm / 200 mm / 250 mm / 300 mm
- Drawer and compartment accessories:
 - non-slip mats
 - channel sets
 - box inserts
 - partitions
 - various tool holding systems
 - electronically locking storage compartments, available in 75 mm (effective height 50 mm), 100 mm (effective height 75 mm) or 175 mm (effective height 125 mm) with the following no. of compartments and dimensions:

Compartments per drawer	Dimensions box		Partition	
	Width	Length	Width	Length
48	109 mm	x 75 mm	8	x 6
40	109 mm	x 95 mm	8	x 5
32	109 mm	x 125 mm	8	x 4
36	146 mm	x 75 mm	6	x 6
24	146 mm	x 125 mm	6	x 4
18	146 mm	x 175 mm	6	x 3

Compartments per drawer	Dimensions box		Partition	
	Width	Length	Width	Length
24	220 mm	x 75 mm	4	x 6
20	220 mm	x 95 mm	4	x 5
16	220 mm	x 125 mm	4	x 4
12	440 mm	x 75 mm	2	x 6
8	440 mm	x 125 mm	2	x 4

* Drawer height available only in 100 mm.

- Fork lift suitable understructure and detachable front panel, optional: with casters
- Operating voltage: 230 V / 50 Hz



TSC midi

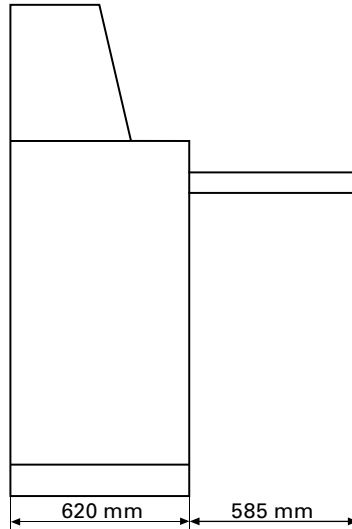
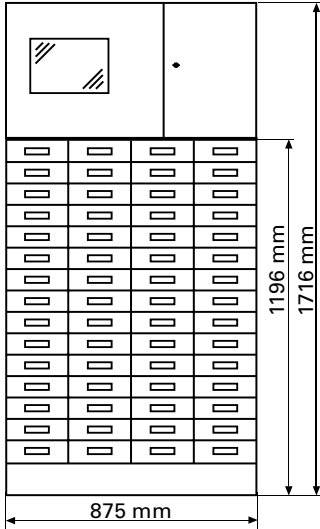
Additional to the TSC mini, the TSC midi offers the following features:

- low costs for the start
- 100% control/security for all stored items
- flexible sizes of drawers in height and width
- open and flexible system



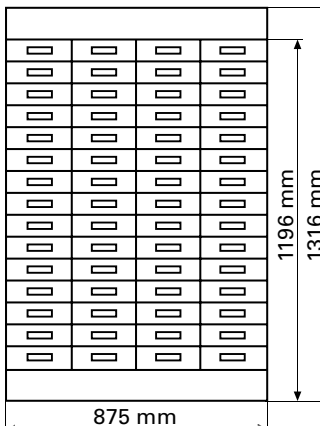
Options and dimensions

Available drawer widths:: 150 mm / 200 mm / 300 mm



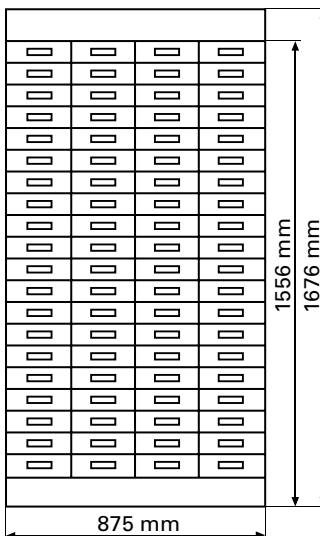
TSC midi Basic unit:

- Version 1:** 15 levels of drawers with height 42 mm
- Version 2:** 10 levels of drawers with height 42 mm
4 levels of drawers with height 60 mm
- Version 3:** 5 levels of drawers with height 42 mm
8 levels of drawers with height 60 mm
- Version 4:** 12 levels of drawers with height 60 mm



TSC midi extension unit 1300 mm

- Version 1:** 15 levels of drawers with height 42 mm
- Version 2:** 10 levels of drawers with height 42 mm
4 levels of drawers with height 60 mm
- Version 3:** 5 levels of drawers with height 42 mm
8 levels of drawers with height 60 mm
- Version 4:** 12 levels of drawers with height 60 mm



TSC midi extension unit 1500 mm

- Version 1:** 20 levels of drawers with height 42 mm
- Version 2:** 15 levels of drawers with height 42 mm
4 levels of drawers with height 60 mm
- Version 3:** 10 levels of drawers with height 42 mm
8 levels of drawers with height 60 mm
- Version 4:** 5 levels of drawers with height 42 mm
12 levels of drawers with height 60 mm
- Version 5:** 16 levels of drawers with height 60 mm

Every extension unit can be combined with the basic unit!

Colours

We also manufacture the TSC in your specific colours:



examples

CHARTS

		pre inch	mm	min. mm F1	max. mm X1	min. mm	max. mm
Nr. 1	- 64	40,68	1,67	1,70	1,425	1,5	
Nr. 2	- 56	1,98	1,97	2,01	1,694	1,7	
Nr. 3	- 48	2,28	2,27	2,32	1,941	2,0	
Nr. 4	- 40	2,55	2,54	2,59	2,157	2,2	
Nr. 5	- 40	2,90	2,89	2,94	2,487	2,5	
Nr. 6	- 32	3,15	3,14	3,19	2,642	2,7	
Nr. 8	- 32	3,80	3,78	3,82	3,302	3,4	
Nr. 10	- 24	4,35	4,33	4,39	3,683	3,8	
Nr. 12	- 24	5,00	4,97	5,03	4,343	4,5	
1/4	- 20	5,75	5,72	5,80	4,978	5,1	
5/16	- 18	7,30	7,26	7,37	6,401	6,6	
3/8	- 16	8,80	8,77	8,88	7,798	8,0	
7/16	- 14	10,30	10,27	10,37	9,14	9,4	
1/2	- 13	11,80	11,77	11,88	10,59	10,9	
9/16	- 12	13,30	13,28	13,39	11,98	12,3	
5/8	- 11	14,80	14,78	14,90	13,3	13,7	
3/4	- 10	17,90	17,85	17,97	16,3	16,7	
7/8	- 9	21,00	20,95	21,10	19,3	19,7	
1	- 8	24,00	23,95	24,12	21,3	21,7	

Tool materials

The most important carbide grades

Description	Co-content [M-%]	Tungsten carbide grain size [µm]	Hardness [HV]	ISO classification [ISO 513]	Characteristics
DK460UF	10	0.5	1620	K20-K40 coated: P, M20-M40, H, S, N25	A carbide grade with a wide range of application possibilities. It is applied, mostly coated, for the machining of steel, soft Al alloys, cast iron as well as "super alloys" such as Inconel 718. This grade is the backbone of our carbide production.
DK500UF	12	0.5	1680	K25 coated: P, M, H, S, N25	This grade has been especially developed for hard machining. It possesses a higher hardness and deformation tolerance in comparison to DK460UF. Due to the high Co-content, a coated application is strongly recommended.
DK255F	8	0.7	1720	K20 coated: P, M, H, S, N20	This grade is recommended for hard machining, the machining of high tensile grey cast iron and hard AlSi-alloys. Dry machining is possible. A coated application is preferable.
DK120	6	1.3	1620	K15 coated: N15	This grade is especially suitable for the application with diamond coating.
DK120UF	7	0.5	1850	K05	Ultra fine grain type offering extreme wear resistance, suitable for absolutely rigid machines, preferred for reamers.
K55SF	9	0.2 -0.5	1920	K10-K30	For application with high wear resistant materials, stainless steels, composite materials such as Kevlar and GRP, high speed machining and dry machining.
DK400N	10	0.7	1580	K35M coated: P, M, S, N35M	An extremely tough grade for the machining of high heat resistant metals.

High speed steels

Only high quality tool materials are used to produce HSS tools. Systematic selection of alloying elements ensure the tool possesses the optimal characteristics for the individual tasks.

Tungsten, Molybdenum: increase tempering- and wear-resistance

Vanadium: increases wear-resistance of finishing tools

Cobalt: enables increased hardening temperatures and improves heat-resistance.

Description	German steel descript.	Material no. (steel code)	Range of application	Comparable steels					
				USA	France	Italy	Great Britain	China	Japan
HSS	HS 6-5-2 (DMo5)	1.3343	standard tool material for most common applications	M 2	Z 90 WDCV 06-05-04-02	HS 6-5-2	BM 2	W6Mo5 Cr4V2	SKH51
HSCO	HS 6-5-2-5 (EMo5Co5)	1.3243	high heat-resistance, especially suited for roughing or when coolant insufficient	M 35	Z 90 WDKCV 06-05-05-04-02	HS 6-5-2-5	BM 35	W6Mo5 Cr4V2Co5	SKH55
HSS-E			high friction resistance and cutting edge stability, especially important for reaming operations	M 3	Z 120 WDCV 06-05-04-03	HS 6-5-3	–	W6Mo5 Cr4V3	SKH52
M42	HS 2-9-1-8	1.3247	increased heat resistance and hardness, suitable for difficult-to-machine materials	M 42	Z 110 DKCWV 09-08-04-02-01	HS 2-9-1-8	BM 42	W2Mo9Cr4 VCo8	SKH59
HSS-E									
HSS-E-PM	10-2-5-8 PM52	1.3253	high hardness, heat-resistance and cutting edge stability, very dense structure	–					
	HS 6-5-3-8 PM30	1.3294							

Surface refining processes, coating

Basic properties

bright

High speed steel or carbide tools generally offer good basic properties even without surface refinement or coating. In addition, bright tools from our standard range are the base for a cost-efficient coating according to customers specification

steam nitrided

nitrided lands

This finish is recommended for the machining of grey cast iron, aluminium with a high silicon content, plastics, steels with a high perlite content etc. Our tools are nitrided using different application orientated processes.


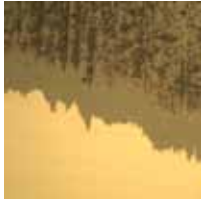

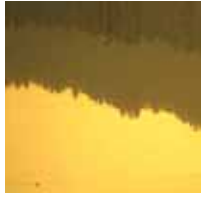

Surface refining processes

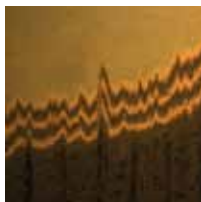


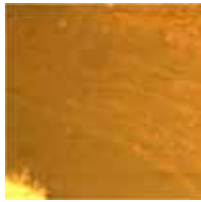

For special application cases a surface refinement is recommended that improves the wear-resistance as well as the gliding properties and decreases the welding tendency. Because hard or soft material coatings provide much better results, surface refinement is increasingly losing importance.

steam tempered

Steam tempered tools can prevent cold welding that can occur when machining low-carbon steels. However, they are only suitable for the machining of ferrous materials.

Coatings

	AlTiN	AlTiN + AlTiN nano	TiCN	DLC	Diamond
					
Colour	violet	grey-violet	grey-violet	black	anthrazite
Hardness	3200 HV	3400 HV	3000 HV	> 6000 HV	> 8000 HV
Friction coefficient	0.55	0.6	0.4	< 0.1	< 0.1
Max. application temperature	< 800°	< 900°	< 400°	< 700°	< 700°
Thermal expansion	$7.2 \cdot 10^{-6} / K$	$6.9 \cdot 10^{-6} / K$	–	$3 \cdot 10^{-6} / K$	$1.1 \cdot 10^{-6} / K$
Brief description	Hard coating for abrasive applications, HPC and MQL	Hard coating for difficult and hard machining, HPC as well as MQL	Tough hard coating	Extremely hard coating	Extremely hard diamond coating

	TiAlN/ TiAlN nano	AlCrN	TiN	TiAlSiN	CrN
					
Colour	violet	grey-blue	golden-yellow	bronze-red	grey-metallic
Hardness	3300 HV	3200 HV	2300 HV	5500 HV	3500 HV
Friction coefficient	0.6	0.35	0.5	0.55	0.6
Max. application temperature	< 800°	< 1100°	< 600°	< 800°	< 1000°
Thermal expansion	–	$6.4 \cdot 10^{-6} / K$	$9.3 \cdot 10^{-6} / K$	$7.5 \cdot 10^{-6} / K$	–
Brief description	Wear-resistant multi-layer coating, also for MQL	Wear-resistant coating with high oxidation resistance and temperature hardness	Cost-efficient standard coating	Extremely hard, heat-resistant multi-layer coating	Hard, high heat-resistant coating

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
1.0711	9 S 20	220 M 07	-	SUM 21	1212
1.0715	9 SMn 28	230 M 07	-	SUM 22	1213
1.0718	9 SMnPb 28	-	-	SUM 22 L	12 L 13
1.0721	10 S 20	210 M 15	-	-	1108
1.0722	10 SPb 20	-	-	-	11 L 08
1.0723	15 S 20	210 A 15	-	SUM 32	-
1.0736	9 SMn 36	240 M 07	1B	-	1215
1.0737	9 SMnPb 36	-	-	-	12 L 14
1.0726	35 S 20	212 M 36	8M	-	1140
1.0727	45 S 20	212 M 44	-	-	1146
1.0728	60 S 20	-	-	-	-
1.0037	St 37-2	-	-	STKM 12 C	-
1.0044	St 44-2	4360-43 B	-	SM 41 B	A 570 Gr. 40
1.0116	St 37-3	4360-40 C	-	-	A 573 Gr. 58
1.0144	St 44-3	4360-43 C	-	SM 41 C	A 573 Gr. 70
1.0050	St 50-2	4360-50 B	-	SS 50	A 570 Gr. 50
1.0570	St 52-3	4360-50 B	-	SM 50 YA	-
1.0060	St 60-2	4360-SSE; SS	-	SM 58	-
1.5415	15 Mo 3	1501-240	-	-	A 204 Gr. A
1.5423	16 Mo 5	1503-245-420	-	-	4520
1.5622	14 Ni 6	-	-	-	A 350-LF 5
1.5680	12 Ni 19	-	-	-	2515
1.7335	13 CrMo 4 4	1501-620 Gr.	-	-	A 182-F11; F12
1.7337	16 CrMo 4 4	1501-620 Gr.	-	-	A 387 Gr. 12 C
1.7380	10 CrMo 9 10	1501-622 Gr.	-	-	A 182-F22
1.7709	21 CrMoV 5 7	-	-	-	-
1.7715	14 MoV 6 3	1503-660-440	-	-	-
1.7735	14 CrMoV 6 9	-	-	-	-
1.0904	55 Si 7	250 A 53	45	-	9255
1.0961	60 SiCr 7	-	-	SUP 7	9262
1.1231	CK 67	060 A 67	-	-	1070
1.1248	CK 75	060 A 78	-	-	1078; 1080
1.1274	CK 101	060 A 96	-	SUP 4	1095
1.7103	67 SiCr 5	-	-	-	-
1.7176	55 Cr 3	527 A 60	48	SUP 9 (A)	5155
1.8159	50 CrV 4	735 A 50	47	SUP 10	6150
1.0301	C 10	045 M 10	-	S 10 C	1010
1.0401	C 15	080 M 15	-	-	1015
1.1121	CK 10	045 M 10	-	S 10 C; S 9 CK	1010
1.1141	CK 15	080 M 15	32C	S 15 C; S 15 CK	1015
1.7012	13 Cr 2	-	-	-	-
1.7015	15 Cr 3	523 M 15	-	SCR 415 (H)	5015
1.5732	14 NiCr 10	-	-	SNC 415 (H)	3415
1.5752	14 NiCr 14	655 M 13	36A	SNC 815 (H)	3310; 9314
1.5860	14 NiCr 18	-	-	-	-
1.5919	15 CrNi 6	S 107	-	-	-
1.5920	18 NiCr 8	-	-	-	-
1.6523	21 NiCrMo 2	805 M 20	362	SNCM 220 (H)	8620
1.6587	17 CrNiMo 6	820 A 16	-	-	-
1.7131	16 MnCr 5	527 M 17	-	SCR 415	5115
1.7139	16 MnCrS 5	-	-	-	-
1.7147	20 MnCr 5	-	-	SMnC 420 (H)	5120
1.7149	20 MnCrS 5	-	-	-	-
1.7262	15 CrMo 5	-	-	SCM 415 (H)	-
1.7264	20 CrMo 5	-	-	SCM 421	-
1.7271	23 CrMoB 3 3	-	-	-	-
1.7311	20 CrMo 2	-	-	-	-
1.7321	20 MoCr 4	-	-	-	-
1.7323	20 MoCrS 4	-	-	-	-
1.7325	25 MoCr 4	-	-	-	-
1.7326	25 MoCrS 4	-	-	-	-
1.8504	34 CrAl 6	-	-	-	-
1.8506	34 CrAlS 5	-	-	-	-
1.8507	34 CrAlMo 5	905 M 31	-	-	A 355 Cl. D
1.0038	RSt37-2	4360 40C	1A	STKM 12A;C	A570.36

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
1.0402	C22	050 A 20	2C	-	1020
1.5026	55 Si 7	250 A 53	-	-	9255
1.8509	41 CrAlMo 7	905 M 39	41B	SACM 645	A 355 Cl. A
1.8515	31 CrMo 12	722 M 24	-	-	-
1.8519	31 CrMoV 9	-	-	-	-
1.8521	15 CrMoV 5 9	-	-	-	-
1.8523	39 CrMoV 13 9	897 M 39	40C	-	-
1.8550	34 CrAlNi 7	-	-	-	-
1.0402	C 22	050 A 20	2D	-	1020
1.0406	C 25	070 M 26	-	-	1025
1.0501	C 35	060 A 35	-	-	1035
1.0503	C 45	080 M 46	-	-	1045
1.0511	C 40	-	-	-	1040
1.0528	C 30	-	-	-	-
1.1151	Ck 22	050 A 20	-	S 20 C; S 20 CK	1023
1.1158	Ck 25	070 M 26	-	S 25 C	1025
1.1178	Ck 30	-	-	-	-
1.1181	Ck 35	080 M 36	-	S 35 C	1035
1.1186	Ck 40	080 M 40	-	S 40 C	1040
1.1191	Ck 45	080 M 46	-	S 45 C	1045
1.0535	C 55	070 M 55	-	-	1055
1.0540	C 50	-	-	-	-
1.0601	C 60	080 A 62	43D	-	1060
1.1203	Ck 55	070 M 55	-	S 55 C	1055
1.1206	Ck 50	080 M 50	-	-	1050
1.1221	Ck 60	080 A 62	43D	S 58 C	1060
1.1133	20 Mn 5	120 M 19	-	-	1022; 1518
1.3505	100 Cr 6	534 A 99	31	SUJ 2	52100
1.5120	38 MnSi 4	-	-	-	-
1.5121	46 MnSi 4	-	-	-	-
1.5141	53 MnSi 4	-	-	-	-
1.5710	36 NiCr 6	640 A 35	111A	SNC 236	3135
1.6546	40 NiCrMo	311-Type7	-	SNCM 240	8740
1.6565	40 NiCrMo	311-Type6	-	SNCM 439	4340
1.7003	38 Cr 2	-	-	-	-
1.7006	46 Cr 2	-	-	-	5045
1.7020	32 Cr 2	-	-	-	-
1.7030	28 Cr 4	530 A 30	-	-	5130
1.7033	34 Cr 4	530 A 32	18B	SCr 430 (H)	5132
1.7218	25 CrMo 4	1717 CDS 110	-	SCM 420; SCM	4130
1.7220	34 CrMo 4	708 A 37	19B	SCM 432; SCCrM	4135; 4137
1.7223	41 CrMo 4	708 M 40	19A	SCM 440	4142; 4140
1.7225	42 CrMo 4	708 M 40	19A	SCM 440	4142; 4140
1.7228	50 CrMo 4	708 A 47	-	SCM 445 (H)	4150
1.1157	40 Mn 4	150 M 36	15	-	1039
1.1165	30 Mn 5	120 M 36	-	SMn 433 H; SCMn	1330
1.1167	36 Mn 5	150 M 36	-	SMn 438 H; SCMn	1335
1.1170	28 Mn 5	150 M 28	14A	SCMn 1	1330
1.3561	44 Cr 2	-	-	-	-
1.3563	43 CrMo 4	-	-	-	-
1.3565	48 CrMo 4	817 M 40	-	SNC 836	-
1.5120	38 MnSi 4	-	-	-	-
1.5121	46 MnSi 4	-	-	-	-
1.5122	37 MnSi 4	-	-	-	-
1.5131	50 MnSi4	-	-	-	-
1.5141	53 MnSi 4	-	-	-	-
1.5223	42 MnV 7	-	-	-	-
1.5710	36 NiCr 6	640 A 35	111A	SNC 236	3135
1.5736	36 NiCr 10	-	-	SNC 631 (H)	3435
1.5755	31 NiCr 14	653 M 31	-	SNC 836	-
1.6511	36 CrNiMo	816 M 40	110	SNC 836	9840
1.6513	28 NiCrMo	-	-	-	-
1.7003	38 Cr 2	-	-	-	-
1.7006	46 Cr 2	-	-	-	5045
1.7030	28 Cr 4	530 A 30	-	-	5130

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
1.7033	34 Cr 4	530 A 32	18B	SCr 430 (H)	5132
1.7034	37 Cr 4	530 A 36	-	SCr 435 (H)	5135
1.7035	41 Cr 4	530 M 40	18	SCr 440 (H)	5140
1.7218	25 CrMo 4	1717 CDS 110	-	SCM 420; SCM 430	4130
1.7220	34 CrMo 4	708 A 37	19B	SCM 432; SCCrM 3	4135; 4137
1.7223	41 CrMo 4	708 M 40	19A	SCM 440	4142; 4140
1.7225	42 CrMo 4	708 M 40	19A	SCM 440	4142; 4140
1.7228	50 CrMo 4	708 A 47	-	SCM 445 (H)	4150
1.7561	42 CrV 6	-	-	-	-
1.7735	14 CrMoV 6 9	-	-	-	-
1.8159	50 CrV 4	735 A 50	47	SUP 10	6150
1.3563	43 CrMo 4	-	-	-	-
1.3565	48 CrMo 4	817 M 40	-	SNC 836	-
1.5120	38 MnSi 4	-	-	-	-
1.5121	46 MnSi 4	-	-	-	-
1.5122	37 MnSi 4	-	-	-	-
1.5223	42 MnV 7	-	-	-	-
1.5710	36 NiCr 6	640 A 35	111A	SNC 236	3135
1.5736	36 NiCr 10	-	-	SNC 631 (H)	3435
1.5864	35 NiCr 18	-	-	-	-
1.6511	36 CrNiMo 4	816 M 40	110	SNC 836	9840
1.6580	30 CrNiMo 8	823 M 30	-	SNCM 431	-
1.6582	34 CrNiMo 6	817 M 40	24	SNCM 447	4340
1.7033	34 Cr 4	530 A 32	18B	SCr 430 (H)	5132
1.7034	37 Cr 4	530 A 36	-	SCr 435 (H)	5135
1.7035	41 Cr 4	530 M 40	18	-	5140
1.7045	42 Cr 4	530 A 40	-	2245	5140
1.7218	25 CrMo 4	1717 CDS 110	-	2225	4130
1.7220	34 CrMo 4	708 A 37	19B	2234	4135; 4137
1.7223	41 CrMo 4	708 M 40	19A	2244	4142; 4140
1.7225	42 CrMo 4	708 M 40	19A	2244	4142; 4140
1.7228	50 CrMo 4	708 A 47	-	-	4150
1.7361	32 CrMo 12	722 M 24	40B	2240	-
1.7561	42 CrV 6	-	-	-	-
1.7707	30 CrMoV 9	-	-	-	-
1.7735	14 CrMoV 6 9	-	-	-	-
1.8159	50 CrV 4	735 A 50	47	2230	6150
1.8161	58 CrV 4	-	-	-	-
1.1520	C 70 W1	-	-	-	-
1.1525	C 80 W1	-	-	-	W 108
1.1545	C 105 W1	-	-	-	W 110
1.1620	C 70 W2	-	-	-	-
1.1625	C 80 W2	BW 1B	-	-	W 1
1.1645	C105 W2	-	-	-	-
1.1654	C 110 W	-	-	-	-
1.1663	C 125 W	-	-	-	W 112
1.1673	C 135 W	-	-	-	-
1.1730	C 45 W	-	-	-	-
1.1740	C 60 W	-	-	-	-
1.1744	C 67 W	-	-	-	-
1.1750	C 75 W	BW 1A	-	-	W 1
1.1820	C 55 W	-	-	-	-
1.1830	C 85 W	-	-	-	-
1.2067	100 Cr 6	BL 3	-	-	L 3
1.2101	62 SiMnCr 4	-	-	-	-
1.2103	58 SiCr 8	-	-	-	-
1.2108	90 CrSi 5	-	-	-	-
1.2162	21 MnCr 5	-	-	-	-
1.2210	115 CRV 3	-	-	-	L 2
1.2330	35 CrMo 4	708 A 37	-	2234	4135
1.2332	47 CrMo 4	709 M 40	-	2244	4142
1.2419	105 WCr 6	-	-	-	-
1.2510	100 MnCrW 4	BO 1	-	2140	O 1
1.2516	120 W 4	BF 1	-	-	-
1.2542	45 WCrV 7	BS 1	-	2710	S 1

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
1.2550	60 WCrV 7	-	-	-	-
1.2721	50 NiCr 13	-	-	-	-
1.2735	15 NiCr 14	-	-	SNC 22	-
1.2762	75 CrMoNiW 6 7	-	-	-	-
1.2826	60 MnSiCr 4	-	-	-	-
1.2833	100 V 1	BW 2	-	SKS 43	W 210
1.2842	90 MnCrV 8	BO 2	-	-	O 2
1.2080	X 210 Cr 12	BD 3	-	SKD 1	D 3
1.2341	X 6 CrMo 4	-	-	-	-
1.2363	X 100 CrMoV 5 1	BA 2	-	SKD 12	A 2
1.2379	X 155 CrVMo12 1	BD 2	-	SKD 11	D 2
1.2436	X 210 CrW 12	-	-	SKD 2	-
1.2601	X 165 CrMoV 12	-	-	-	-
1.2311	40 CrMnMo 7	-	-	-	-
1.2312	40 CrMnMoS 8 6	-	-	-	-
1.2711	54 NiCrMoV 6	-	-	-	-
1.2713	55 NiCrMoV 6	-	-	SKT 4	L 6
1.2738	40 CrMnNiMo 8	-	-	-	-
1.2744	57 NiCrMoV 77	-	-	-	-
1.2764	X 19 NiCrMo 4	-	-	-	-
1.2767	X 45 NiCrMo 4	-	-	-	-
1.2083	X 42 Cr 13	-	-	SUS 420 J 2	-
1.2343	X 38 CrMoV 5 1	BH 11	-	SKD 6	H 11
1.2344	X 40 CrMoV 5 1	BH 13	-	SKD 61	H 13
1.2365	X 32 CrMoV 3 3	BH 10	-	SKD 7	H 10
1.2567	X 30 WCrV 5 3	-	-	SKD 4	-
1.2581	X 30 WCrV 9 3	BH 21	-	SKD 5	H 21
1.2885	X 32 CrMoV 3 3 3	-	-	-	-
1.2316	X 36 CrMo 17	-	-	-	-
1.0420	GS-38	-	-	-	-
1.1118	GS-24 Mn 6	-	-	-	-
1.1120	GS-20 Mn 5	-	-	-	-
1.5419	GS-22 Mo 4	-	-	-	-
1.5633	GS-24 Ni 8	-	-	-	-
1.5681	GS-10 Ni 19	-	-	-	-
1.6309	GS-20 Mn MoNi 5 5	-	-	-	-
1.6582	GS-34 CrNiMo 6	-	24	-	-
1.6748	GS-40 NiCrMo 6 5 6	-	-	-	-
1.4311	X 2 CrNiN 18 10	304 S 62	-	SUS 304 LN	304 LN
1.4401	X 5 CrNiMo 18 10	316 S 16	58J	SUS 316	316
1.4404	X 2 CrNiMo 17 13 2	316 S 11	-	SUS 316 L	316 L
1.4406	X 2 CrNiMoN 17 12 2	316 S 61	58C	SUS 316 LN	316 LN
1.4429	X 2 CrNiMoN 17 13 3	316 S 62	-	SUS 316 LN	316 LN
1.4435	X 2 CrNiMo 18 14 3	317 S 12	-	SCS 16; SUS 316	316 L
1.4436	X 5 CrNiMo 17 13 3	316 S 16	-	SUS 316	316
1.4438	X 2 CrNiMo 18 16 4	317 S 12	-	SUS 317 L	317 L
1.4460	X 8 CrNiMo 27 5	-	-	SUS 329 J 1	329
1.4462	X 2 CrNiMoN 22 5	-	-	-	-
1.4541	X 6 CrNiTi 18 10	321 S 12	58B	SUS 321	321
1.4542	X 5 CrNiCuNb 17 14	-	-	SCS 124; SUS 630	630
1.4546	X 5 CrNiNb 18 10	347 S 18	-	-	348
1.4550	X 6 CrNiNb 18 10	347 S 17	58F	SUS 347	347
1.4571	X 6 CrNiMoTi 17 12 2	320 S 31	58J	-	316 Ti
1.4580	X 6 CrNiMoNb 17 12 2	318 S 17	-	-	316 Cb
1.4301	X 5 CrNi 18 9	304 S 15	58E	SUS 304	304; 304 H
1.4303	X 5 CrNi 18 12	305 S 19	-	SUS 305	308; 305
1.4305	X 10 CrNiS 18 9	303 S 21	58M	SUS 303	303
1.4306	X 2 CrNi 19 11	304 S 12	-	SCS 19	304 L
1.4310	X 12 CrNi 17 7	301 S 21	-	SUS 301	301
1.4350	X 5 CrNi18 9	304 S 31	58E	SUS 302	304
1.4573	X 10 CrNiMoTi 18 12	320 S 33	-	-	316 Ti
1.4583	X 10 CrNiMoNb 18 12	-	-	-	318
1.4000	X 6 Cr 13	403 S 17	-	SUS 403	403
1.4002	X 6 CrAl 13	405 S 17	-	SUS 405	405
1.4016	X 6 Cr 17	430 S 15	960	SUS 430	430

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
1.4113	X 6 CrMo 17	434 S 17	-	SUS 434	434
1.4313	X 5 CrNi 13 4	425 C 11	-	SCS 5	CA 6-NM
1.4510	X 6 CrTi 17	-	-	SUS 430 LX	XM 8; 430 Ti
1.4512	X 5 CrTi 12	409 S 19	-	SUH 409	409
1.4005	X 12 CrS 13	416 S 21	-	SUS 416	416
1.4006	X 10 Cr 13	410 S 21	56A	SUS 410	410; CA-15
1.4021	X 20 Cr 13	420 S 37	-	SUS 420 J 1	420
1.4028	X 30 Cr 13	420 S 45	-	SUS 420 J 2	-
1.4031	X 38 Cr 13	-	-	SUS 420 J 2	-
1.4034	X 46Cr 13	420 S 45	56D	SUS 420 J 2	-
1.4057	X 20 CrNi 17 2	431 S 29	57	SUS 431	431
1.4104	X 12 CrMoS 17	-	-	SUS 430 F	430 F
1.4125	X 105 CrMo 17	-	-	SUS 440 C	440 C
1.4742	X 10 CrAl 18	430 S 15	60	SUS 430; SUH	430
1.4747	X 80 CrNiSi 20	443 S 65	59	SUH 4	HNv 6
1.4762	X 10 CrAl 24	-	-	-	446
1.4876	X 10 NiCrAlTi 33	NA 15 (H)	-	NCF 800	B 163
0.6010	GG-10	-	-	FC 10	A48-20 B
0.6015	GG-15	Grade 150	-	FC 15	A48-25 B
0.6020	GG-20	Grade 220	-	FC 20	A48-30 B
0.6025	GG-25	Grade 260	-	FC 25	A48-40 B
0.6030	GG-30	Grade 300	-	FC 30	A48-45 B
0.6035	GG-35	Grade 350	-	FC 35	A48-50 B
0.6040	GG-40	Grade 400	-	-	A48-60 B
0.6655	GGL-NiCuCr 15 6	L-NUC 15 6 2	-	-	A-436 Type 1
0.7040	GGG-40	SNG 420/12	-	FCD 40	60-40-18
0.7050	GGG-50	SNG 500/7	-	FCD 50	65-45-12
0.7060	GGG-60	SNG 600/3	-	FCD 60	80-55-06
0.7070	GGG-70	SNG 700/2	-	FCD 70	100-70-03
0.7080	GGG-80	SNG 800/2	-	-	120-90-02
0.7660	GGG-NiCr 20 2	S-NiCr 20 2	-	-	A 439 Type D-2
0.7661	GGG-NiCr 20 3	S-NiCr 20 3	-	-	A 439 Type D-2B
0.7670	GGG-Ni 22	S-Ni 22	-	-	A 439 Type D-2C
0.7673	GGG-NiMn 23 4	S-NiMn 23 4	-	-	A 439 Type D-2M
0.7676	GGG-NiCr 30 3	S-NiCr 30 3	-	-	A 439 Type D-3
0.7677	GGG-NiCr 30 1	S-NiCr 30 1	-	-	A 439 Type D-3A
0.7680	GGG-NiSiCr 30 5	S-NiSiCr 30 5 5	-	-	A 439 Type D-4
0.7683	GGG-Ni 35	S-Ni 35	-	-	A 439 Type D-5
0.7685	GGG-NiCr 35 3	S-NiCr 35 3	-	-	A 439 Type D-5B
0.8135	GTS-35	B340/12	-	-	32510
0.8145	GTS-45	P440/7	-	-	40010
0.8155	GTS-55	P510/4	-	-	50005
0.8165	GTS-65	P570/3	-	-	70003
0.8170	GTS-70	P690/2	-	-	90001
0.8035	GTW-35	W340/3	-	-	-
3.0225	Al99.5	1B	-	A1x1	-
3.0305	Al99.9	-	-	-	-
3.0505	AlMn0.5Mg0.5	N31	-	-	-
3.0515	AlMn1	N3	-	144054	-
3.0525	AlMn1Mg0.5	-	-	-	-
3.3315	AlMg1	N41	-	A2x8	-
3.3535	AlMg3	N5	-	-	-
3.1325	AlCuMg1	H14	-	-	-
3.1355	AlCuMg2	2L97	-	A3x4	-
3.2315	AlMgSi1	H30	-	-	-
3.3206	AlMgSi0.5	H9	-	A2x5	-
3.3211	AlMg1SiCu	-	-	-	-
3.4345	AlZnMgCu0.5	L86	-	-	7050
3.4365	AlZnMgCu1.5	L87	-	-	7175
-	Al1Mg1SiCrTi	-	-	-	6011
-	Al0.3Cu1Mg0.6SiCr	-	-	-	6061
-	Al1Cu1.1Mg1.4Si0.8Mn	-	-	-	6066
3.2134	G-AlSi5Cu1Mg	-	-	-	-
3.3241	G-AlMg3Si	-	-	-	-
3.3292	GD-AlMg9	-	-	-	-

International comparison of materials

Germany		Great Britain		Japan	USA
Mat. no.	DIN	BS	EN	JIS	AISI/SAE/ASTM
3.3541	GD-AlMg3	-	-	-	-
3.2161	G-AlSi8Cu3	-	-	-	-
3.2373	G-AlSi9Mg	-	-	-	-
3.2381	G-AlSi10Mg	LM9	-	-	-
3.2383	G-AlSi10Mg(Cu)	LM 9	-	-	A 360.2
3.2581	G-AlSi12	LM 6	-	-	A 413.2
2.2583	G-AlSi12(Cu)	LM 20	-	-	A 413.1
2.0240	CuZn15	CZ 102	-	-	C23000
2.0265	CuZn30	CZ 106	-	-	C26000
2.0321	CuZn37	CZ 108	-	-	C27200
2.0335	CuZn36	-	-	-	-
2.0360	CuZn40	-	-	-	-
2.0401	CuZn39Pb3	-	-	-	-
2.1016	CuSn4	-	-	-	-
2.1030	CuSn8	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2.0975	G-CuAl10Ni	-	-	-	-
2.1096.01	G-CuSn5ZnPb	-	-	-	-
2.1090.01	G-CuSn7ZnPb	-	-	-	-
2.1086.01	G-CuSn10Zn	-	-	-	-
2.4360	NiCu30Fe	NA 13	-	-	Monel 400
2.4375	NiCu30Al	NA 18	-	-	Monel K-500
2.4685	G-NiMo28	-	-	-	Hastelloy B
2.4610	NiMo16Cr16Ti	-	-	-	Hastelloy C-4
2.4810	G-NiMo30	-	-	-	Hastelloy C
2.4630, 2.4951	NiCr20Ti	HR 5	-	-	Nimonic 75
2.4631	NiCr20TiAl	HR 401; 601	-	NCF 80 A	Nimonic 80 A
2.4632	NiCr20Co18Ti	-	-	-	Nimonic 90
2.4634	NiCo20Cr15MoAlTi	-	-	-	Nimonic 105
2.4662	NiCr13Mo6Ti3	-	-	-	Nimonic 901
2.4670	-	-	-	-	Nimocast 713
2.4674	-	-	-	-	Nimocast PK 24
2.6554	-	-	-	-	Waspaloy
Hardox 400	-	-	-	-	Hardox 400
Hardox 500	-	-	-	-	Hardox 500
2.4856	NiCr22Mo9Nb	NA 21	-	-	Inconel 625
2.4668	NiCr19FeNbMo	-	-	-	Inconel 718
3.7024	Ti99.5	TA 6	-	-	-
3.7064	Ti99.2	TA 7	-	-	R50400
Ti99.9	Ti99.9	TA 9	-	-	R50700
3.7112	Ti5Al2.5Sn	TA 14/17	-	-	R54520
3.7165	TiAl6V4	TA 28	-	-	R56400
1.4718	X 45 CrSi 9 3	401 S 45	52	SUH 1	HNV 3
1.4828	X 15 CrNiSi 20 12	309 S 24	-	SUH 309	309
1.4841	X 15 CrNiSi 25 20	-	-	SUH 310	314; 310
1.4845	X 12 CrNi 25 21	310 S 24	-	SUH 310; SUS 310 S	310 S
1.4864	X 12 NiCrSi 36 16	NA 17	-	SUH 330	330
1.4871	X 53 CrMnNiN 21 9	349 S 54	-	SUH 35; SUH 36	EV 8
1.4878	X 12 CrNiTi 18 9	321 S 20	-	SUS 321	321

Tapping hole size dias for thread cutting tools

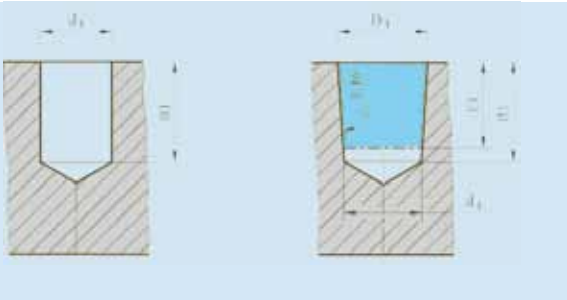
Std. ISO metric threads DIN 13					Std. ISO metric fine threads DIN 13								UNC threads ASME B1.1						
nom.- Ø	pitch P	tapping hole size Ø DIN 336	core diameter of int. thread 6H*		nom.-x Ø	pitch P	tapping hole size Ø DIN 336	core diameter of int. thread 6H*		nom.-x Ø	pitch P	tapping hole size Ø DIN 336	core diameter of int. thread 6H*		nom.- Ø	threads	tapping hole size Ø DIN 336	core diameter of int. thread 2B	
	mm		min. mm	max. mm		mm		min. mm	max. mm		mm		min. mm	max. mm		per inch		min. mm	max. mm
M 1	0.25	0.75	0.729	0.785	M 2.5 x 0.35	2.15	2.121	2.221		M 22 x 1.50	20.50	20.376	20.676		Nr. 1 - 64	1.55	1.425	1.580	
M 1.1	0.25	0.85	0.829	0.885	M 3.0 x 0.35	2.65	2.621	2.721		M 22 x 2.00	20.00	19.835	20.210		Nr. 2 - 56	1.85	1.694	1.872	
M 1.2	0.25	0.95	0.929	0.985	M 3.5 x 0.35	3.15	3.121	3.221		M 24 x 1.00	23.00	22.917	23.153		Nr. 3 - 48	2.10	1.941	2.146	
M 1.4	0.30	1.10	1.075	1.142	M 4.0 x 0.50	3.50	3.459	3.599		M 24 x 1.50	22.50	22.376	22.676		Nr. 4 - 40	2.35	2.157	2.385	
M 1.6	0.35	1.25	1.221	1.321	M 4.5 x 0.50	4.00	3.959	4.099		M 24 x 2.00	22.00	21.835	22.210		Nr. 5 - 40	2.65	2.487	2.698	
M 1.8	0.35	1.45	1.421	1.521	M 5.0 x 0.50	4.50	4.459	4.599		M 25 x 1.00	24.00	23.917	24.153		Nr. 6 - 32	2.85	2.642	2.896	
M 2	0.40	1.60	1.567	1.679	M 5.5 x 0.50	5.00	4.959	5.099		M 25 x 1.50	23.50	23.376	23.676		Nr. 8 - 32	3.50	3.302	3.531	
M 2.2	0.45	1.75	1.713	1.838	M 6.0 x 0.75	5.20	5.188	5.378		M 25 x 2.00	23.00	22.835	23.210		Nr. 10 - 24	3.90	3.683	3.937	
M 2.5	0.45	2.05	2.013	2.138	M 7.0 x 0.75	6.20	6.188	6.378		M 27 x 1.00	26.00	25.917	26.153		Nr. 12 - 24	4.50	4.343	4.597	
M 3	0.50	2.50	2.459	2.599	M 8.0 x 0.50	7.50	7.459	7.599		M 27 x 1.50	25.50	25.376	25.676		1/4 - 20	5.10	4.978	5.258	
M 3.5	0.60	2.90	2.850	3.010	M 8.0 x 0.75	7.20	7.188	7.378		M 27 x 2.00	25.00	24.835	25.210		5/16 - 18	6.60	6.401	6.731	
M 4	0.70	3.30	3.242	3.422	M 8.0 x 1.00	7.00	6.917	7.153		M 28 x 1.00	27.00	26.917	27.153		3/8 - 16	8.00	7.798	8.153	
M 4.5	0.75	3.70	3.688	3.878	M 9.0 x 0.75	8.20	8.188	8.378		M 28 x 1.50	26.50	26.376	26.676		7/16 - 14	9.40	9.144	9.550	
M 5	0.80	4.20	4.134	4.334	M 9.0 x 1.00	8.00	7.917	8.153		M 28 x 2.00	26.00	25.835	26.210		1/2 - 13	10.80	10.592	11.024	
M 6	1.00	5.00	4.917	5.153	M 10 x 0.75	9.20	9.188	9.378		M 30 x 1.00	29.00	28.917	29.153		9/16 - 12	12.20	11.989	12.446	
M 7	1.00	6.00	5.917	6.153	M 10 x 1.00	9.00	8.917	9.153		M 30 x 1.50	28.50	28.376	28.676		5/8 - 11	13.50	13.386	13.868	
M 8	1.25	6.80	6.647	6.912	M 10 x 1.25	8.80	8.647	8.912		M 30 x 2.00	28.00	27.835	28.210		3/4 - 10	16.50	16.307	16.840	
M 9	1.25	7.80	7.647	7.912	M 11 x 0.75	10.20	10.188	10.378		M 30 x 3.00	27.00	26.752	27.252		7/8 - 9	19.50	19.177	19.761	
M 10	1.50	8.50	8.376	8.676	M 11 x 1.00	10.00	9.917	10.153		M 32 x 1.50	30.50	30.376	30.676		1 - 8	22.25	21.971	22.606	
M 11	1.50	9.50	9.376	9.676	M 12 x 1.00	11.00	10.917	11.153		M 32 x 2.00	30.00	29.835	30.210		1 1/8 - 7	25.00	24.638	25.349	
M 12	1.75	10.20	10.106	10.441	M 12 x 1.25	10.80	10.647	10.912		M 33 x 1.50	31.50	31.376	31.676		1 1/4 - 7	28.00	27.813	28.524	
M 14	2.00	12.00	11.835	12.210	M 12 x 1.50	10.50	10.376	10.676		M 33 x 2.00	31.00	30.835	31.210		1 3/8 - 6	30.75	30.353	31.115	
M 16	2.00	14.00	13.835	14.210	M 14 x 1.00	13.00	12.917	13.153		M 33 x 3.00	30.00	29.752	30.252		1 1/2 - 6	34.00	33.528	34.290	
M 18	2.50	15.50	15.294	15.744	M 14 x 1.25	12.80	12.647	12.912		M 35 x 1.50	33.50	33.376	33.676		1 3/4 - 5	39.50	38.938	39.802	
M 20	2.50	17.50	17.294	17.744	M 14 x 1.50	12.50	12.376	12.676		M 36 x 1.50	34.50	34.376	34.676		2 - 4.5	45.00	44.679	45.593	
M 22	2.50	19.50	19.294	19.744	M 15 x 1.00	14.00	13.917	14.153											
M 24	3.00	21.00	20.752	21.252	M 15 x 1.50	13.50	13.376	13.676											
M 27	3.00	24.00	23.752	24.252	M 16 x 1.00	15.00	14.917	15.153											
M 30	3.50	26.50	26.211	26.771	M 16 x 1.25	14.80	14.647	14.912											
M 33	3.50	29.50	29.211	29.771	M 16 x 1.50	14.50	14.376	14.676											
M 36	4.00	32.00	31.670	32.270	M 17 x 1.00	16.00	15.917	16.153											
M 39	4.00	35.00	34.670	35.270	M 17 x 1.50	15.50	15.376	15.676											
M 42	4.50	37.50	37.129	37.799	M 18 x 1.00	17.00	16.917	17.153											
M 45	4.50	40.50	40.129	40.799	M 18 x 1.50	16.50	16.376	16.676											
M 48	5.00	43.00	42.587	43.297	M 20 x 1.00	19.00	18.917	19.153											
M 52	5.00	47.00	46.587	47.297	M 20 x 1.50	18.50	18.376	18.676											
M 56	5.50	50.50	50.046	50.796	M 20 x 2.00	18.00	17.835	18.210											
					M 22 x 1.00	21.00	20.917	21.153											

* M 1,1 To M 1,4 core diameter of int. thread 5H

MJ-threads DIN ISO 5855					UNJC-threads ISO 3161					UNJF-threads ISO 3161					
nom.- Ø	x	pitch P	tapping hole size Ø	core diameter of int. thread 5H*		nom.- Ø	threads	tapping hole size Ø	core diameter of int. thread 3B		nom.- Ø	threads	tapping hole size Ø	core diameter of int. thread 3B	
		mm	mm	min. mm	max. mm		per inch	mm	min. mm	max. mm		per inch	mm	min. mm	max. mm
MJ 3	x	0.50	2.60	2.513	2.653	Nr. 6	- 32	2.85	2.733	2.939	Nr. 6	- 40	3.00	2.888	3.053
MJ 4	x	0.70	3.40	3.318	3.498	Nr. 8	- 32	3.55	3.393	3.599	Nr. 8	- 36	3.60	3.480	3.663
MJ 5	x	0.80	4.30	4.221	4.421	Nr. 10	- 24	4.00	3.795	4.064	Nr. 10	- 32	4.20	4.054	4.255
MJ 6	x	0.50	5.55	5.513	5.625	Nr. 12	- 24	4.60	4.455	4.704	Nr. 12	- 28	4.75	4.602	4.816
MJ 6	x	0.75	5.35	5.269	5.419	1/4	- 20	5.30	5.113	5.387	1/4	- 28	5.60	5.466	5.662
MJ 6	x	1.00	5.10	5.026	5.216	5/16	- 18	6.75	6.563	6.833	5/16	- 24	7.00	6.906	7.109
MJ 8	x	0.50	7.55	7.513	7.625	3/8	- 16	8.20	7.978	8.255	3/8	- 24	8.60	8.494	8.679
MJ 8	x	0.75	7.35	7.269	7.419	7/16	- 14	9.60	9.346	9.639	7/16	- 20	10.00	9.876	10.084
MJ 8	x	1.00	7.10	7.026	7.216	1/2	- 13	11.00	10.798	11.095	1/2	- 20	11.60	11.463	11.661
MJ 8	x	1.25	6.90	6.782	6.994	9/16	- 12	12.40	12.228	12.482	9/16	- 18	13.00	12.913	13.122
MJ 10	x	1.00	9.10	9.026	9.216	5/8	- 11	13.80	13.627	13.904	5/8	- 18	14.60	14.501	14.702
MJ 10	x	1.25	8.90	8.782	8.994										
MJ 10	x	1.50	8.60	8.539	8.775										
MJ 12	x	1.75	10.40	10.295	10.560										
MJ 16	x	2.00	14.20	14.051	14.351										
* MJ 3 x 0,50 to MJ 5 x 0,80 core diameter of int. thread 6H															

* MJ 3 x 0,50 to MJ 5 x 0,80 core diameter of int. thread 6H

UNF-threads ASME B1.1					BSW-(Whitworth)- thread BS84					(Whitworth-) BSP threads (to DIN-ISO 228-1)					Steel armoured conduit threads to DIN 40430				
nom.- threads Ø		tapping hole size Ø DIN 336 mm	core diameter of int. thread 2B		nom.- threads Ø		tapping hole size Ø	core diameter of int. thread		nom.- threads Ø		tapping hole size Ø DIN 336 mm	core diameter of int. thread		nom.- threads Ø		tapping hole size Ø	core diameter of int. thread	
per inch			min. mm	max. mm	inch	per inch	mm	min. mm	max. mm	inch	per inch		min. mm	max. mm	per inch		mm	min. mm	max. mm
Nr.	1 - 72	1.55	1.473	1.610	W 1/16	60	1.20	1.045	1.230	G 1/16	28	6.80	6.561	6.843	Pg 7	20	11.40	11.280	11.430
Nr.	2 - 64	1.85	1.755	1.910	W 3/32	48	1.80	1.704	1.912	G 1/8	28	8.80	8.566	8.848	Pg 9	18	14.00	13.860	14.010
Nr.	3 - 56	2.15	2.024	2.197	W 1/8	40	2.50	2.362	2.591	G 1/4	19	11.80	11.445	11.890	Pg 11	18	17.30	17.260	17.410
Nr.	4 - 48	2.40	2.271	2.459	W 5/32	32	3.20	2.952	3.214	G 3/8	19	15.25	14.950	15.395	Pg 13.5	18	19.00	19.060	19.210
Nr.	5 - 44	2.70	2.550	2.741	W 3/16	24	3.60	3.407	3.745	G 1/2	14	19.00	18.631	19.172	Pg 16	18	21.30	21.160	21.310
Nr.	6 - 40	2.95	2.819	3.023	W 7/32	24	4.50	4.201	4.539	G 5/8	14	21.00	20.587	21.128	Pg 21	16	26.90	26.780	27.030
Nr.	8 - 36	3.50	3.404	3.607	W 1/4	20	5.10	4.724	5.156	G 3/4	14	24.50	24.117	24.658	Pg 29	16	35.50	35.480	35.730
Nr.	10 - 32	4.10	3.962	4.166	W 5/16	18	6.50	6.130	6.590	G 7/8	14	28.25	27.877	28.418	Pg 36	16	45.50	45.480	45.730
Nr.	12 - 28	4.60	4.496	4.724	W 3/8	16	7.90	7.492	7.987	G 1	11	30.75	30.291	30.931	Pg 42	16	52.50	52.480	52.730
	1/4 - 28	5.50	5.359	5.588	W 7/16	14	9.20	8.789	9.330	G 1 1/8	11	35.50	34.939	35.579	Pg 48	16	57.80	57.780	58.030
	5/16 - 24	6.90	6.782	7.036	W 1/2	12	10.50	9.989	10.591	G 1 1/4	11	39.50	38.952	39.592					
	3/8 - 24	8.50	8.382	8.636	W 9/16	12	12.00	11.577	12.179	G 1 1/2	11	45.25	44.845	45.485					
	7/16 - 20	9.90	9.728	10.033	W 5/8	11	13.50	12.918	13.558	G 1 3/4	11	51.00	50.788	51.428					
	1/2 - 20	11.50	11.328	11.608	W 3/4	10	16.25	15.797	16.483	G 2	11	57.00	56.656	57.296					
	9/16 - 18	12.90	12.751	13.081	W 7/8	9	19.25	18.611	19.353										
	5/8 - 18	14.50	14.351	14.681	W 1	8	22.00	21.334	22.147										
	3/4 - 16	17.50	17.323	17.678	W 1 1/8	7	24.50	23.928	24.832										
	7/8 - 14	20.40	20.269	20.650	W 1 1/4	7	27.75	27.103	28.007										
	1 - 12	23.25	23.114	23.571	W 1 3/8	6	30.50	29.504	30.528										
	1 1/8 - 12	26.50	26.289	26.746	W 1 1/2	6	33.50	32.679	33.703										
	1 1/4 - 12	29.50	29.464	29.921	W 1 5/8	5	35.50	34.769	35.963										
	1 3/8 - 12	32.75	32.639	33.096	W 1 3/4	5	39.00	37.944	39.138										
	1 1/2 - 12	36.00	35.814	36.271	W 2	4.5	44.50	43.571	44.877										

NPT ANSI B 2.1 American tapered pipe thread 1:16						
Version A (to avoid if possible)	Version B	nom.- threads Ø per inch	tapp. hole Ø cyl. (A) d ₁	core diameter conical (B) D ₁	cutting depth ET mm	drill depth BT (min) mm
		1/16 - 27	6.15	6.39	9.29	10.7
		1/8 - 27	8.40	8.74	9.32	10.8
		1/4 - 18	11.10	11.36	13.52	15.6
		3/8 - 18	14.30	14.80	13.83	16.0
		1/2 - 14	17.90	18.32	18.07	20.8
		3/4 - 14	23.30	23.67	18.55	21.3
		1 - 11.5	29.00	29.69	22.29	25.6
		1 1/4 - 11.5	37.70	38.45	22.80	26.1
		1 1/2 - 11.5	43.70	44.52	22.80	26.1
		2 - 11.5	55.60	56.56	23.20	26.5
		2 1/2 - 8	66.30	67.62	31.75	36.3
		3 - 8	82.30	83.52	33.74	38.5

EG-threads Metr./Metr. fine (EG M 14 x 1,25) for wire thread inserts DIN 8140					EG UNC (UNC-STI) threads for wire thread inserts ASME B18.29.1					EG UNF (UNF-STI) threads for wire thread inserts ASME B18.29.1				
nom.- Ø	x pitch P	tapping hole size Ø	core diameter of int. thread		nom.- Ø	threads	tapping hole size Ø	core diameter of int. thread		nom.- Ø	threads	tapping hole size Ø	core diameter of int. thread	
	mm	mm	min. mm	max. mm		per inch	mm	min. mm	max. mm		per inch	mm	min. mm	max. mm
EG M 4	0.70	4.20	4.152	4.292	EG Nr. 6	- 32	3.80	3.678	3.879	EG Nr. 6	- 40	3.70	3.644	3.818
EG M 5	0.80	5.25	5.174	5.334	EG Nr. 8	- 32	4.40	4.338	4.524	EG Nr. 8	- 36	4.40	4.321	4.498
EG M 6	1.00	6.30	6.217	6.407	EG Nr. 10	- 24	5.20	5.055	5.283	EG Nr. 10	- 32	5.10	4.999	5.184
EG M 8	1.25	8.40	8.271	8.483	EG Nr. 12	- 24	5.80	5.715	5.944	EG Nr. 12	- 28	5.70	5.682	5.809
EG M10	1.50	10.50	10.324	10.560	EG 1/4	- 20	6.70	6.624	6.868	EG 1/4	- 28	6.60	6.546	6.721
EG M12	1.75	12.50	12.379	12.644	EG 5/16	- 18	8.40	8.242	8.489	EG 5/16	- 24	8.25	8.166	8.352
EG M14 x 1.25		14.40	14.271	14.483	EG 3/8	- 16	10.00	9.868	10.127	EG 3/8	- 24	9.80	9.754	9.931
EG M16	2.00	16.50	16.433	16.733	EG 7/16	- 14	11.60	11.506	11.783	EG 7/16	- 20	11.50	11.389	11.585
					EG 1/2	- 13	13.30	13.122	13.393	EG 1/2	- 20	13.10	12.974	13.172
					EG 9/16	- 12	14.90	14.747	15.032	EG 9/16	- 18	14.70	14.592	14.798
					EG 5/8	- 11	16.50	16.375	16.673	EG 5/8	- 18	16.25	16.180	16.386

Recommended hole size dias for cold forming taps

Std. ISO metric threads DIN 13							Std. ISO metric fine threads DIN 13													
nom.- Ø	pitch P	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread 7H*		nom.--x Ø	pitch P	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread 7H*		nom.--x Ø	pitch P	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread 7H*	
mm		mm	min. mm	max. mm	min. mm	max. mm	mm		mm	min. mm	max. mm	min. mm	max. mm	mm		mm	min. mm	max. mm	min. mm	max. mm
M 2	0.40	1.85	1.84	1.88	1.567	1.679	M 2.5 x 0.35	2.35	2.35	2.38	2.121	2.221	M 17 x 1.50	16.30	16.26	16.38	15.376	15.751		
M 2.2	0.45	2.00	2.01	2.05	1.713	1.838	M 3 x 0.35	2.85	2.85	2.88	2.621	2.721	M 18 x 1.00	17.55	17.52	17.62	16.917	17.217		
M 2.5	0.45	2.30	2.28	2.32	2.013	2.138	M 4 x 0.35	3.85	3.85	3.88	3.621	3.721	M 18 x 1.50	17.30	17.26	17.38	16.376	16.751		
M 3	0.50	2.80	2.78	2.85	2.459	2.639	M 4 x 0.50	3.80	3.78	3.83	3.459	3.639	M 18 x 2.00	17.10	17.05	17.20	15.835	16.310		
M 3.5	0.60	3.25	3.23	3.30	2.850	3.050	M 5 x 0.50	4.80	4.78	4.83	4.459	4.639	M 20 x 1.00	19.55	19.52	19.62	18.917	19.217		
M 4	0.70	3.70	3.68	3.76	3.242	3.466	M 5.5 x 0.50	5.30	5.28	5.33	4.959	5.139	M 20 x 1.50	19.30	19.26	19.38	18.376	19.751		
M 4.5	0.75	4.20					M 6 x 0.75	5.65	5.62	5.70	5.188	5.424	M 24 x 1.00	23.55	23.52	23.62	22.917	23.217		
M 5	0.80	4.65	4.62	4.71	4.134	4.384	M 7 x 0.75	6.65	6.62	6.70	6.188	6.424	M 24 x 1.50	23.30	23.26	23.38	22.376	22.751		
M 6	1.00	5.55	5.52	5.62	4.917	5.217	M 8 x 0.75	7.65	7.62	7.70	7.188	7.424	M 24 x 2.00	23.10	23.05	23.20	21.835	22.310		
M 7	1.00	6.55	6.52	6.62	5.917	6.217	M 8 x 1.00	7.55	7.52	7.62	6.917	7.217	M 27 x 1.50	26.30	26.26	26.38	25.376	25.751		
M 8	1.25	7.40	7.36	7.47	6.647	6.982	M 9 x 0.75	8.65	8.62	8.70	8.188	8.424	M 30 x 1.50	29.30	29.26	29.38	28.376	28.751		
M 9	1.25	8.40	8.36	8.47	7.647	7.982	M 9 x 1.00	8.55	8.52	8.62	7.917	8.217	M 33 x 1.50	32.30	32.26	32.38	31.376	31.751		
M 10	1.50	9.30	9.26	9.38	8.376	8.751	M 10 x 0.75	9.65	9.62	9.70	9.188	9.424	M 36 x 1.50	35.30	35.26	35.38	34.376	34.751		
M 11	1.50	10.30	10.26	10.38	9.376	9.751	M 10 x 1.00	9.55	9.52	9.62	8.917	9.217	M 39 x 1.50	38.30	38.26	38.38	37.376	37.751		
M 12	1.75	11.20	11.15	11.29	10.106	10.531	M 10 x 1.25	9.40	9.36	9.47	8.647	8.982	M 42 x 1.50	41.30	41.26	41.38	40.376	40.751		
M 14	2.00	13.10	13.05	13.20	11.835	12.310	M 11 x 0.75	10.65	10.62	10.70	10.188	10.424								
M 16	2.00	15.10	15.05	15.20	13.835	14.310	M 11 x 1.00	10.55	10.52	10.62	9.917	10.217								
M 18	2.50	16.90	16.83	17.02	15.294	15.854	M 12 x 1.00	11.55	11.52	11.62	10.917	11.217								
M 20	2.50	18.90	18.83	19.02	17.294	17.854	M 12 x 1.25	11.40	11.36	11.47	10.647	10.982								
M 22	2.50	20.90	20.83	21.02	19.294	19.854	M 12 x 1.50	11.30	11.26	11.38	10.376	10.751								
M 24	3.00	22.70	22.62	22.80	20.752	21.382	M 14 x 1.00	13.55	13.52	13.62	12.917	13.217								
M 27	3.00	25.70	25.62	25.80	23.752	24.382	M 14 x 1.25	13.40	13.36	13.47	12.647	12.982								
M 30	3.50	28.50	28.40	28.60	26.211	26.921	M 14 x 1.50	13.30	13.26	13.38	12.376	12.751								
M 33	3.50	31.50	31.40	31.60	29.211	29.921	M 15 x 1.00	14.55	14.52	14.62	13.917	14.217								
M 36	4.00	34.30	34.17	34.40	31.670	32.420	M 15 x 1.50	14.30	14.26	14.38	13.376	13.751								
M 39	4.00	37.30	37.17	37.40	34.670	35.420	M 16 x 1.00	15.55	15.52	15.62	14.917	15.217								
M 42	4.50	40.10	39.95	40.20	37.129	37.979	M 16 x 1.50	15.30	15.26	15.38	14.376	14.751								
							M 17 x 1.00	16.55	16.52	16.62	15.917	16.217								

* M 2 to M 2.5 core-Ø of int. thread 6H

* M 2.5 x 0.35 to M 4 x 0.35 core-Ø of int. thread 6H

* M 2 to M 2,5 core-Ø of int. thread 6H

* M 2,5 x 0,35 to M 4 x 0,35 core-Ø of int. thread 6H

Tapping hole size diameter tolerance zone for thread forming (to DIN 13, section 50)

Due to the tensile strength it is not necessary to adhere to the tapping hole size diameter tolerance class 6H; tolerance class 7H satisfies the requirement that the flank coverage of external and internal threads should not fall below 0.32 x P. In addition, formed threads generally possess a higher tensile strength in comparison to cut threads thanks to an uninterrupted grain flow and subsequent work hardening.



UNC threads ASME B1.1					
nom.- threads Ø	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread 2B	
per inch	mm	min. mm	max. mm	min. mm	max. mm
Nr. 1 - 64	1.68	1.67	1.70	1.425	1.580
Nr. 2 - 56	1.98	1.97	2.01	1.694	1.872
Nr. 3 - 48	2.28	2.27	2.32	1.941	2.146
Nr. 4 - 40	2.55	2.54	2.59	2.157	2.385
Nr. 5 - 40	2.90	2.89	2.94	2.487	2.698
Nr. 6 - 32	3.15	3.14	3.19	2.642	2.896
Nr. 8 - 32	3.80	3.78	3.82	3.302	3.531
Nr. 10 - 24	4.35	4.33	4.39	3.683	3.937
Nr. 12 - 24	5.00	4.97	5.03	4.343	4.597
1/4 - 20	5.75	5.72	5.80	4.978	5.258
5/16 - 18	7.30	7.26	7.37	6.401	6.731
3/8 - 16	8.80	8.77	8.88	7.798	8.153
7/16 - 14	10.30	10.27	10.37	9.144	9.550
1/2 - 13	11.80	11.77	11.88	10.592	11.024
9/16 - 12	13.30	13.28	13.39	11.989	12.446
5/8 - 11	14.80	14.78	14.90	13.386	13.868
3/4 - 10	17.90	17.85	17.97	16.307	16.840
7/8 - 9	21.00	20.95	21.10	19.177	19.761
1 - 8	24.00	23.95	24.12	21.971	22.606

UNF threads ASME B1.1					
nom.- threads Ø	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread 2B	
per inch	mm	min. mm	max. mm	min. mm	max. mm
Nr. 1 - 72	1.70	1.69	1.72	1.473	1.610
Nr. 2 - 64	2.00	1.99	2.03	1.755	1.910
Nr. 3 - 56	2.30	2.29	2.34	2.024	2.197
Nr. 4 - 48	2.60	2.59	2.63	2.271	2.459
Nr. 5 - 44	2.90	2.89	2.93	2.550	2.741
Nr. 6 - 40	3.20	3.19	3.24	2.819	3.023
Nr. 8 - 36	3.85	3.83	3.88	3.404	3.607
Nr. 10 - 32	4.45	4.43	4.49	3.962	4.166
Nr. 12 - 28	5.10	5.07	5.13	4.496	4.724
1/4 - 28	5.95	5.92	5.99	5.359	5.588
5/16 - 24	7.45	7.42	7.50	6.782	7.036
3/8 - 24	9.05	9.02	9.10	8.838	8.636
7/16 - 20	10.55	10.48	10.58	9.728	10.033
1/2 - 20	12.10	12.08	12.18	11.328	11.608
9/16 - 18	13.65	13.61	13.72	12.751	13.081
5/8 - 18	15.25	15.21	15.32	14.351	14.681
3/4 - 16	18.35	18.30	18.41	17.323	17.678
7/8 - 14	21.40	21.35	21.49	20.269	20.650
1 - 12	24.45	24.40	24.54	23.114	23.571

(Whitworth-) BSP threads DIN EN ISO 228-1					
nom.- threads Ø	tapp. hole size Ø	tapping hole size Ø		core-Ø of int. thread	
inch	per inch	min. mm	max. mm	min. mm	max. mm
G 1/16 28	7.30	7.28	7.35	6.561	6.843
G 1/8 28	9.30	9.28	9.35	8.566	8.848
G 1/4 19	12.50	12.48	12.55	11.445	11.890
G 3/8 19	16.00	15.98	16.05	14.950	15.395
G 1/2 14	20.00	19.98	20.12	18.631	19.172
G 5/8 14	22.00	21.98	22.12	20.587	21.128
G 3/4 14	25.50	25.48	25.62	24.117	24.658
G 7/8 14	29.25	29.23	29.37	27.877	28.418
G 1 11	32.00	31.98	32.15	30.291	30.931
G 1 1/4 11	40.75	40.70	40.85	38.952	39.592

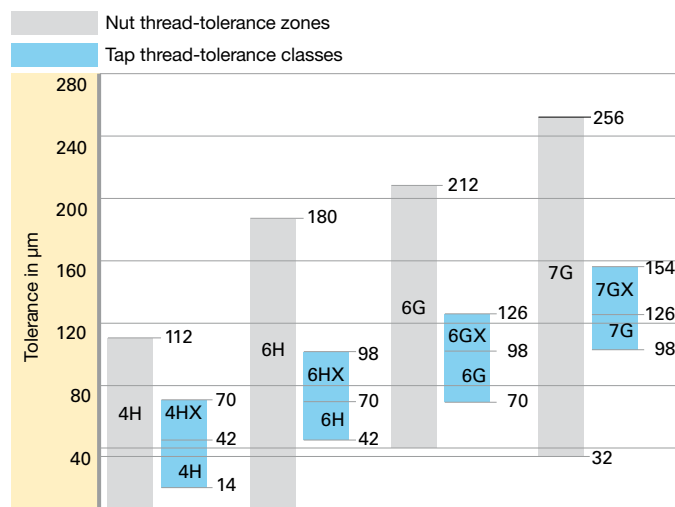


General information for tapping

Tolerance zones (nut thread)/Tolerance classes (tap thread)

Quality and position of tolerance determine the tolerance zone, which is identified by the appropriate figures and letters. The abbreviation for the tolerance class of tap corresponds to the tolerance zone of the internal thread for which the tap is used in most cases. Therefore, it is not identical with the tolerance zone of the cut nut thread in every application. Taps with deviating tolerances according to DIN 802 part 1 will be given additional marking "X" (6 HX, 6 GX). We recommend the application of taps in accordance with the adjacent table:

Tolerance zone / tolerance class allocation



DIN EN 22857		Tolerance zone of internal thread to be cut				DIN 802 part 1 (withdrawn))
Application class of tap	Reference					Tolerance class of tap
Class 1	ISO 1	4H	5H			4H
Class 2	ISO 2			6H		6H
Class 3	ISO 3				6G	6G
–	–				7G	7G

* The tolerance of the 3 application classes is calculated in accordance to the following data dependent on one tolerance unit t the value of which corresponds to the value of the basic pitch diameter TD2 in tolerance class 5 of the nut thread (polished to a pitch of 0.2 mm):
 $t = t_{D2}$ Tolerance class 5 of nut thread

Comparsion of Hardness

Tens. strength (N/mm ²)	HRC	HB30	HV10	Tens. strength (N/mm ²)	HRC	HB30	HV10
240		71	75	1110	35	328	345
255		76	80	1140	36	337	355
270		81	85	1170	37	346	364
285		86	90	1200	38	354	373
305		90	95	1230	39	363	382
320		95	100	1260	40	372	392
335		100	105	1300	41	383	403
350		105	110	1330	42	393	413
370		109	115	1360	43	402	423
385		114	120	1400	44	413	434
400		119	125	1440	45	424	446
415		124	130	1480	46	435	458
430		128	135	1530	47	449	473
450		133	140	1570	48	460	484
465		138	145	1620	49	472	497
480		143	150	1680	50	488	514
495		147	155	1730	51	501	527
510		152	160	1790	52	517	544
530		157	165	1845	53	532	560
545		162	170	1910	54	549	578
560		166	175	1980	55	567	596
575		171	180	2050	56	584	615
595		176	185	2140	57	607	639
610		181	190	2180	58	622	655
625		185	195		59		675
640		190	200		60		698
660		195	205		61		720
675		199	210		62		745
690		204	215		63		773
705		209	220		64		800
720		214	225		65		829
740		219	230		66		864
755		223	235		67		900
770		228	240		68		940
785		233	245				
800	22	238	250				
820	23	242	255				
835	24	247	260				
860	25	255	268				
870	26	258	272				
900	27	266	280				
920	28	273	287				
940	29	278	293				
970	30	287	302				
995	31	295	310				
1020	32	301	317				
1050	33	311	327				
1080	34	319	336				

Manufacturing tolerances

(Tolerance zones A ... G) DIN 1420

Nominal diameter in mm		Permissible upper and lower tolerances on nominal reamer diameter d_1 in μm for hole tolerance zone									
over	to	A9	A11	B8	B9	B10	B11	C8	C9	C10	C11
1	3	+ 291 + 282	+ 321 + 300	+ 151 + 146	+ 161 + 152	+ 174 + 160	+ 191 + 170	+ 71 + 66	+ 81 + 72	+ 94 + 80	+ 111 + 90
3	6	+ 295 + 284	+ 333 + 306	+ 155 + 148	+ 165 + 154	+ 180 + 163	+ 203 + 176	+ 85 + 78	+ 95 + 84	+ 110 + 93	+ 133 + 106
6	10	+ 310 + 297	+ 356 + 324	+ 168 + 160	+ 180 + 167	+ 199 + 178	+ 226 + 194	+ 98 + 90	+ 110 + 97	+ 129 + 108	+ 156 + 124
10	18	+ 326 + 310	+ 383 + 344	+ 172 + 162	+ 186 + 170	+ 209 + 184	+ 243 + 204	+ 117 + 107	+ 131 + 115	+ 154 + 129	+ 188 + 149
18	30	+ 344 + 325	+ 410 + 364	+ 188 + 176	+ 204 + 185	+ 231 + 201	+ 270 + 224	+ 138 + 126	+ 154 + 135	+ 181 + 151	+ 220 + 174
30	40	+ 362 + 340	+ 446 + 390	+ 203 + 189	+ 222 + 200	+ 255 + 220	+ 306 + 250	+ 153 + 139	+ 172 + 150	+ 205 + 170	+ 256 + 200
40	50	+ 372 + 350	+ 456 + 400	+ 213 + 199	+ 232 + 210	+ 265 + 230	+ 316 + 260	+ 163 + 149	+ 182 + 160	+ 215 + 180	+ 266 + 210
50	65	+ 402 + 376	+ 501 + 434	+ 229 + 212	+ 252 + 226	+ 292 + 250	+ 351 + 284	+ 179 + 162	+ 202 + 176	+ 242 + 200	+ 301 + 234
65	80	+ 422 + 396	+ 521 + 454	+ 239 + 222	+ 262 + 236	+ 302 + 260	+ 361 + 294	+ 189 + 172	+ 212 + 186	+ 252 + 210	+ 311 + 244
80	100	+ 453 + 422	+ 567 + 490	+ 265 + 246	+ 293 + 262	+ 339 + 290	+ 407 + 330	+ 215 + 196	+ 243 + 212	+ 289 + 240	+ 357 + 280
100	120	+ 483 + 452	+ 597 + 520	+ 285 + 266	+ 313 + 282	+ 359 + 310	+ 427 + 350	+ 225 + 206	+ 253 + 222	+ 299 + 250	+ 367 + 290
120	140	+ 545 + 510	+ 672 + 584	+ 313 + 290	+ 345 + 310	+ 396 + 340	+ 472 + 384	+ 253 + 230	+ 285 + 250	+ 336 + 280	+ 412 + 324
140	160	+ 605 + 570	+ 732 + 644	+ 333 + 310	+ 365 + 330	+ 416 + 360	+ 492 + 404	+ 263 + 240	+ 295 + 260	+ 346 + 290	+ 422 + 334
160	180	+ 665 + 630	+ 792 + 704	+ 363 + 340	+ 395 + 360	+ 446 + 390	+ 522 + 434	+ 283 + 260	+ 315 + 280	+ 366 + 310	+ 442 + 354

Nominal diameter in mm		Permissible upper and lower tolerances on nominal reamer diameter d_1 in μm for hole tolerance zone												
over	to	D8	D9	D10	D11	E7	E8	E9	F6	F7	F8	F9	G6	G7
1	3	+ 31 + 26	+ 41 + 32	+ 54 + 40	+ 71 + 50	+ 22 + 18	+ 25 + 20	+ 35 + 26	+ 11 + 8	+ 14 + 10	+ 17 + 12	+ 27 + 18	+ 7 + 4	+ 10 + 6
3	6	+ 45 + 38	+ 55 + 44	+ 70 + 53	+ 93 + 66	+ 30 + 25	+ 35 + 28	+ 45 + 34	+ 16 + 13	+ 20 + 15	+ 25 + 18	+ 35 + 24	+ 10 + 7	+ 14 + 9
6	10	+ 58 + 50	+ 70 + 57	+ 89 + 68	+ 116 + 84	+ 37 + 31	+ 43 + 35	+ 55 + 42	+ 20 + 16	+ 25 + 19	+ 31 + 23	+ 43 + 30	+ 12 + 8	+ 17 + 11
10	18	+ 72 + 62	+ 86 + 70	+ 109 + 84	+ 143 + 104	+ 47 + 40	+ 54 + 44	+ 68 + 52	+ 25 + 21	+ 31 + 24	+ 38 + 28	+ 52 + 36	+ 15 + 11	+ 21 + 14
18	30	+ 93 + 81	+ 109 + 90	+ 136 + 106	+ 175 + 129	+ 57 + 49	+ 68 + 56	+ 84 + 65	+ 31 + 26	+ 37 + 29	+ 48 + 36	+ 64 + 45	+ 18 + 13	+ 24 + 16
30	50	+ 113 + 99	+ 132 + 110	+ 165 + 130	+ 216 + 160	+ 71 + 62	+ 83 + 69	+ 102 + 80	+ 38 + 32	+ 46 + 37	+ 58 + 44	+ 77 + 55	+ 22 + 16	+ 30 + 21
50	80	+ 139 + 122	+ 162 + 136	+ 202 + 160	+ 261 + 194	+ 85 + 74	+ 99 + 82	+ 122 + 96	+ 46 + 39	+ 55 + 44	+ 69 + 52	+ 92 + 66	+ 26 + 19	+ 35 + 24
80	120	+ 165 + 146	+ 193 + 162	+ 239 + 190	+ 307 + 230	+ 101 + 88	+ 117 + 98	+ 145 + 114	+ 54 + 46	+ 65 + 52	+ 81 + 62	+ 109 + 78	+ 30 + 22	+ 41 + 28
120	180	+ 198 + 175	+ 230 + 195	+ 281 + 225	+ 357 + 269	+ 119 + 105	+ 138 + 115	+ 170 + 135	+ 64 + 55	+ 77 + 63	+ 96 + 73	+ 128 + 93	+ 35 + 26	+ 48 + 34

Manufacturing tolerances

(Tolerance zones H ... P) DIN 1420

Nominal diameter in mm		Permissible upper and lower tolerances on nominal reamer diameter d_1 in μm for hole tolerance zone													
over	to	H6	H7	H8	H9	H10	H11	H12	J6	J7	J8	JS6	JS7	JS8	JS9
1	3	+5 +2	+8 +4	+11 +6	+21 +12	+34 +20	+51 +30	+85 +50	+1 -2	+2 -2	+3 -2	+2 -1	+3 -1	+4 -1	+8 -1
3	6	+6 +3	+10 +5	+15 +8	+25 +14	+40 +23	+63 +36	+102 +60	+3 0	+4 -1	+7 0	+2 -1	+4 -1	+6 -1	+10 -1
6	10	+7 +3	+12 +6	+18 +10	+30 +17	+49 +28	+76 +44	+127 +74	+3 -1	+5 -1	+8 0	+3 -1	+5 -1	+7 -1	+12 -1
10	18	+9 +5	+15 +8	+22 +12	+36 +20	+59 +34	+93 +54	+153 +90	+4 0	+7 0	+10 0	+3 -1	+6 -1	+8 -1	+15 -1
18	30	+11 +6	+17 +9	+28 +16	+44 +25	+71 +41	+110 +64	+178 +104	+6 +1	+8 0	+15 +3	+4 -1	+7 -1	+11 -1	+18 -1
30	50	+13 +7	+21 +12	+33 +19	+52 +30	+85 +50	+136 +80	+212 +124	+7 +1	+10 +1	+18 +4	+5 -1	+8 -1	+13 -1	+21 -1
50	80	+16 +9	+25 +14	+39 +22	+62 +36	+102 +60	+161 +94	+255 +150	+10 +3	+13 +2	+21 +4	+6 -1	+10 -1	+16 -1	+25 -1
80	120	+18 +10	+29 +16	+45 +26	+73 +42	+119 +70	+187 +110	+297 +174	+12 +4	+16 +3	+25 +6	+7 -1	+12 -1	+18 -1	+30 -1
120	180	+21 +12	+34 +20	+53 +30	+85 +50	+136 +80	+212 +124	+340 +200	+14 +5	+20 +6	+31 +8	+8 -1	+14 0	+22 -1	+35 0

Our
standard
manufacturing accuracy

Nominal diameter in mm		Permissible upper and lower tolerances on nominal reamer diameter d_1 in μm for hole tolerance zone													
over	to	K6	K7	K8	M6	M7	M8	N6	N7	N8	N9	N10	N11	P6	P7
1	3	-1 -4	-2 -6	-3 -8	-3 -6	-4 -8		-5 -8	-6 -10	-7 -12	-8 -17	-10 -24	-13 -34	-7 -10	-8 -12
3	6	0 -3	+1 -4	+2 -5	-3 -6	-2 -7	-1 -8	-7 -10	-6 -11	-5 -12	-5 -16	-8 -25	-12 -39	-11 -14	-10 -15
6	10	0 -4	+2 -4	+2 -6	-5 -9	-3 -9	-3 -11	-9 -13	-7 -13	-7 -15	-6 -19	-9 -30	-14 -46	-14 -18	-12 -18
10	18	0 -4	+3 -4	+3 -7	-6 -10	-3 -10	-3 -13	-11 -15	-8 -15	-8 -18	-7 -23	-11 -36	-17 -56	-17 -21	-14 -21
18	30	0 -5	+2 -6	+5 -7	-6 -11	-4 -12	-1 -13	-13 -18	-11 -19	-8 -20	-8 -27	-13 -43	-20 -66	-20 -25	-1 -26
30	50	0 -6	+3 -6	+6 -8	-7 -13	-4 -13	-1 -15	-15 -21	-12 -21	-9 -23	-10 -32	-15 -50	-24 -80	-24 -30	-21 -30
50	80	+1 -6	+4 -7	+7 -10	-8 -15	-5 -16	-2 -19	-17 -24	-14 -25	-11 -28	-12 -38	-18 -60	-29 -96	-29 -36	-26 -37
80	120	0 -8	+4 -9	+7 -12	-10 -18	-6 -19	-3 -22	-20 -28	-16 -29	-13 -32	-14 -45	-21 -70	-33 -110	-34 -42	-30 -43
120	180	0 -9	+6 -8	+10 -13	-12 -21	-6 -20	-2 -25	-24 -33	-18 -32	-14 -37	-15 -50	-24 -80	-38 -126	-40 -49	-43 -48

Manufacturing tolerances

(Tolerance zones R ... Z) DIN 1420

Nominal diameter in mm		Permissible upper and lower tolerances on nominal reamer diameter d_1 in μm for hole tolerance zone											
over	to	R6	R7	S6	S7	T6	U6	U7	U10	X10	X11	Z10	Z11
1	3	-11	-12	-15	-16		-19	-20				-32	
		-14	-16	-18	-20		-22	-24				-46	
3	6	-14	-13	-18	-17		-22	-21	-31			-43	
		-17	-18	-21	-22		-25	-26	-48			-60	
6	10	-18	-16	-22	-20		-27	-25	-37			-51	
		-22	-22	-26	-26		-31	-31	-58			-72	
10	14	-22	-19	-27	-24		-32	-29	-44			-61	
		-26	-26	-31	-31		-36	-36	-69			-86	
14	18	-22	-19	-27	-24		-32	-29	-44	-56		-71	
		-26	-26	-31	-31		-36	-36	-69	-81		-96	
18	24	-26	-24	-33	-31		-39	-37		-67		-86	
		-31	-32	-38	-39		-44	-45		-97		-116	
24	30	-26	-24	-33	-31	-39	-46	-44		-77		-101	-108
		-31	-32	-38	-39	-44	-51	-52		-107		-131	-154
30	40	-32	-29	-41	-38	-46	-58	-55		-95		-127	-136
		-38	-38	-47	-47	-52	-64	-64		-130		-162	-192
40	50	-32	-29	-41	-38	-52	-68	-65	-85	-112		-151	-160
		-38	-38	-47	-47	-58	-74	-74	-120	-147		-186	-216
50	65	-38	-35	-50	-47	-63	-84	-81	-105	-140	-151	-190	-201
		-45	-46	-57	-58	-70	-91	-92	-147	-182	-218	-232	-268
65	80	-40	-37	-56	-53	-72	-99	-96	-120	-164	-175	-288	-239
		-47	-48	-63	-64	-79	-106	-107	-162	-206	-242	-270	-306
80	100	-48	-44	-68	-64	-88	-121	-117	-145	-199	-211	-279	-291
		-56	-57	-76	-77	-96	-129	-130	-194	-248	-288	-328	-368
100	120	-51	-47	-76	-72	-101	-141	-137	-165	-231	-243	-331	-343
		-59	-60	-84	-85	-109	-149	-150	-214	-280	-320	-380	-420
120	140	-60	-54	-89	-83	-119	-167	-161	-194	-272	-286	-389	-403
		-69	-68	-98	-97	-128	-176	-175	-250	-328	-374	-445	-491
140	160	-62	-56	-97	-91	-131	-187	-181	-214	-304	-318	-439	-453
		-71	-70	-106	-105	-140	-196	-195	-270	-360	-406	-495	-541
160	180	-65	-59	-105	-99	-143	-207	-201	-234	-334	-348	-489	-503
		-74	-73	-114	-113	-152	-216	-215	-290	-390	-436	-545	-591

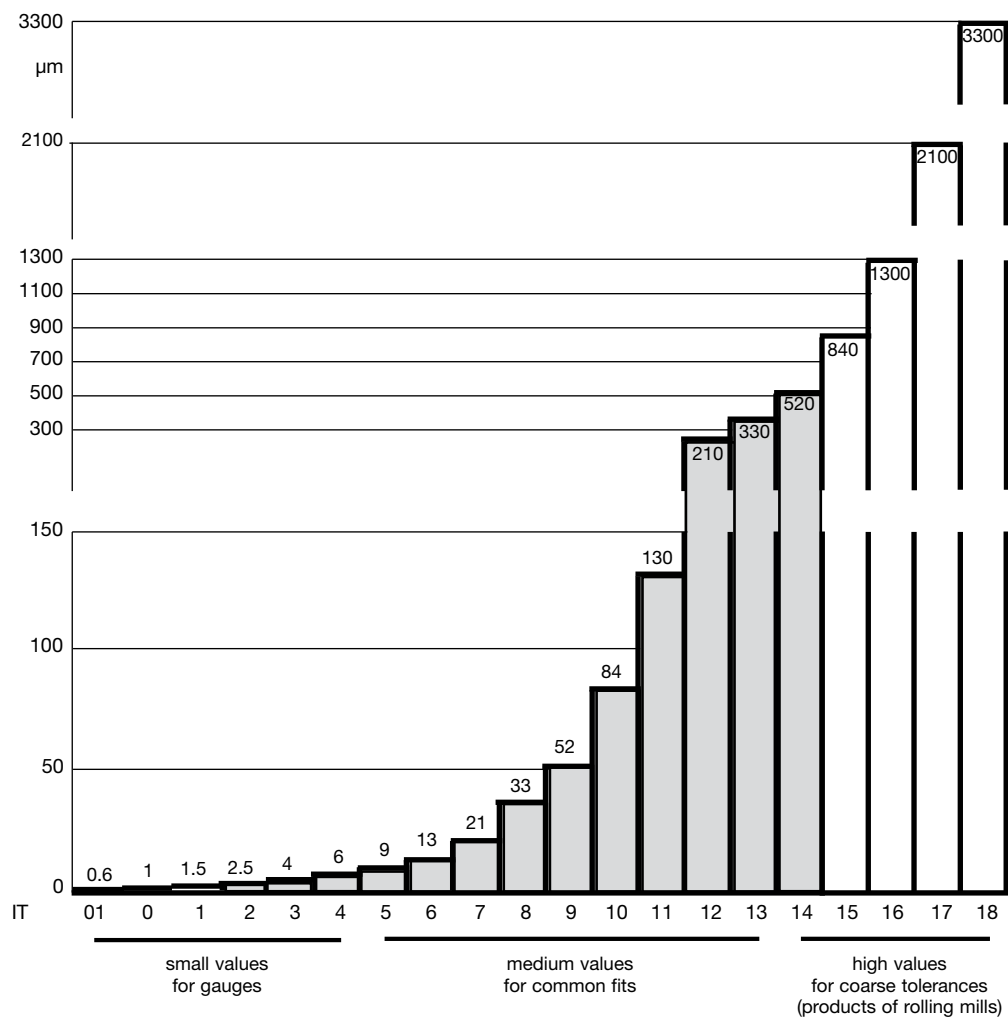
Nominal diameter in mm		Further tolerances for machine reamers	
over	to	mm	
0.95	5.50	0.000 / +0.004	
5.50	12.05	0.000 / +0.005	

Manufacturing tolerances

Basic ISO tolerances for length dimensions: 1 - 120 mm DIN ISO 286-1

Range of nominal size mm		IT in μm											
		3	4	5	6	7	8	9	10	11	12	13	14
from	1	2	3	4	6	10	14	25	40	60	100	140	250
to	3												
over	3	2.5	4	5	8	12	18	30	48	75	120	180	300
to	6												
over	6	2.5	4	6	9	15	22	36	58	90	150	220	360
to	10												
over	10	3	5	8	11	18	27	43	70	110	180	270	430
to	18												
over	18	4	6	9	13	21	33	52	84	130	210	330	520
to	30												
over	30	4	7	11	16	25	39	62	100	160	250	390	620
to	50												
over	50	5	8	13	19	30	46	74	120	190	300	460	740
to	80												
over	80	6	10	15	22	35	54	87	140	220	350	540	870
to	120												

Example: Basic ISO tolerances for a range of nominal sizes over 18 to 30 mm



The most common tolerance zones in μm

Nominal diameter in mm over to		A		B				C			
		9	11	8	9	10	11	8	9	10	11
0	3	+295	+330	+154	+165	+180	+200	+74	+85	+100	+120
		+270	+270	+140	+140	+140	+140	+60	+60	+60	+60
3	6	+300	+345	+158	+170	+188	+215	+88	+100	+118	+145
		+270	+270	+140	+140	+140	+140	+70	+70	+70	+70
6	10	+316	+370	+172	+186	+208	+240	+102	+116	+138	+170
		+280	+280	+150	+150	+150	+150	+80	+80	+80	+80
10	18	+333	+400	+177	+193	+220	+260	+122	+138	+165	+205
		+290	+290	+150	+150	+150	+150	+95	+95	+95	+95
18	30	+352	+430	+193	+212	+244	+290	+143	+162	+194	+240
		+300	+300	+160	+160	+160	+160	+110	+110	+110	+110
30	40	+372	+470	+209	+232	+270	+330	+159	+182	+220	+280
		+310	+310	+170	+170	+170	+170	+120	+120	+120	+120
40	50	+382	+480	+219	+242	+280	+340	+169	+192	+230	+290
		+320	+320	+180	+180	+180	+180	+130	+130	+130	+130
50	65	+414	+530	+236	+264	+310	+380	+186	+214	+260	+330
		+340	+340	+190	+190	+190	+190	+140	+140	+140	+140
65	80	+434	+550	+246	+274	+320	+390	+196	+224	+270	+340
		+360	+360	+200	+200	+200	+200	+150	+150	+150	+150
80	100	+467	+600	+274	+307	+360	+440	+224	+257	+310	+390
		+380	+380	+220	+220	+220	+220	+170	+170	+170	+170
100	120	+497	+630	+294	+327	+380	+460	+234	+267	+320	+400
		+410	+410	+240	+240	+240	+240	+180	+180	+180	+180

Nominal diameter in mm over to		D					E			F			
		8	9	10	11	12	7	8	9	6	7	8	9
0	3	+34	+45	+60	+80	+120	+24	+28	+39	+12	16	+20	+31
		+20	+20	+20	+20	+20	+14	+14	+14	+6	+6	+6	+6
3	6	+48	+60	+78	+105	+150	+32	+38	+50	+18	+22	+28	+40
		+30	+30	+30	+30	+30	+20	+20	+20	+10	+10	+10	+10
6	10	+62	+76	+98	+130	+190	+40	+47	+61	+22	+28	+35	+49
		+40	+40	+40	+40	+40	+25	+25	+25	+13	+13	+13	+13
10	18	+77	+93	+120	+160	+230	+50	+59	+75	+27	+34	+43	+59
		+50	+50	+50	+50	+50	+32	+32	+32	+16	+16	+16	+16
18	30	+98	+117	+149	+195	+275	+61	+73	+92	+33	+41	+53	+72
		+65	+65	+65	+65	+65	+40	+40	+40	+20	+20	+20	+20
30	50	+119	+142	+180	+240		+75	+89	+112	+41	+50	+64	+87
		+80	+80	+80	+80		+50	+50	+50	+25	+25	+25	+25
50	80	+146	+174	+220	+290		+90	+106	+134	+49	+60	+76	+104
		+100	+100	+100	+100		+60	+60	+60	+30	+30	+30	+30
80	120	+174	+207	+260	+340		+107	+126	+159	+58	+71	+90	+123
		+120	+120	+120	+120		+72	+72	+72	+36	+36	+36	+36
120	180							+148					
								+85					
180	250							+172					
								+100					

The most common tolerance zones in μm

Nominal diameter in mm over to		G		H							J		
		6	7	6	7	8	9	10	11	12	6	7	8
0	3	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	+60 0	+100 0	+2 -4	+4 -6	+6 -8
3	6	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	+75 0	+120 0	+5 -3	+6 -6	+10 -8
6	10	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	+90 0	+150 0	+5 -4	+8 -7	+12 -10
10	18	+17 +6	+24 +6	+11 0	+18 0	+27 0	+43 0	+70 0	+110 0	+180 0	+6 -5	+10 -8	+15 -12
18	30	+20 +7	+28 +7	+13 0	+21 0	+33 0	+52 0	+84 0	+130 0	+210 0	+8 -5	+12 -9	+20 -13
30	50	+25 +9	+34 +9	+16 0	+25 0	+39 0	+62 0	+100 0	+160 0	+250 0	+10 -6	+14 -11	+24 -15
50	80	+29 +10	+40 +10	+19 0	+30 0	+46 0	+74 0	+120 0	+190 0	+300 0	+13 -6	+18 -12	+28 -18
80	120	+34 +12	+47 +12	+22 0	+35 0	+54 0	+87 0	+140 0	+220 0	+350 0	+16 -6	+22 -13	+34 -20
120	180		+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	+250 0		+18 -7	+26 -14	+41 -22
180	250		+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	+290 0		+22 -7	+30 -16	+47 -25

Nominal diameter in mm over to		JS				K			M		
		6	7	8	9	6	7	8	6	7	8
0	3	+3 -3	+5 -5	+7 -7	+12,5 -12,5	0 -6	0 -10	0 -14	-2 -8	-2 -12	-4 -18
3	6	+4 -4	+6 -6	+9 -9	+15 -15	+2 -6	+3 -9	+5 -13	-1 -9	0 -12	+2 -16
6	10	+4,5 -4,5	+7,5 -7,5	+11 -11	+18 -18	+2 -7	+5 -10	+6 -16	-3 -12	0 -21,5	+1 -21
10	18	+5,5 -5,5	+9 -9	+13,5 -13,5	+21,5 -21,5	+2 -9	+6 -12	+8 -19	-4 -15	0 -18	+2 -25
18	30	+6,5 -6,5	+10,5 -10,5	+16,5 -16,5	+26 -26	+2 -11	+6 -15	+10 -23	-4 -17	0 -21	+4 -29
30	50	+8 -8	+12,5 -12,5	+19,5 -19,5	+31 -31	+3 -13	+7 -18	+12 -27	-4 -20	0 -25	+5 -34
50	80	+9,5 -9,5	+15 -15	+23 -23	+37 -37	+4 -15	+9 -21	+14 -32	-5 -24	0 -30	+5 -41
80	120	+11 -11	+17,5 -17,5	+27 -27	+43,5 -43,5	+4 -18	+10 -25	+16 -38	-6 -28	0 -35	+6 -48
120	180					+4 -21	+12 -28				
180	250					+5 -24	+13 -33				

The most common tolerance zones in µm

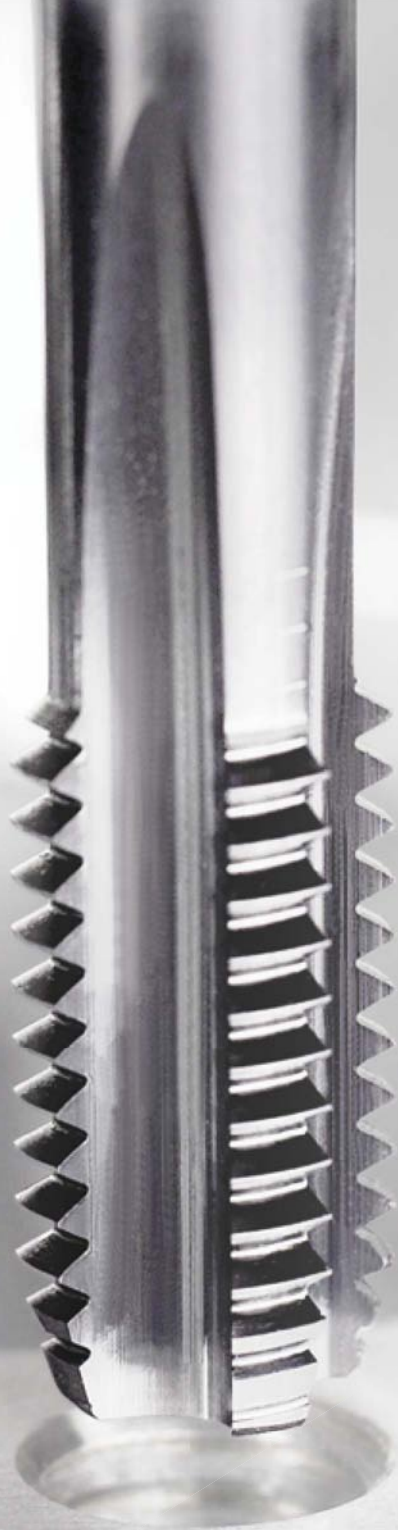
Nominal diameter in mm over to		N						P			R	
		6	7	8	9	10	11	6	7	9	6	7
0	3	-4 -10	-4 -14	-4 -8	-4 -29	-4 -44	-4 -64	-6 -12	-6 -16	-6 -31	-10 -16	-10 -20
3	6	-5 -13	-4 -16	-2 -20	0 -30	0 -48	0 -75	-9 -17	-8 -20	-12 -42	-12 -20	-11 -23
6	10	-7 -16	-4 -19	-3 -25	0 -36	0 -58	0 -90	-12 -21	-9 -24	-15 -51	-16 -25	-13 -28
10	18	-9 -20	-5 -23	-3 -30	0 -43	0 -70	0 -110	-15 -26	-11 -29	-18 -61	-20 -31	-16 -34
18	30	-11 -24	-7 -28	-3 -36	0 -52	0 -84	0 -130	-18 -31	-14 -35	-22 -74	-24 -37	-20 -41
30	50	-12 -28	-8 -33	-3 -42	0 -62	0 -100	0 -160	-21 -37	-17 -42	-26 -88	-29 -45	-25 -50
50	65	-14 -33	-9 -39	-4 -50	0 -74	0 -120	0 -190	-26 -45	-21 -51	-32 -106	-35 -54	-30 -60
65	80	-14 -33	-9 -39	-4 -50	0 -74	0 -120	0 -190	-26 -45	-21 -51	-32 -106	-37 -56	-32 -62
80	100	-16 -38	-10 -45	-4 -58	0 -87	0 -140	0 -220	-30 -52	-24 -59	-37 -124	-44 -66	-38 -73
100	120	-16 -38	-10 -45	-4 -58	0 -87	0 -140	0 -220	-30 -52	-24 -59		-47 -69	-41 -76

Nominal diameter in mm over to		S		T	U			X		Z	
		6	7	6	6	7	10	10	11	10	11
0	3	-14 -20	-14 -24	-18 -24	-18 -24	-18 -28	-18 -58	-20 -60	-20 -80	-26 -66	-26 -86
3	6	-16 -24	-15 -27	-20 -28	-20 -28	-19 -31	-23 -71	-28 -76	-28 -103	-35 -83	-35 -110
6	10	-20 -29	-17 -32	-25 -34	-25 -34	-22 -37	-28 -86	-34 -92	-34 -124	-42 -100	-42 -132
10	14	-25 -36	-21 -39	-30 -41	-30 -41	-26 -44	-33 -103	-40 -110	-40 -150	-50 -120	-50 -160
14	18	-25 -36	-21 -39	-30 -41	-30 -41	-26 -44	-33 -103	-45 -115	-45 -155	-60 -130	-60 -170
18	24	-31 -44	-27 -48	-37 -50	-37 -50	-33 -54	-41 -125	-54 -138	-54 -184	-73 -157	-73 -203
24	30	-31 -44	-27 -48	-37 -50	-44 -57	-40 -61	-48 -132	-64 -148	-64 -194	-88 -172	-88 -218
30	40	-38 -54	-34 -59	-43 -59	-55 -71	-51 -76	-60 -160	-80 -180	-80 -240	-112 -212	-112 -272
40	50	-38 -54	-34 -59	-49 -65	-65 -81	-61 -86	-70 -170	-97 -197	-97 -257	-136 -236	-136 -296
50	65	-47 -66	-42 -72	-60 -79	-81 -100	-76 -106	-87 -207	-122 -242	-122 -312	-172 -292	-172 -362
65	80	-53 -72	-48 -78	-69 -88	-96 -115	-91 -121	-102 -222	-146 -266	-146 -336	-210 -330	-210 -400
80	100	-64 -86	-58 -93	-84 -106	-117 -139	-111 -146	-124 -264	-178 -318	-178 -398	-258 -398	-258 -478
100	120	-72 -94	-66 -101	-97 -119	-137 -159	-131 -166	-144 -284	-210 -350	-210 -430	-310 -450	-310 -530



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