



SuperV-AP Drilling system

A system that offers high performance



Cip by Chip – to the Top

SuperV-AP - Drilling system

Overview

Type	DIN	Tool material	Surface finish	Drilling depths	Shank	Internal cooling	Point grinding	Point angle	Tolerance	Ø-range	Catalogue-N°	
Holder	SuperV-AP mini	Stock std.	–	–	1.5 x D	HE	with	–	–	–	11.00 - 40.00	77007
		Stock std.	–	–	3 x D	HE	with	–	–	–	11.00 - 40.00	77000
		Stock std.	–	–	5 x D	HE	with	–	–	–	11.00 - 40.00	77001
		Stock std.	–	–	7 x D	HE	with	–	–	–	11.00 - 31.99	77003
		Stock std.	–	–	10 x D	HE	with	–	–	–	11.00 - 31.99	77004
Inserts	SuperV-AP U	Stock std.	Solid carbide	TiAlN nano	–	–	with	facet point	140°	h7	11.000 - 25.500	67011
	SuperV-AP GG	Stock std.	Solid carbide	TiAlN	–	–	with	facet point	140°	m7	11.000 - 25.500	57011
	SuperV-AP AI	Stock std.	Solid carbide	bright	–	–	with	relieved cone	140°	h7	11.000 - 25.500	77012
	SuperV-AP NC	Stock std.	Solid carbide	AlTiN nano	–	–	with	facet point	145°	m7	11.000 - 25.500	77011
	SuperV-AP VA	Stock std.	Solid carbide	AlTiN nano	–	–	with	relieved cone	140°	h7	11.000 - 25.500	67012

Application

by materials

Type	Catalogue no.	Non-ferrous metals, Aluminium	Steels	Cast iron	Stainless and acid-resistant steels	Nickel, Titan-alloys	Hardened steels
SuperV-AP U	67011		optimal	suitable			
GG	57011			optimal			
AI	77012	optimal					
VA	67012	optimal			optimal		
NC	77011	NC-indexable insert for centering and pilot holes					

■ optimal ■ suitable

by tensile strength

Type	Catalogue no.	< 800 N/mm²	800 N/mm²	1000 N/mm²	1200 N/mm²	1400 N/mm²	> 1400 N/mm²	tough	hard
SuperV-AP U	67011	optimal	optimal	optimal	optimal				
GG	57011	optimal	optimal	optimal	optimal				
AI	77012			suitable					
VA	67012	optimal	optimal	optimal	optimal		optimal		
NC	77011							suitable	optimal

■ optimal ■ suitable

SuperV-AP - Drilling system

Advantages



SuperV-AP mini

Our recommendation for the diameter range 11.5 to 40.0 mm.

The new SuperV-AP drilling system offers these benefits to you:

- a high performance and cost-efficient holder-insert-system.
- a large range of holders from 1.5xD to 10xD and five application orientated solid carbide inserts.
- long tool life thanks to wear-resistant coated inserts and nickel-plated holders.

- optimal chip evacuation even from deep holes thanks to large flutes.
- perfect cooling thanks to large coolant ducts.
- a high precise and rigid insert seat, enabling the change of inserts with only a few steps within the machine.

The cutting parameters dependent on the materials to be machined can be found from page 6 ff.

SuperV-AP Special Tools Questionnaire

Order **Enquiry**

Name/customer no. if available New customer

Street/house no.

Telephone

Date

Contact for queries

Order number

Town/post code

Fax/E-Mail

Signature

Quantity holders inserts

Material to be machined

Machining

*
 *

*please incl. separate drawing

Flute spiral partly spiral straight

Dimensions
For spiral- & straight-fluted types

Tol. h7 m7

point angle of interchangeable insert

d1 =

d2 =

d3 =

d4 =

drilling depth₁ 1. chamfer angle

drilling depth₂ 2. chamfer angle

flute length shank length

total length

Shank form

HA HE

Internal cooling yes no

Interchangeable insert coating

AlTiN TiAlN nano TiAlN TiCN TiN bright

Application recommendations

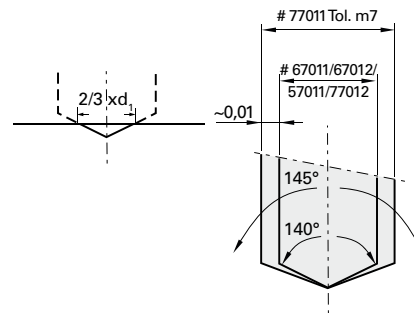
for all Tool-Holders

- 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.

Additional recommendations for tool-holders **from 5xD**

- For drilling depths from $5xD$ 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-AP - 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

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		■ □
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(GTWS35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTWS70)		≤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-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		■ ■
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		■ ■

Tool holders $\leq 1,5 \times D$

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	bright	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 - 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

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	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)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GG V	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 graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTWS35)		≤240 HB ≤300 HB	■
	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤350 HB	■
Chilled cast iron	-			■
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		■
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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		■

SuperV-AP - Drilling system

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Feed column											
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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	

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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 1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≥850-≤1000 >1000-1200		■ ■
Tool steels	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 austenitic	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■
Stainless steels, sulphured martensitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A) 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		■ □
New Cast iron GG V	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(GTWS35) 0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTWS70)		≤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-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 2.0790 CuNi18Zn19Pb	≤600 >600-850		■ ■
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10 2.0980 CuAl11Ni, 2.1247 CuBe2	≤850 >850-1000		■

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	E						
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 - 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

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		
	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)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GG V	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 graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTWS35)		≤240 HB ≤300 HB	■
	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTWS70)		≤350 HB	■
Chilled cast iron	-			■
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		■

Tool holders $\leq 7 \times D$

Catalogue no. 77003



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.
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				
				80	F		
				70	F		
				60	E		
				60	E		
				60	E		
				60	E		
				100	G		
				80	F		
		70	F				
		40	B				
		35	A				
						180	F
						180	F
						140	F
						110	F
						180	F
						70	E
						180	F
						120	E
						70	E
						50	E
						45	E
						35	D

SuperV-AP - 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		
	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)	850-≤1000		■
	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	1000-1200		■
New Cast iron GG V	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 graphite iron and maleable cast iron	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)		≤240 HB ≤300 HB	■
	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)		≤350 HB	■
Chilled cast iron	-			■
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		■



Our Program

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