



Twisted countersink V-NX

 **ISTOCK**

Chip – by Chip – to the Top

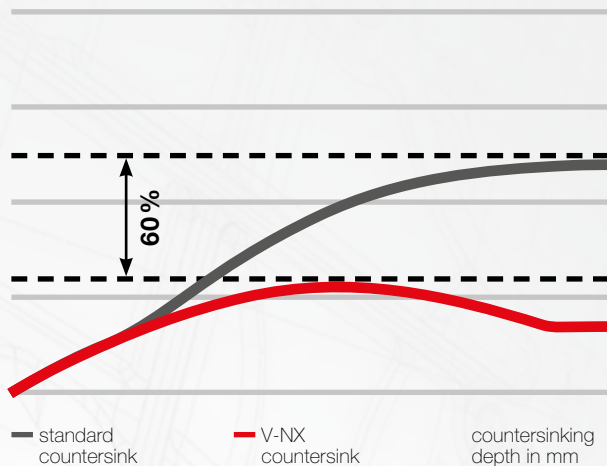
The innovative, twisted HSCO countersink

The axial and radial forces that occur during countersinking operations are strongly reduced due to the newly developed geometry of the V-NX cutting edges. Even with hand drills easy and convenient countersinking is guaranteed. The convex different radii of the cutting edges with variable helical pitch

provide a stable and low-vibration countersinking process. Round, precise and chatter-free countersinking is guaranteed. The specially designed AlTiN coating ensures a higher wear resistance and high-temperature hardness which guarantee longer tool life for nearly all materials and applications.

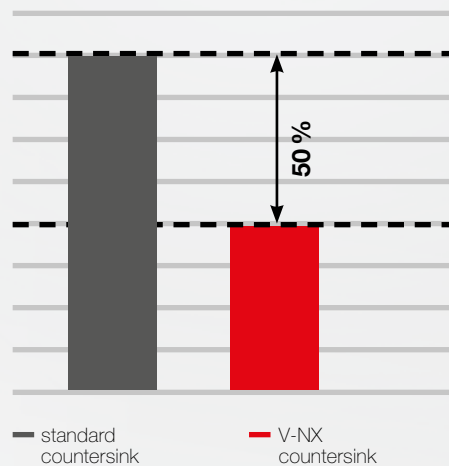


feed force in N



lower feed force by approx. 60 %
compared to standard countersinks

radial force in N



lower radial force by approx. 50 %
compared to standard countersinks

- standard programme
- 14 dimensions $\varnothing 6.3 - 31.0\text{ mm}$
- 90° countersink according to DIN 335 form C
- straight shank version
- version with 3-surface shank



countersinking with standard countersink



countersinking with V-NX countersink

Countersink

V-NX

CONVEX CUTTING EDGES

Three different convex cutting edges in combination with three unequal helix angles enable extremely stable and low-vibration cutting processes without any chatter marks.

CUTTING MATERIAL

The high-speed steel containing 5% of cobalt provides a good high-temperature hardness and temper resistance.

This guarantees a long tool life and the cutting material enables machining of nearly all materials.

AlTiN COATING

The aluminium-titanium coating is characterised by a high hardness and a good thermal resistance.



ISO-CODES



P	Steel, high-alloyed steel
M	Stainless steel
K	Grey cast iron, spheroidal and malleable cast iron
N	Aluminium and other non-ferrous metals
S	Special-, super- and Ti-alloys
H	Hardened steel and hard cast iron

Recommendations regarding tool suitability for the following application groups can be found on the following program pages:

- optimal suitability
- limited suitability

PICTOGRAMS



TOOL MATERIAL	HSCO
	High speed steel
SURFACE FINISH	Al-TiN
FORM	C
CUTTING DIRECTION	R right-hand
SHANK FORM	Cyl 3
POINT ANGLE	90°
STANDARD	DIN 335
TYPE	V-NX

Countersinks HSS

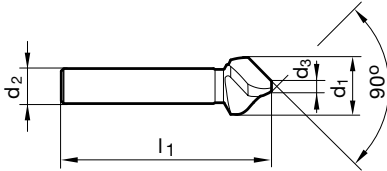
90° Countersinks, spiral-fluted



Catalogue no. 52348

V-NX	DIN 335	C	HSCo	Al-TiN	90°	R	Cyl
P	M	K	N	S	H		
•	•	•	○	○			

- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application



d1 mm	d2 mm	d3 mm	l1 mm	Z	Code no.
6.300	5.000	1.500	45.000	3	6.300
8.000	6.000	2.000	50.000	3	8.000
8.300	6.000	2.000	50.000	3	8.300
10.000	6.000	2.500	50.000	3	10.000
10.400	6.000	2.500	50.000	3	10.400
11.500	8.000	2.800	56.000	3	11.500
12.400	8.000	2.800	56.000	3	12.400
15.000	10.000	3.200	60.000	3	15.000
16.500	10.000	3.200	60.000	3	16.500
19.000	10.000	3.500	63.000	3	19.000
20.500	10.000	3.500	63.000	3	20.500
23.000	10.000	3.800	67.000	3	23.000
25.000	10.000	3.800	67.000	3	25.000
31.000	12.000	4.200	71.000	3	31.000

Countersinks HSS

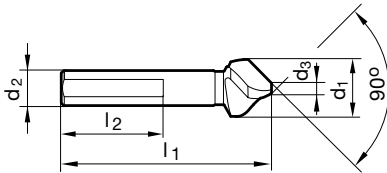
90° Countersinks, spiral-fluted



Catalogue no. 52350

V-NX	DIN 335	C	HSCO	Al-TiN	90°	R	3
P	M	K	N	S	H		
•	•	•	○	○			

- 3-surface shank prevents slipping in the chuck
- 3 different convex cutting edges
- perfect for hand drills
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application



d1 mm	d2 mm	d3 mm	l1 mm	l2 mm	Z	Code no.
6.300	5.000	1.500	45.000	30.000	3	6.300
8.000	6.000	2.000	50.000	30.000	3	8.000
8.300	6.000	2.000	50.000	30.000	3	8.300
10.000	6.000	2.500	50.000	30.000	3	10.000
10.400	6.000	2.500	50.000	30.000	3	10.400
11.500	8.000	2.800	56.000	30.000	3	11.500
12.400	8.000	2.800	56.000	30.000	3	12.400
15.000	10.000	3.200	60.000	30.000	3	15.000
16.500	10.000	3.200	60.000	30.000	3	16.500
19.000	10.000	3.500	63.000	30.000	3	19.000
20.500	10.000	3.500	63.000	30.000	3	20.500
23.000	10.000	3.800	67.000	30.000	3	23.000
25.000	10.000	3.800	67.000	30.000	3	25.000
31.000	12.000	4.200	71.000	30.000	3	31.000

Countersinks HSS

90° Countersink sets, spiral-fluted



P	M	K	N	S	H
•	•	•	○	○	

- consisting of catalogue no. 52348
- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

Catalogue no. 52398

Code no.	Ø-range mm	Pieces/set
1.000	6,3/8,3/10,4/12,4/16,5/20,5	6

Countersinks HSS

90° Countersink sets, spiral-fluted



P	M	K	N	S	H
•	•	•	○	○	

- consisting of catalogue no. 52350
- 3-surface shank prevents slipping in the chuck
- 3 different convex cutting edges
- perfect for hand drills
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

Catalogue no. 52399

Code no.	Ø-range mm	Pieces/set
1.000	6,3/8,3/10,4/12,4/16,5/20,5	6

Countersink V-NX

Application recommendations

Feed column no.							
Code letter	E	F	G	H	I	J	
Tool-Ø mm	2.00	0.03	0.04	0.06	0.08	0.10	0.13
	2.50	0.03	0.05	0.07	0.10	0.13	0.16
	3.15	0.03	0.05	0.08	0.11	0.15	0.20
	4.00	0.04	0.06	0.09	0.13	0.17	0.22
	5.00	0.04	0.07	0.10	0.14	0.18	0.23
	6.30	0.04	0.07	0.12	0.15	0.19	0.24
	8.00	0.05	0.08	0.13	0.16	0.20	0.25
	10.00	0.06	0.09	0.14	0.17	0.22	0.26
	12.50	0.06	0.10	0.15	0.19	0.23	0.28
	16.00	0.07	0.11	0.17	0.21	0.26	0.31
	20.00	0.08	0.13	0.18	0.23	0.28	0.33
	25.00	0.09	0.15	0.21	0.26	0.30	0.38
	31.50	0.12	0.17	0.24	0.30	0.36	0.42
	40.00	0.14	0.21	0.28	0.34	0.40	0.46

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

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)	Hardness	Coolant
General purpose steels	1.0035 S185(S133), 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	☒
Hardened steels	-		≤40-48 HRC >48-60 HRC	☒ ☒
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		☒
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 graphite iron and malleable 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	☒
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		☒ ☒
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		☒
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	Plexiglas, Hostalen, Novodur, Makralon		-	☒
Kevlar	Kevlar		-	☐
Glass/carbon-concentr. plastics	GFK/CFK		-	☐

Catalogue no.	52348
Tool material	HSCO
Surface finish	AlTiN
DIN	335
Countersink angle	90°
Shank form	cylindrical

52350
HSCO
AlTiN
335
90°
3-surface



V _c m/min	Feed column no.
41	G
39	F
41	G
39	F
41	G
39	G
25	F
19	G
15	F
32	G
19	G
13	F
19	F
15	E
22	F
19	E
19	E
13	E
20	F
15	E
18	E
32	G
20	G
28	G
25	G
10	E
28	G
18	G
10	E
19	F
13	E
101	H
89	H
51	G
39	G
127	H
76	H
101	H
64	H
39	H
33	H
31	H
25	H
39	H
51	H

V _c m/min	Feed column no.
41	G
39	F
41	G
39	F
41	G
39	G
25	F
19	G
15	F
32	G
19	G
13	F
19	F
15	E
22	F
19	E
19	E
13	E
20	F
15	E
18	E
32	G
20	G
28	G
25	G
10	E
28	G
18	G
10	E
19	F
13	E
114	H
89	H
51	G
39	G
127	H
76	H
101	H
64	H
39	H
33	H
31	H
25	H
39	H
51	H

Countersink V-NX

Application recommendations

		Feed column no.					
Code letter		E	F	G	H	I	J
Tool-Ø mm	2.00	0.03	0.04	0.06	0.08	0.10	0.13
	2.50	0.03	0.05	0.07	0.10	0.13	0.16
	3.15	0.03	0.05	0.08	0.11	0.15	0.20
	4.00	0.04	0.06	0.09	0.13	0.17	0.22
	5.00	0.04	0.07	0.10	0.14	0.18	0.23
	6.30	0.04	0.07	0.12	0.15	0.19	0.24
	8.00	0.05	0.08	0.13	0.16	0.20	0.25
	10.00	0.06	0.09	0.14	0.17	0.22	0.26
	12.50	0.06	0.10	0.15	0.19	0.23	0.28
	16.00	0.07	0.11	0.17	0.21	0.26	0.31
	20.00	0.08	0.13	0.18	0.23	0.28	0.33
	25.00	0.09	0.15	0.21	0.26	0.30	0.38
	31.50	0.12	0.17	0.24	0.30	0.36	0.42
	40.00	0.14	0.21	0.28	0.34	0.40	0.46

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

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/mm²)	Hardness	Coolant
General purpose steels	1.0035 S185(S133), 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	■
Hardened steels	-		≤40-48 HRC >48-60 HRC	■
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		■
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 graphite iron and malleable 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	■
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		■ □
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤1200		■
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	Plexiglas, Hostalen, Novodur, Makralon		-	■ □
Kevlar	Kevlar		-	□
Glass/carbon-concentr. plastics	GFK/CFK		-	□

Catalogue no.	52398
Tool material	HSCO
Surface finish	AlTiN
DIN	335
Countersink angle	90°
Shank form	cylindrical

Catalogue no.	52399
Tool material	HSCO
Surface finish	AlTiN
DIN	335
Countersink angle	90°
Shank form	3-surface

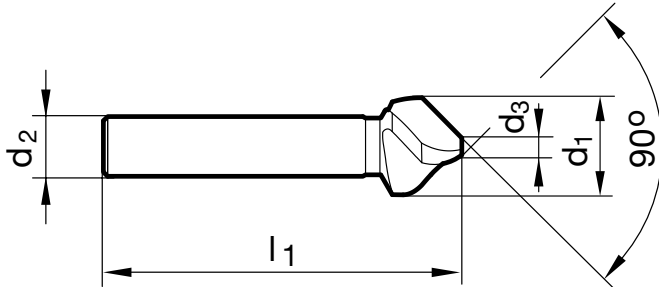


V _c m/min	Feed column no.
41	G
39	F
41	G
39	F
41	G
39	G
25	F
19	G
15	F
32	G
19	G
13	F
19	F
15	E
22	F
19	E
19	E
13	E
20	F
15	E
18	E
32	G
20	G
28	G
25	G
10	E
28	G
18	G
10	E
19	F
13	E
101	H
89	H
51	G
39	G
127	H
76	H
101	H
64	H
39	H
33	H
31	H
25	H
39	H
51	H

V _c m/min	Feed column no.
41	G
39	F
41	G
39	F
41	G
39	G
25	F
19	G
15	F
32	G
19	G
13	F
19	F
15	E
22	F
19	E
19	E
13	E
20	F
15	E
18	E
32	G
20	G
28	G
25	G
10	E
28	G
18	G
10	E
19	F
13	E
114	H
89	H
51	G
39	G
127	H
76	H
101	H
64	H
39	H
33	H
31	H
25	H
39	H
51	H

Countersink V-NX

Smallest hole diameter to allow countersinking and suitable for countersunk screws



d1	smallest hole-Ø to allow countersinking	for countersunk screws ISO 2009, 2010, 7046, 7047	for countersunk screws DIN 7991
6.300	2.00	-	M3
8.000	2.50	M4	-
8.300	2.50	-	M4
10.000	3.00	M5	-
10.400	3.00	-	M5
11.500	3.30	M6	-
12.400	3.30	-	M6
15.000	3.70	M8	-
16.500	3.70	-	M8
19.000	4.50	M10	-
20.500	4.50	-	M10
23.000	4.80	M12	-
25.000	4.80	-	M12
31.000	5.20	-	M16



Notes

This image shows a full page of blank graph paper. The grid consists of thin, light gray horizontal and vertical lines that intersect to form small squares across the entire surface. There are no margins, text, or other markings on the paper.



Twisted countersink V-NX

Our Programme

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Twist Drills
Taps
Milling Cutters
Reamers
Countersinks & -bores
Chamfering Tools
Special HSS and Carbide Tools
(according to your specification or Stock solution)
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Services

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Modifications
Recoating
Paid labour coating
Coating removal
Intelligent Tool Depot Systems
Technical assistance

Your local contact:



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