

GÜHRING



90° countersinks with convex cutting edges

- universal application in nearly any material
- round, precise and chatter-free countersinking
- reduction of feed force by 60%
- reduction of radial force by 50%

SpyroTec

Twisted HSS and HSCO countersink

GÜHRING – YOUR WORLDWIDE PARTNER

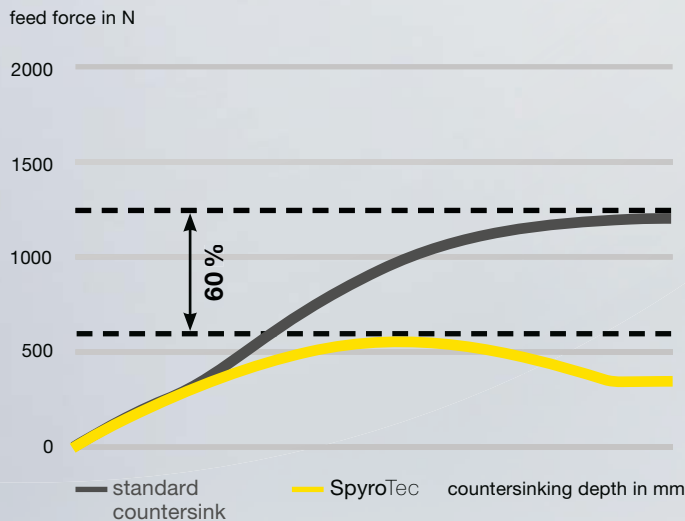


SpyroTec

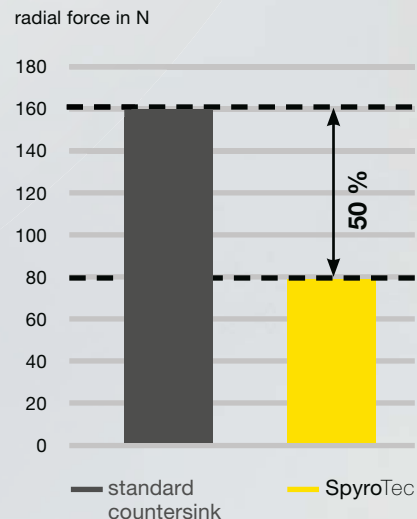
THE INNOVATIVE, TWISTED HSS AND HSCO COUNTERSINK

The axial and radial forces that occur during countersinking operations are strongly reduced due to the newly developed geometry of the SpyroTec cutting edges. Also with hand drills an easy and convenient countersinking is guaranteed. Due to 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 TiAlN coating ensures a higher wear resistance and high-temperature hardness which guarantee longer tool life of nearly all materials and applications.



**LOWER FEED FORCE BY APPROX. 60%
COMPARED TO STANDARD COUNTERSINKS**



**LOWER RADIAL FORCE BY APPROX. 50%
COMPARED TO STANDARD COUNTERSINKS**

- standard programm
- 14 dimensions \varnothing 6.3 - 31.0 mm
- 90° countersink according to DIN 335 form C
- parallel shank version
- version with 3-surface shank
- overlong parallel shank version



countersinking with standard countersink



SpyroTec



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.

TIALN COATING

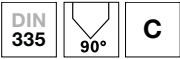
The titanium- aluminum coating is characterised by a strong hardness and a good thermal resistance.

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.

90° Countersinks, spiral-fluted

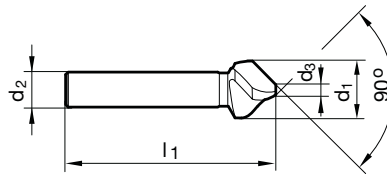


P	•	• 3 different convex cutting edges • low-vibration cutting processes
M	•	• for round and chatter-free countersinking • considerably lower feed force required
K	•	• for universal application
N	○	
S	○	
H		

Tool material	HSCO
Surface	A
Shank form	cyl.

GUHRING NAVIGATOR

Cutting data page 11

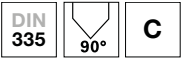


Article no. **5500**

d1	d2	d3	l1	Z	Code no.
mm	mm	mm	mm		
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



90° Countersinks, spiral-fluted

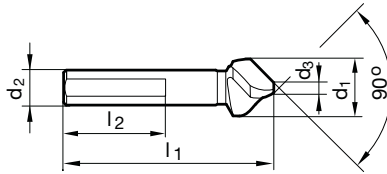


Tool material	HSCO
Surface	A
Shank form	3-surface

- | | | |
|----------|---|--|
| P | • | • 3 different convex cutting edges |
| M | • | • 3-surface shank prevents slipping in the chuck |
| K | • | • perfect for hand drills |
| N | ○ | • low-vibration cutting processes |
| S | ○ | • for round and chatter-free countersinking |
| H | | • considerably lower feed force required |
| | | • for universal application |

GÜHRING NAVIGATOR

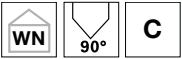
Cutting data page 11



Article no. **5501**

d1	d2	d3	l1	l2	Z	Code no.
mm	mm	mm	mm	mm		
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

90° Countersinks, spiral-fluted

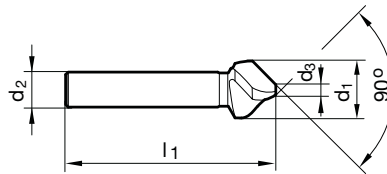


P	•	• long version for recessed machining points • 3 different convex cutting edges
M	○	• low-vibration cutting processes • for round and chatter-free countersinking
K	•	• considerably lower feed force required • for universal application
N	○	
S	○	
H		

GUHRING NAVIGATOR

Cutting data page 11

Tool material	HSS
Surface	A
Shank form	cyl.



Article no. **5503**

d1	d2	d3	l1	Z	Code no.
mm	mm	mm	mm		
6.300	5.000	1.500	104.000	3	6.300
8.300	6.000	2.000	105.000	3	8.300
10.400	6.000	2.500	107.000	3	10.400
12.400	8.000	2.800	108.000	3	12.400
16.500	10.000	3.200	111.000	3	16.500
20.500	10.000	3.500	114.000	3	20.500
25.000	10.000	3.800	118.000	3	25.000
31.000	12.000	4.200	140.000	3	31.000



90° Countersink sets, spiral-fluted

DIN 335 C

- P** • • consisting of art. no. 5500
- M** • • 3 different convex cutting edges
- K** • • low-vibration cutting processes
- N** ○ • for round and chatter-free countersinking
- S** ○ • considerably lower feed force required
- H** ○ • for universal application

GÜHRING NAVIGATOR

Cutting data page 11

Tool material	HSCO
Surface	A
Shank form	cyl.



Catalog no. **5538**

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



90° Countersink sets, spiral-fluted

DIN 335 C

P	•	• consisting of art. no. 5501
M	•	• 3 different convex cutting edges
K	•	• 3-surface shank prevents slipping in the chuck
N	○	• perfect for hand drills
S	○	• low-vibration cutting processes
H		• for round and chatter-free countersinking
		• considerably lower feed force required
		• for universal application

GÜHRING NAVIGATOR

Cutting data page 11

Tool material	HSCO
Surface	A
Shank form	3-surface

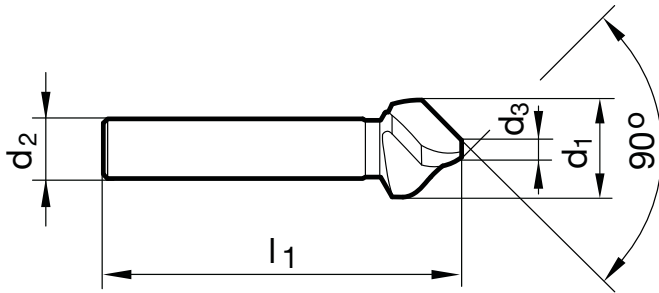


Catalog no. 5539

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

SPYROTEC – SPIRAL-FLUTED COUNTERSINKS

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



GUHRING NAVIGATOR Countersinks, spiral-fluted

Tools with bold feed column no. are preferred choice.

To select the optimal tool and the recommended machining parameters for your application, please also use the electronic version of the GuhringNavigator on the internet: www.guehring.de.

Article no.	
Standard/DIN	
Tool material	
Surface finish	
Countersink angle	
Shank form	

Tool Ø mm	Feed column no.					
	81	82	83	84	85	86
	f (mm/rev.)					
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

- Collant:
- Air
 - Oil
 - Soluble oil

Material group	Material examples Figures in bold = material no. to DIN EN 10 027	Tensile strength N/mm ²	Hardness	Coolant
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	≤500		<input type="radio"/>
	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	≤1000		<input type="radio"/>
Free-cutting steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	≤850		<input type="radio"/>
	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	≤1000		<input type="radio"/>
Unalloyed heat-treatable steels	1.0402 C22, 1.1178 C30E (Ck30)	≤700		<input type="radio"/>
	1.0503 C45, 1.1191 C45E (Ck45)	≤850		<input type="radio"/>
	1.0601 C60, 1.1221 C60E (Ck60)	≤1000		<input type="radio"/>
Alloyed heat-treatable steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	≤1000		<input type="radio"/>
	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	≤1400		<input type="radio"/>
Unalloyed case hard. steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤850		<input type="radio"/>
Alloyed case hardened steels	1.7276 10CrMo11, 1.5125 11MnSi6	≤1000		<input checked="" type="radio"/>
	1.5752 15NiCr13, 1.7131 16MnCr5, 1.7264 20CrMo5	≤1400		<input checked="" type="radio"/>
Nitriding steels	1.8504 34CrAl6	≤1000		<input type="radio"/>
	1.8519 31CrMoV9, 1.8550 34CrAlNi7	≤1400		<input checked="" type="radio"/>
Tool steels	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	≤850		<input type="radio"/>
	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	≤1400		<input checked="" type="radio"/>
High speed steels	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	≤1400		<input checked="" type="radio"/>
Spring steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)		≤350 HB	<input checked="" type="radio"/>
Hardened steels	-		≤48 HRC	<input checked="" type="radio"/>
			≤66 HRC	<input checked="" type="radio"/>
Stainless steels, sulphured	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤900		<input checked="" type="radio"/>
austenitic	1.4301 X5CrNi18-10 (V2A), 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17-12-2 (V4A)	≤1100		<input checked="" type="radio"/>
martensitic	1.4057 X20CrNi172 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤1500		<input checked="" type="radio"/>
Cast iron	0.6010 EN-GJL-100 (GG10), 0.6020 EN-GJL-200 (GG20)		≤240 HB	<input type="radio"/>
	0.6025 EN-GJL-250 (GG25), 0.6035 EN-GJL-350 (GG35)		≤350 HB	<input type="radio"/>
Spheroidal graphite iron and malleable cast iron	0.7050 EN-GJS-500-7 (GGG50), 0.8035 EN-GJMW-350-4 (GTW35)		≤240 HB	<input type="radio"/>
	0.7070 EN-GJS-700-2 (GGG70), 0.8170 EN-GJMB-700-2 (GTS70)		≤350 HB	<input type="radio"/>
Chilled cast iron	-		≤350 HB	<input type="radio"/>
New cast materials GGV	EN-GJV250 (GGV25), EN-GJV350 (GGV35)		≤220 HB	<input type="radio"/>
	EN-GJV400 (GGV40), EN-GJV500 (GGV50), SiMo 6		≤300 HB	<input type="radio"/>
New cast materials ADI	EN-GJS-800-8 (ADI800), EN-GJS-1000-5 (ADI1000)	≤1000		<input type="radio"/>
	EN-GJS-1200-2 (ADI1200), EN-GJS-1400-1 (ADI1400)	≤1400		<input type="radio"/>
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		<input checked="" type="radio"/>
Ti and Ti-alloys	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	≤850		<input checked="" type="radio"/>
	3.7154 TiAl6Zr5, 3.7165 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤1400		<input checked="" type="radio"/>
Aluminium and Al-alloys	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	≤400		<input type="radio"/>
Al wrought alloys	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	≤650		<input type="radio"/>
Al cast alloys ≤ 10 % Si	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	≤600		<input type="radio"/>
≤ 24 % Si	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input type="radio"/>
Magnesium alloys	3.5200 MgMn2, 3.5812.05 G-MgAl8Zn1, 3.5612.05 G-MgAl6Zn1	≤400		<input type="radio"/>
Copper, low-alloyed	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	≤500		<input type="radio"/>
Brass, short-chipping	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	≤600		<input type="radio"/>
long-chipping	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	≤600		<input type="radio"/>
Bronze, short-chipping	2.1090 CuSn7ZnPb, 2.1170 CuPb5Sn5, 2.1176 CuPb10Sn	≤600		<input type="radio"/>
	2.0790 CuNi18Zn19Pb	≤850		<input checked="" type="radio"/>
Bronze, long-chipping	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	≤850		<input checked="" type="radio"/>
	2.0980 CuAl11Ni, 2.1247 CuBe2	≤1000		<input checked="" type="radio"/>
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		<input type="radio"/>
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		<input type="radio"/>
Kevlar	Kevlar	≤1000		<input type="radio"/>
Glass, carbon concentr. plastics GFK/CFK	GFK/CFK	≤1000		<input type="radio"/>



5500	5538
DIN 335	DIN 335
HSS-E	HSS-E
A	A
90°	90°
cyl.	cyl.

5501	5539
DIN 335	DIN 335
HSS-E	HSS-E
A	A
90°	90°
3-surface	3-surface

5503
WN
HSS
A
90°
cyl.



V _c m/min	Feed column no.	
41	83	83
39	82	82
41	83	83
39	82	82
41	83	83
39	83	83
25	82	82
19	83	83
15	82	82
32	83	83
19	83	83
13	82	82
19	82	82
15	81	81
22	82	82
19	81	81
19	81	81
13	81	81
20	82	82
15	81	81
18	81	81
32	83	83
20	83	83
28	83	83
25	83	83
10	81	81
28	83	83
18	83	83
10	81	81
19	82	82
13	81	81
114	84	84
89	84	84
51	83	83
39	83	83
127	84	84
76	84	84
101	84	84
64	84	84
39	84	84
33	84	84
31	84	84
25	84	84
39	84	84
51	84	84

V _c m/min	Feed column no.	
41	83	83
39	82	82
41	83	83
39	82	82
41	83	83
39	83	83
25	82	82
19	83	83
15	82	82
32	83	83
19	83	83
13	82	82
19	82	82
15	81	81
22	82	82
19	81	81
19	81	81
13	81	81
20	82	82
15	81	81
18	81	81
32	83	83
20	83	83
28	83	83
25	83	83
10	81	81
28	83	83
18	83	83
10	81	81
19	82	82
13	81	81
114	84	84
89	84	84
51	83	83
39	83	83
127	84	84
76	84	84
101	84	84
64	84	84
39	84	84
33	84	84
31	84	84
25	84	84
39	84	84
51	84	84

V _c m/min	Feed column no.
37	83
35	82
37	83
35	82
37	83
35	83
23	82
17	83
14	82
29	83
17	83
12	82
17	82
14	81
20	82
17	81
17	81
12	81
18	82
14	81
16	81
29	83
18	83
25	83
23	83
9	81
25	83
16	83
9	81
17	82
12	81
104	84
81	84
46	83
35	83
115	84
69	84
92	84
58	84
35	84
30	84
28	84
23	84
35	84
46	84



GÜHRING

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