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%

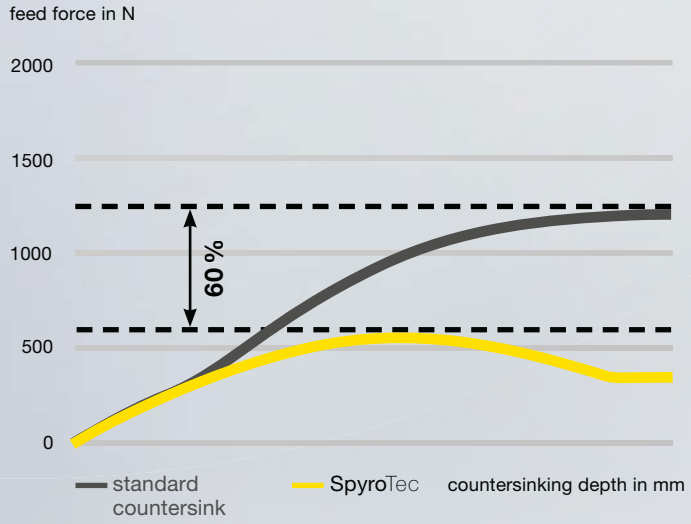
SpyroTec | Twisted HSS and HSCO countersink

GÜHRING – YOUR WORLDWIDE PARTNER

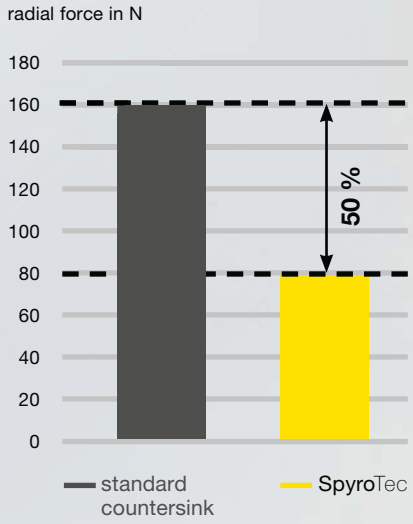
SpyroTec

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 geomtery 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 Ø 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

DIN 335 | 90° | C

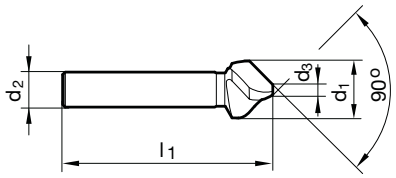
Tool material	**HSCO**
Surface	A
Shank form	cyl.

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

GÜHRINGNAVIGATOR

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

DIN 335 | 90° | C

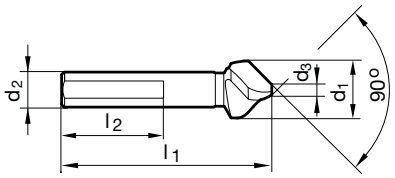
Tool material	**HSCO**
Surface	A
Shank form	3-surface

P	•
M	•
K	•
N	○
S	○
H	

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

GÜHRINGNAVIGATOR

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

WN | 90° | C

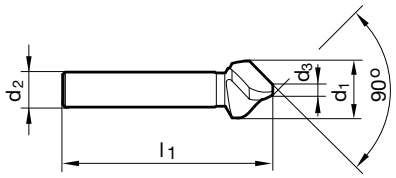
Tool material	HSS
Surface	A
Shank form	cyl.

P	•
M	○
K	•
N	○
S	○
H	

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

GÜHRINGNAVIGATOR

Cutting data page 11



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	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5500
- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

GÜHRINGNAVIGATOR

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	•
M	•
K	•
N	○
S	○
H	

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

GÜHRINGNAVIGATOR

Cutting data page 11

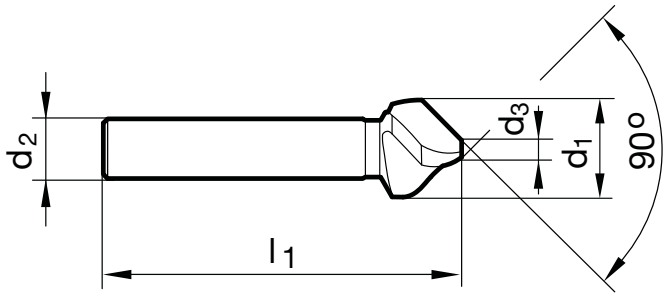
Tool material	HSCO
Surface	A
Shank form	3-surface

Catalog no. **5539**

Ø-range	Pieces/set	Code no.
mm		
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

GÜHRINGNAVIGATOR 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/mm²	Hardness	Coolant
Common structural 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)	≤1000		◍
Free-cutting steels	**1.0718** 11SMnPb30 (9SMnPb28), **1.0736** 11SMn37 (9SMn36)	≤850		◍
	1.0727 46S20 (45S20), **1.0728** (60S20), **1.0757** 46SPb20 (45SPb20)	≤1000		◍
Unalloyed heat-treatable steels	**1.0402** C22, **1.1178** C30E (Ck30)	≤700		◍
	1.0503 C45, **1.1191** C45E (Ck45)	≤850		◍
	1.0601 C60, **1.1221** C60E (Ck60)	≤1000		◍
Alloyed heat-treatable steels	**1.5131** 50MnSi4, **1.7003** 38Cr2, **1.7030** 28Cr4	≤1000		◍
	1.5710 36NiCr6, **1.7035** 41Cr4, **1.7225** 42CrMo4	≤1400		◍
Unalloyed case hard. steels	**1.0301** (C10), **1.1121** C10E (Ck10)	≤850		◍
Alloyed case hardened steels	**1.7276** 10CrMo11, **1.5125** 11MnSi6	≤1000		●
	1.5752 15NiCr13, **1.7131** 16MnCr5, **1.7264** 20CrMo5	≤1400		●
Nitriding steels	**1.8504** 34CrAl6	≤1000		◍
	1.8519 31CrMoV9, **1.8550** 34CrAlNi7	≤1400		●
Tool steels	**1.1750** C75W, **1.2067** 102Cr6, **1.2307** 29CrMoV9	≤850		◍
	1.2080 X210Cr12, **1.2083** X42Cr13, **1.2419** 105WCr6, **1.2767** X45NiCrMo4	≤1400		●
High speed steels	**1.3243** S 6-5-2-5, **1.3343** S 6-5-2, **1.3344** S 6-5-3	≤1400		●
Spring steels	**1.5026** 55Si7, **1.7176** 55Cr3, **1.8159** 51CrV4 (51CrV4)		≤350 HB	●
Hardened steels	–		≤48 HRC	●
			≤66 HRC	●
Stainless steels, sulphured	**1.4005** X12CrS13, **1.4104** X14CrMoS17, **1.4105** X6CrMoS17, **1.4305** X8CrNiS18-9	≤900		●
austenitic	**1.4301** X5CrNi18-10 (V2A), **1.4541** X6CrNiTi18-10, **1.4571** X6CrNiMoTi 17-12-2 (V4A)	≤1100		●
martensitic	**1.4057** X20CrNi172 (X17CrNi16-2), **1.4122** X39CrMo17-1, **1.4521** X2CrMoTi18-2	≤1500		●
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)		≤350 HB	◍ ○
Spheroidal graphite iron and malleable cast iron	**0.7050** EN-GJS-500-7 (GGG50), **0.8035** EN-GJMW-350-4 (GTW35)		≤240 HB	◍
	0.7070 EN-GJS-700-2 (GGG70), **0.8170** EN-GJMB-700-2 (GTS70)		≤350 HB	◍
Chilled cast iron	–		≤350 HB	◍
New cast materials GGV	**EN-GJV250** (GGV25), **EN-GJV350** (GGV35)		≤220 HB	◍ ○
	EN-GJV400 (GGV40), **EN-GJV500** (GGV50), SiMo 6		≤300 HB	◍ ○
New cast materials ADI	**EN-GJS-800-8** (ADI800), **EN-GJS-1000-5** (ADI1000)	≤1000		◍ ○
	EN-GJS-1200-2 (ADI1200), **EN-GJS-1400-1** (ADI1400)	≤1400		◍ ○
Special alloys	Nimonic, Inconel, Monel, Hastelloy	≤2000		●
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	≤1400		●
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	≤650		◍
Al cast alloys ≤ 10 % Si	**3.2131** G-AlSi5Cu1, **3.2153** G-AlSi7Cu3, **3.2573** G-AlSi9	≤600		◍
≤ 24 % 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	≤400		○
Copper, low-alloyed	**2.0070** SE-Cu, **2.1020** CuSn6, **2.1096** G-CuSn5ZnPb	≤500		◍
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	≤850		●
Bronze, long-chipping	**2.0916** CuAl5, **2.0960** CuAl9Mn, **2.1050** CuSn10	≤850		●
	2.0980 CuAl11Ni, **2.1247** CuBe2	≤1000		●
Duroplastics	Epoxy resin, Resopal, Pertinax, Moltopren	≤150		○
Thermoplastics	Plexiglass, Hostalen, Novodur, Makralon	≤100		◍ ○
Kevlar	Kevlar	≤1000		○
Glass, carbon concentr. plastics GFK/CFK	GFK/CFK	≤1000		○

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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