GÜHRING

SuperLine

NEW

EXTENDED PROGRAMME

Countersinks with convex cutting edges

- round, precise and chatter-free countersinking
- reduction of feed force by 60 %
- reduction of radial force by 50 %

SpyroTec | Twisted HSS and HSCO countersink

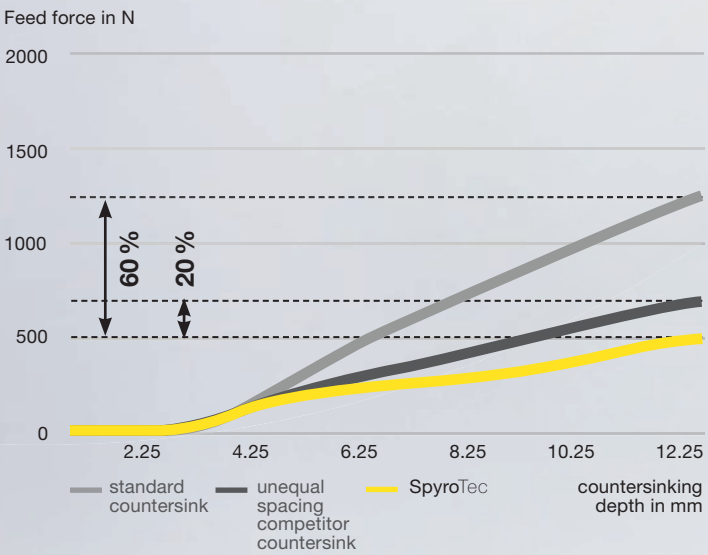
GÜHRING – YOUR WORLDWIDE PARTNER

SpyroTec

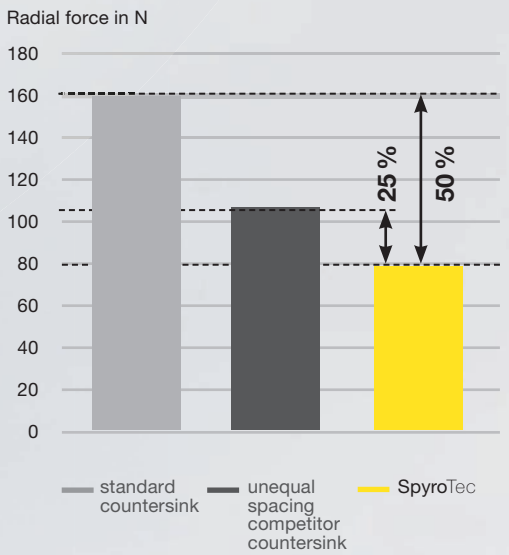
THE INNOVATIVE, TWISTED HSS AND HSCO COUNTERSINK

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 for nearly all materials and applications.

E.g. 90° version

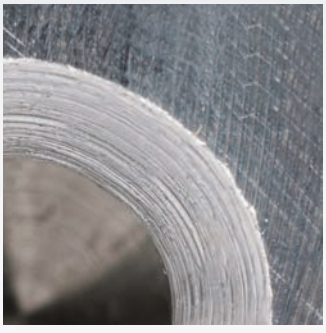


LOWER FEED FORCE BY APPROX. 60%
COMPARED TO STANDARD COUNTERSINKS



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

- included in the standard programme:
  - » 90° countersink to DIN 335 form C
  - » 60° countersink to DIN 334 form C
  - » 82° countersink to company std. form C
- available on request as a special tool with 120° countersink point angle
- version with straight shank or 3-flats on 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-aluminium coating is characterised by a strong hardness and a good thermal resistance.

CUTTING MATERIAL

High-quality high-speed steel 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.

A GÜHRING PRODUCT SuperLine

— FOR INCH COUNTERSUNK-HEAD SCREWS —

SpyroTec 82°

For the production of countersinks for the common 82° screw heads in english-speaking countries, e.g. USA or GB, in order to countersink the screw head in the component.

from p. 17

NEW

SpyroTec **82°**
including sets

— FOR METRIC COUNTERSUNK-HEAD SCREWS —

SpyroTec 90°

For the production of countersinks for the most common 90° screw head designs in order to countersink the screw head in the component. For universal deburring of holes on any components.

from p. 8

NEW

SpyroTec **90°**
Sets now with Ø 25 mm

— FOR METRIC COUNTERSUNK-HEAD SCREWS —

SpyroTec 60°

For the production of countersinks for 60° screw head designs in order to countersink the screw head in the component. For the production of 60° countersinks on special components. For universal deburring of holes on any components.

from p. 13

NEW

SpyroTec **60°**
now available
as a set

— SPECIAL TOOL —

SpyroTec 120°

For the production of countersinks for 120° sheet metal rivets and 120° countersinks on special components.

For further information please contact us!

NEW

SpyroTec **120°**
available
as special tool

90° Countersinks, spiral-fluted

DIN 335 | 90° | C

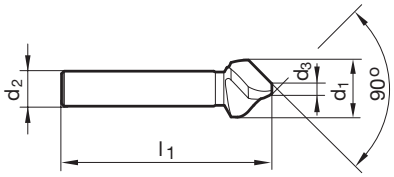
Tool material	HSCO
Surface	A
Shank form	cyl.

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 23



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
40.000	12.000	10.000	75.000	3	40.000

90° Countersinks, spiral-fluted

DIN 335 | 90° | C

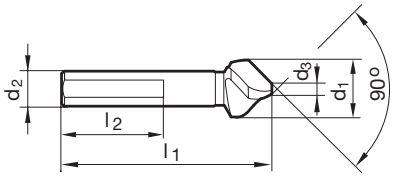
Tool material	HSCO
Surface	A
Shank form	3-flats

P	•
M	•
K	•
N	○
S	○
H	

- 3 different convex cutting edges
- 3-flats on shank prevent 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 23



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
40.000	12.000	10.000	75.000	30.000	3	40.000

90° Countersinks, spiral-fluted

WN | 90° | C

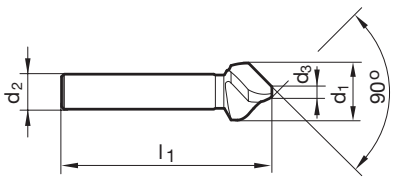
Tool material	HSS
Surface	A
Shank form	cyl.

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 23



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 | 90° | C

Tool material	HSCO
Surface	A
Shank form	cyl.

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 23

Article no. **5538**

Ø-range mm	Pieces/set	Code no.
6.3/8.3/10.4/12.4/16.5/20.5	6	1.000
6.3/10.4/16.5/20.5/25.0	5	2.000

90° Countersink sets, spiral-fluted

DIN 335 | 90° | C

Tool material	HSCO
Surface	A
Shank form	3-flats

P	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5501
- 3 different convex cutting edges
- 3-flats on shank prevent 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 23

Article no. **5539**

Ø-range mm	Pieces/set	Code no.
6.3/8.3/10.4/12.4/16.5/20.5	6	1.000
6.3/10.4/16.5/20.5/25.0	5	2.000

60° Countersinks, spiral-fluted

DIN 334 | 60° | C

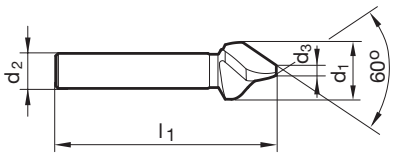
Tool material	HSS
Surface	A
Shank form	cyl.

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 25



Article no. **5670**

d1	d2	d3	l1	Z	Code no.
mm	mm	mm	mm		
6.300	5.000	1.600	45.000	3	6.300
8.000	6.000	2.000	50.000	3	8.000
10.000	6.000	3.200	56.000	3	10.000
12.500	8.000	3.200	56.000	3	12.500
16.000	10.000	4.000	63.000	3	16.000
20.000	10.000	5.000	67.000	3	20.000
25.000	10.000	6.300	71.000	3	25.000

60° Countersinks, spiral-fluted

DIN 334 | 60° | C

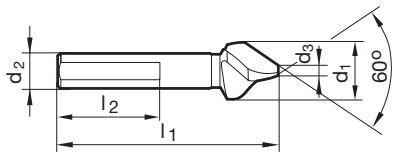
Tool material	HSS
Surface	A
Shank form	3-flats

P	•
M	•
K	•
N	○
S	○
H	

- 3-flats on shank prevent 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

GÜHRINGNAVIGATOR

Cutting data page 25



Article no. **5671**

d1	d2	d3	l1	l2	Z	Code no.
mm	mm	mm	mm	mm		
6.300	5.000	1.600	45.000	30.000	3	6.300
8.000	6.000	2.000	50.000	30.000	3	8.000
10.000	6.000	3.200	56.000	30.000	3	10.000
12.500	8.000	3.200	56.000	30.000	3	12.500
16.000	10.000	4.000	63.000	30.000	3	16.000
20.000	10.000	5.000	67.000	30.000	3	20.000
25.000	10.000	6.300	71.000	30.000	3	25.000

60° Countersink sets, spiral-fluted

DIN 334 | 60° | C

Tool material	HSS
Surface	A
Shank form	cyl.

P	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5670
- 3 different convex cutting edges
- low-vibration cutting processes
- for round and chatter-free countersinking
- considerably lower feed force required
- for universal application

NEW

GÜHRINGNAVIGATOR

Cutting data page 25

Article no. **5672**

Ø-range	Pieces/set	Code no.
mm		
6.3/8.0/10.0/12.5/16.0/20.0	6	1.000

60° Countersink sets, spiral-fluted

DIN 334 | 60° | C

P	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5671
- 3 different convex cutting edges
- 3-flats on shank prevent 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 25

Tool material	HSS
Surface	A
Shank form	3-flats

NEW

Article no. **5673**

Ø-range	Pieces/set	Code no.
mm		
6.3/8.0/10.0/12.5/16.0/20.0	6	1.000

82° Countersinks, spiral-fluted

WN | 82° | C

Tool material	HSCO
Surface	A
Shank form	cyl.

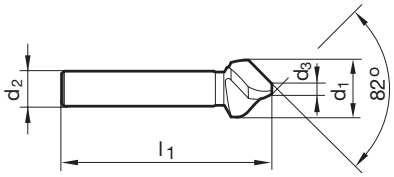
NEW

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 27



Article no. **5674**

d1 inch	d1 mm	d2 inch	d2 mm	d3 inch	d3 mm	l1 inch	l1 mm	Z	Code no.
1/4	6.350	0.250	6.350	0.060	1.520	2.000	50.800	3	6.350
5/16	7.938	0.250	6.350	0.080	2.030	2.000	50.800	3	7.938
3/8	9.525	0.250	6.350	0.090	2.290	2.000	50.800	3	9.525
1/2	12.700	0.375	9.525	0.150	3.810	2.250	57.150	3	12.700
5/8	15.875	0.375	9.525	0.180	4.570	2.250	57.150	3	15.875
3/4	19.050	0.500	12.700	0.210	5.330	2.750	69.850	3	19.050
7/8	22.225	0.500	12.700	0.230	5.840	2.750	69.850	3	22.225
1	25.400	0.500	12.700	0.250	6.350	2.750	69.850	3	25.400
1 1/4	31.750	0.500	12.700	0.370	9.400	3.000	76.200	3	31.750

82° Countersinks, spiral-fluted

WN | 82° | C

Tool material	HSCO
Surface	A
Shank form	3-flats

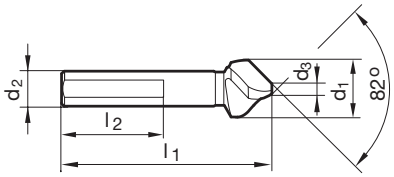
P	•
M	•
K	•
N	○
S	○
H	

- 3 different convex cutting edges
- 3-flats on shank prevent 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

NEW

GÜHRINGNAVIGATOR

Cutting data page 27



Article no. **5675**

d1 inch	d1 mm	d2 inch	d2 mm	d3 inch	d3 mm	l1 inch	l1 mm	l2 inch	l2 mm	Z	Code no.
1/4	6.350	0.250	6.350	0.060	1.520	2.000	50.800	1.180	30.000	3	6.350
5/16	7.938	0.250	6.350	0.080	2.030	2.000	50.800	1.180	30.000	3	7.938
3/8	9.525	0.250	6.350	0.090	2.290	2.000	50.800	1.180	30.000	3	9.525
1/2	12.700	0.375	9.525	0.150	3.810	2.250	57.150	1.180	30.000	3	12.700
5/8	15.875	0.375	9.525	0.180	4.570	2.250	57.150	1.180	30.000	3	15.875
3/4	19.050	0.500	12.700	0.210	5.330	2.750	69.850	1.180	30.000	3	19.050
7/8	22.225	0.500	12.700	0.230	5.840	2.750	69.850	1.180	30.000	3	22.225
1	25.400	0.500	12.700	0.250	6.350	2.750	69.850	1.180	30.000	3	25.400
1 1/4	31.750	0.500	12.700	0.370	9.400	3.000	76.200	1.180	30.000	3	31.750

82° Countersink sets, spiral-fluted

WN | 82° | C

P	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5674
- 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 27

Tool material	HSCO
Surface	A
Shank form	cyl.

NEW

Article no. **5676**

Ø-range	Pieces/set	Code no.
inch		
1/4, 5/16, 3/8, 1/2, 5/8, 3/4	6	1.000

82° Countersink sets, spiral-fluted

WN | 82° | C

Tool material	HSCO
Surface	A
Shank form	3-flats

NEW

P	•
M	•
K	•
N	○
S	○
H	

- consisting of art. no. 5675
- 3 different convex cutting edges
- 3-flats on shank prevent 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

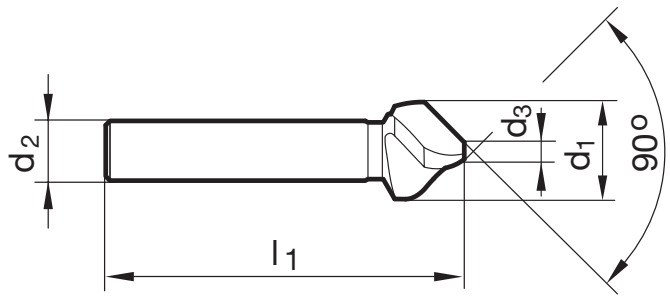
Cutting data page 27

Article no. **5677**

Ø-range inch	Pieces/set	Code no.
1/4, 5/16, 3/8, 1/2, 5/8, 3/4	6	1.000

SPYROTEC – SPIRAL-FLUTED COUNTERSINKS

Smallest hole diameter to allow countersinking and suitable for countersunk screws



SpyroTec 90°

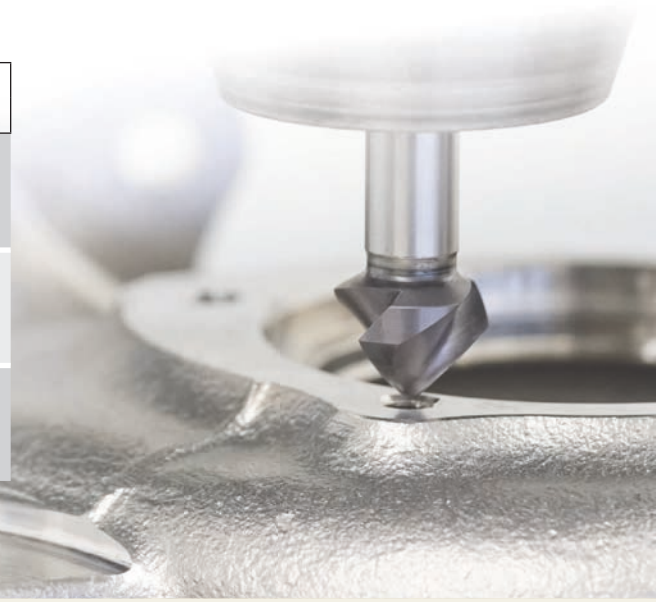
d1 mm	smallest hole-Ø to allow countersinking mm	for countersunk screws ISO 2009, 2010, 7046, 7047	for countersunk screws DIN 7991
6.300	2.00	-	M3
8.000	2.50	M4	-
8.300	2.50	-	M4
10.000	3.00	M5	-
10.400	3.00	-	M5
11.500	3.30	M6	-
12.400	3.30	-	M6
15.000	3.70	M8	-
16.500	3.70	-	M8
19.000	4.50	M10	-
20.500	4.50	-	M10
23.000	4.80	M12	-
25.000	4.80	-	M12
31.000	5.20	-	M16
40.000	12.00	-	M24

SpyroTec 60°

d1 mm	smallest hole-Ø to allow countersinking mm
6.300	2.10
8.000	2.50
10.000	3.00
12.500	3.70
16.000	4.50
20.000	6.00
25.000	7.30

SpyroTec 82°

d1 mm	d1 inch	d1 inch	smallest hole-Ø to allow countersinking mm	inch
6.350	1/4	0.2500	2.10	0.0830
7.938	5/16	0.3125	2.60	0.1020
9.525	3/8	0.3750	2.80	0.1100
12.700	1/2	0.5000	4.40	0.1730
15.875	5/8	0.6250	5.10	0.2010
19.050	3/4	0.7500	6.40	0.2520
22.225	7/8	0.8750	6.90	0.2720
25.400	1	1.0000	7.40	0.2910
31.750	1 1/4	1.2500	10.40	0.4060



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 GühringNavigator on the internet: www.guehring.com.

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

Coolant:
○ 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	≤1000		○

5500	5538
DIN 335	DIN 335
HSCO	HSCO
A	A
90°	90°
cyl.	cyl.

5501	5539
DIN 335	DIN 335
HSCO	HSCO
A	A
90°	90°
3-flats	3-flats

5503
Company std.
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

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 GühringNavigator on the internet: www.guehring.com.

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

Coolant:
○ 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	≤1000		○

5670	5672
DIN 334	DIN 334
HSS	HSS
A	A
60°	60°
cyl.	cyl.

5671	5673
DIN 334	DIN 334
HSS	HSS
A	A
60°	60°
3-flats	3-flats

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

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

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HIGH PERFORMANCE

GU 500

UNIVERSAL DRILLS

EFFICIENT MACHINING AND LONG TOOL LIFE IN A WIDE RANGE OF PROCESSES

GÜHRINGNAVIGATOR Countersinks, spiral-fluted

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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

Coolant:
○ 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	≤1000		○

5674	5675
Company std.	Company std.
HSCO	HSCO
A	A
82°	82°
cyl.	cyl.

5676	5677
Company std.	Company std.
HSCO	HSCO
A	A
82°	82°
3-flats	3-flats

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**
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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**
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v_c m/min	Feed column no.	
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