

» TWIST DRILLS



## Twist drills

22	DIN 338 type VA, HSSE-Co 8
25	DIN 338 type N, HSSE-Co 8
28	DIN 338 type UF-L, HSSE-Co 5
31	DIN 338 type FO, HSSE-Co 5
33	DIN 338 TL 3000, HSSE-Co 5
36	DIN 338 type VA, HSSE-Co 5
38	DIN 338 type VA, HSSE-Co 5
42	DIN 338 type UNI, HSSE-Co 5
44	DIN 338 TL 3000, HSS-G
48	DIN 338 type TURBO, HSS-G
50	DIN 338 type W, HSS-G
52	DIN 338 type N, HSS-G
54	DIN 338 type N, HSS-G
58	DIN 338 type N, HSS-G - left hand cutting
60	DIN 338 type N, with reduced shank
61	DIN 338 type N, HSS-R
64	DIN 338 type N, with brazed-on TC cutting inserts
66	DIN 338 type N, Solid TC
68	DIN 338 TL 3000, in fractional sizes
70	DIN 338 type N, in fractional sizes
71	DIN 338 type VA, in fractional sizes
72	DIN 340 TL 3000, HSSE-Co 5
74	DIN 340 type N, HSS-G
76	DIN 1869 TL 3000, HSS-G - extra long
78	DIN 345 type N, HSS and HSSE-Co 5
80	DIN 1897 type UF-L, HSSE-Co 5 - short
82	DIN 1897 type N, HSSE-Co 5 - short
84	DIN 1897 type N, HSS-G - short
86	Spot drills type N, HSS-G - extra short
87	Double end drills type KV, HSS-G
88	NC-spot drills 90°, HSSE-Co 5
89	NC-spot drills 90°, HSSE-Co 5 with weldon shank
90	NC-spot drills 120°, HSSE-Co 5
91	NC-spot drills 120°, HSSE-Co 5 with weldon shank
92	Centre drills DIN 333, HSS
93	Hollow section twist drills type N, HSS-G



## Overview of symbols



**DIN 333** Centre drills 60° - shape A and R

**DIN 345** Twist drills with morse taper shank

**DIN 338** Short twist drills with straight shank

**DIN 1869** Extra long twist drills with straight shank

**DIN 340** Long twist drills with straight shank

**DIN 1897** Extra short twist drills with straight shank

**HSS** High-speed steel

**HSS-R** High-speed steel rolled

**HSS-G** High-speed steel, ground

**HSSE Co 5** High-speed steel with 5 % Cobalt content, ground


**HSSE Co 8** High-speed steel with 8 % Cobalt content, ground


**TC** Tungsten carbide

 bright

 Gold surface

 Black surface

 bright / black surface

 Gold / black oxidized surface


 TiN coating


 TiCN coating

 TiAlN coating


 AlTiN coating

 Tecrona coating


 right hand cutting

 Point angle e.g. 130°

 Tolerance e.g. h8

 Shank: 3-way clamping surface  $\geq \varnothing 4.0 \text{ mm}$


 left hand cutting


 Helix angle e.g. 40°

 Shank: cylindrical


 Shank: Weldon


 NEW at RUKO

 Drilling depth e.g. 5 x diameter

 Centre angle e.g. 60°

 Shank: reduced

 Shank: Morse taper

 Very suitable for all-purpose use in drilling machines and cordless drills



## Overview of symbols



Helix angle: 25-30°  
Profile of flute: normal  
Core: normal  
Point angle: 118°  
Point cut: form C



Helix angle: 40°  
Profile of flute: wide with rounded rear edges  
Core: thick  
Point angle: 130°  
Point cut: shape C



Helix angle: 38°  
Profile of flute: wide with rounded rear edges  
Core: very thick  
Point angle: 130°  
Point cut: shape C



Helix angle: 35-40°  
Profile of flute: wide, for better chip removal  
Core: normal  
Point angle: 130°  
Point cut: shape C



Helix angle: 36°  
Profile of flute: normal  
Core: thickened  
Point angle: 130°  
Point cut: shape C



Helix angle: 40°  
Profile of flute: wide, for better chip removal  
Core: normal  
Point angle: 135°  
Point cut: shape C



Helix angle: 40°  
Profile of flute: wide with rounded rear edges  
Core: very thick  
Point angle: 130°  
Point cut: shape U



Helix angle: 36°  
Profile of flute: normal  
Core: thickened  
Point angle: 130°  
Point cut: shape C



Helix angle: 36°  
Profile of flute: normal  
Core: thickened  
Centre angle: 130°  
Point cut: shape C



Helix angle: 25-30°  
Profile of flute: normal  
Core: normal  
Point angle: 130°  
Point cut: shape C

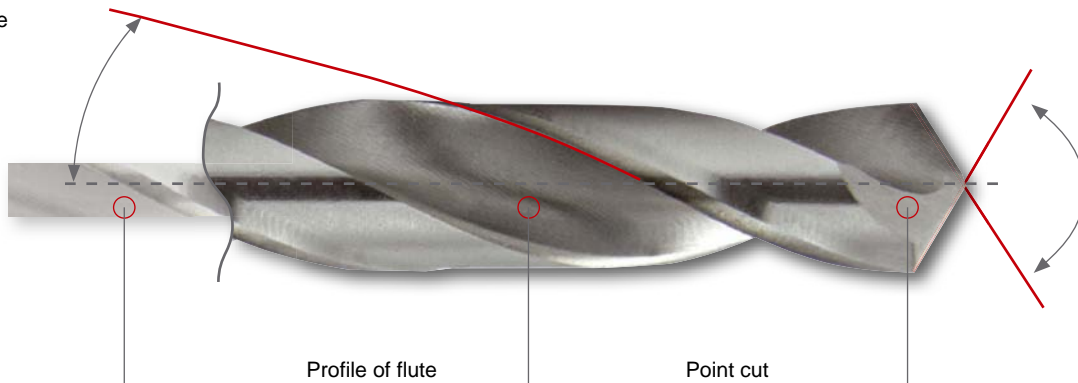


Helix angle: 25-30°  
Profile of flute: normal  
Core: normal  
Point angle: 90°  
Point cut: only the flute is grinded



Helix angle: 25-30°  
Profile of flute: normal  
Core: normal  
Point angle: 120°  
Point cut: only the flute is grinded

Helix angle



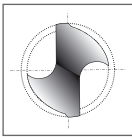
Point angle

Core

Profile of flute

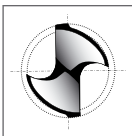
Point cut

## Point cuts in accordance with DIN 1412



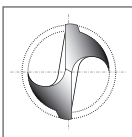
### Shape N: Helical point normal ground

Applications: for all normal drilling work in steel, non-ferrous metal and plastic. The point angles depend on the ease with which the materials can be cut. Advantages: powerful main cut, resistant to impact and lateral forces. Simple manual grinding possible. Disadvantages: broad cutting edge requires considerable pressure.



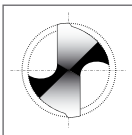
### Shape A: Cut chisel edge

Applications: for all normal drilling work using drills with a strong core, for drilling into solid materials with larger drill diameters. Advantages: good centring when starting to drill, as the length of the chisel edge is reduced to 1/10 of the drill diameter, and fewer pressure is required. Disadvantages: additional regrinding work.



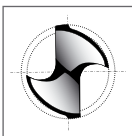
### Shape B: Cut chisel edge with corrected major cutting edge

Applications: for drilling high-density steel, for manganese steel with over 10 % Mn, for hard spring steel and for drilling out. Advantages: resistant to impact, one-way load and lateral forces. Does not catch in thin workpieces. Disadvantages: high pressure required, tendency to slip, extra work involved in regrinding.



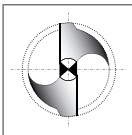
### Shape C: Split point

Applications: for drills with very strong cores, for particularly tough, hard materials and for deep-hole drills. Advantages: good centring, little pressure required. Chip spreading improves chip removal. Disadvantages: perfect grinding only possible by machine.



### Shape D: Ground for grey cast iron

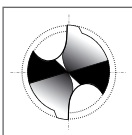
Applications: for drilling grey cast iron, malleable cast iron and forgings. Advantages: wear on cutting corners is reduced by extended major cutting edges, resistant to impact, good heat conductivity, all giving improved tool life. Disadvantages: extra work involved in regrinding.



### Shape E: Centre point

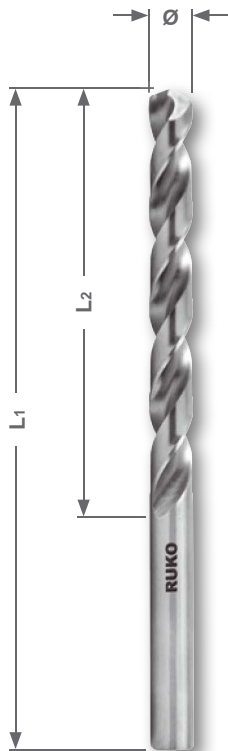
Applications: for drilling sheet-metal and soft materials, for blind holes with flat bottoms. Advantages: good centring, minimal formation of burrs when through-drilling, precise drilling in thin sheets and pipes, does not catch. Available in diameters of 2.5 mm upwards. Disadvantages: sensitive to impact and one-way loading. Can only be ground to perfection by machine.

## Other point cuts



### Shape U: Special ground

Applications: for drills with sturdy profiles suitable for use in automated processing, with narrow grooves and strong cores. Advantages: extremely good self-centring behaviour when maximum cutting valuminiumes are employed. Concave cutting produces short metal chips. Disadvantages: extra work involved in regrinding.



## **N** Twist drills DIN 338 type VA, HSSE-Co 8 ground



Powerful special drill that should ideally be used for titanium base alloys as well as stainless, acid-resistant and heat-resistant austenitic steels. It is also suitable for high strength steels with low ductility. Under certain conditions, these drills can be used for special alloys such as hastelloy, inconel and nimonic etc.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
○	●	●	●			○	○	○	●

● Main application      ○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 8	Cont. pcs.	Article no. HSSE-Co 8 TiAlN	Cont. pcs.
1,00	34,0	12,0	281 010 E	10	281 010 EF	10
1,10	36,0	14,0	281 011 E	10	281 011 EF	10
1,20	38,0	16,0	281 012 E	10	281 012 EF	10
1,30	38,0	16,0	281 013 E	10	281 013 EF	10
1,40	40,0	18,0	281 014 E	10	281 014 EF	10
1,50	40,0	18,0	281 015 E	10	281 015 EF	10
1,60	43,0	20,0	281 016 E	10	281 016 EF	10
1,70	43,0	20,0	281 017 E	10	281 017 EF	10
1,80	46,0	22,0	281 018 E	10	281 018 EF	10
1,90	46,0	22,0	281 019 E	10	281 019 EF	10
2,00	49,0	24,0	281 020 E	10	281 020 EF	10
2,10	49,0	24,0	281 021 E	10	281 021 EF	10
2,20	53,0	27,0	281 022 E	10	281 022 EF	10
2,30	53,0	27,0	281 023 E	10	281 023 EF	10
2,40	57,0	30,0	281 024 E	10	281 024 EF	10
2,50	57,0	30,0	281 025 E	10	281 025 EF	10
2,60	57,0	30,0	281 026 E	10	281 026 EF	10
2,70	61,0	33,0	281 027 E	10	281 027 EF	10
2,80	61,0	33,0	281 028 E	10	281 028 EF	10
2,90	61,0	33,0	281 029 E	10	281 029 EF	10
3,00	61,0	33,0	281 030 E	10	281 030 EF	10
3,10	65,0	36,0	281 031 E	10	281 031 EF	10
3,20	65,0	36,0	281 032 E	10	281 032 EF	10
3,30	65,0	36,0	281 033 E	10	281 033 EF	10
3,40	70,0	39,0	281 034 E	10	281 034 EF	10
3,50	70,0	39,0	281 035 E	10	281 035 EF	10
3,60	70,0	39,0	281 036 E	10	281 036 EF	10
3,70	70,0	39,0	281 037 E	10	281 037 EF	10
3,80	75,0	43,0	281 038 E	10	281 038 EF	10
3,90	75,0	43,0	281 039 E	10	281 039 EF	10
4,00	75,0	43,0	281 040 E	10	281 040 EF	10
4,10	75,0	43,0	281 041 E	10	281 041 EF	10
4,20	75,0	43,0	281 042 E	10	281 042 EF	10
4,30	80,0	47,0	281 043 E	10	281 043 EF	10
4,40	80,0	47,0	281 044 E	10	281 044 EF	10

**N**

Ø mm	L1 mm	L2 mm	Article no. <b>HSSE-Co 8</b>	Cont. pcs.	Article no. <b>HSSE-Co 8 TiAIN</b>	Cont. pcs.
4,50	80,0	47,0	281 045 E	10	281 045 EF	10
4,60	80,0	47,0	281 046 E	10	281 046 EF	10
4,70	80,0	47,0	281 047 E	10	281 047 EF	10
4,80	86,0	52,0	281 048 E	10	281 048 EF	10
4,90	86,0	52,0	281 049 E	10	281 049 EF	10
5,00	86,0	52,0	281 050 E	10	281 050 EF	10
5,10	86,0	52,0	281 051 E	10	281 051 EF	10
5,20	86,0	52,0	281 052 E	10	281 052 EF	10
5,30	86,0	52,0	281 053 E	10	281 053 EF	10
5,40	93,0	57,0	281 054 E	10	281 054 EF	10
5,50	93,0	57,0	281 055 E	10	281 055 EF	10
5,60	93,0	57,0	281 056 E	10	281 056 EF	10
5,70	93,0	57,0	281 057 E	10	281 057 EF	10
5,80	93,0	57,0	281 058 E	10	281 058 EF	10
5,90	93,0	57,0	281 059 E	10	281 059 EF	10
6,00	93,0	57,0	281 060 E	10	281 060 EF	10
6,10	101,0	63,0	281 061 E	10	281 061 EF	10
6,20	101,0	63,0	281 062 E	10	281 062 EF	10
6,30	101,0	63,0	281 063 E	10	281 063 EF	10
6,40	101,0	63,0	281 064 E	10	281 064 EF	10
6,50	101,0	63,0	281 065 E	10	281 065 EF	10
6,60	101,0	63,0	281 066 E	10	281 066 EF	10
6,70	101,0	63,0	281 067 E	10	281 067 EF	10
6,80	109,0	69,0	281 068 E	10	281 068 EF	10
6,90	109,0	69,0	281 069 E	10	281 069 EF	10
7,00	109,0	69,0	281 070 E	10	281 070 EF	10
7,10	109,0	69,0	281 071 E	10	281 071 EF	10
7,20	109,0	69,0	281 072 E	10	281 072 EF	10
7,30	109,0	69,0	281 073 E	10	281 073 EF	10
7,40	109,0	69,0	281 074 E	10	281 074 EF	10
7,50	109,0	69,0	281 075 E	10	281 075 EF	10
7,60	117,0	75,0	281 076 E	10	281 076 EF	10
7,70	117,0	75,0	281 077 E	10	281 077 EF	10
7,80	117,0	75,0	281 078 E	10	281 078 EF	10
7,90	117,0	75,0	281 079 E	10	281 079 EF	10
8,00	117,0	75,0	281 080 E	10	281 080 EF	10
8,10	117,0	75,0	281 081 E	10	281 081 EF	10
8,20	117,0	75,0	281 082 E	10	281 082 EF	10
8,30	117,0	75,0	281 083 E	10	281 083 EF	10
8,40	117,0	75,0	281 084 E	10	281 084 EF	10
8,50	117,0	75,0	281 085 E	10	281 085 EF	10
8,60	125,0	81,0	281 086 E	10	281 086 EF	10
8,70	125,0	81,0	281 087 E	10	281 087 EF	10
8,80	125,0	81,0	281 088 E	10	281 088 EF	10
8,90	125,0	81,0	281 089 E	10	281 089 EF	10
9,00	125,0	81,0	281 090 E	10	281 090 EF	10
9,10	125,0	81,0	281 091 E	10	281 091 EF	10
9,20	125,0	81,0	281 092 E	10	281 092 EF	10
9,30	125,0	81,0	281 093 E	10	281 093 EF	10
9,40	125,0	81,0	281 094 E	10	281 094 EF	10
9,50	125,0	81,0	281 095 E	10	281 095 EF	10
9,60	133,0	87,0	281 096 E	10	281 096 EF	10
9,70	133,0	87,0	281 097 E	10	281 097 EF	10
9,80	133,0	87,0	281 098 E	10	281 098 EF	10
9,90	133,0	87,0	281 099 E	10	281 099 EF	10
10,00	133,0	87,0	281 100 E	10	281 100 EF	10
10,20	133,0	87,0	281 102 E	10	281 102 EF	10
10,50	133,0	87,0	281 105 E	5	281 105 EF	5
11,00	142,0	94,0	281 110 E	5	281 110 EF	5
11,50	142,0	94,0	281 115 E	5	281 115 EF	5
12,00	151,0	101,0	281 120 E	5	281 120 EF	5
12,50	151,0	101,0	281 125 E	5	281 125 EF	5
13,00	151,0	101,0	281 130 E	5	281 130 EF	5
13,50	160,0	108,0	281 135 E	5	281 135 EF	5
14,00	160,0	108,0	281 140 E	5	281 140 EF	5
14,50	169,0	114,0	281 145 E	5	281 145 EF	5
15,00	169,0	114,0	281 150 E	5	281 150 EF	5
15,50	178,0	120,0	281 155 E	5	281 155 EF	5
16,00	178,0	120,0	281 160 E	5	281 160 EF	5



1.01

**N** Twist drill sets DIN 338 type VA, HSSE-Co 8 ground



281 214 E



281 214 EF



281 214 ERO

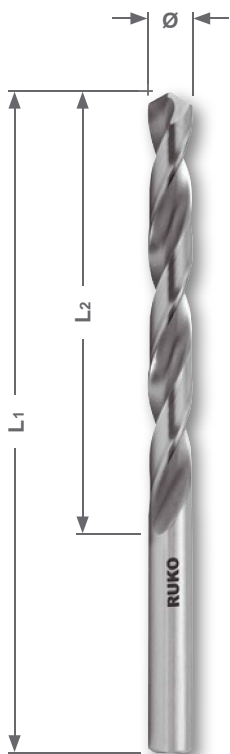


281 214 EFRO

Description	<b>N</b>	
	Article no. HSSE-Co 8	Article no. HSSE-Co 8 TiAIN
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	281 214 E	281 214 EF
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	281 215 E	281 215 EF
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	281 214 ERO	281 214 EFRO
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	281 215 ERO	281 215 EFRO







**N** Twist drills DIN 338 type N, HSSE-Co 8 ground



Exceptionally high-performance twist drills made from high-alloyed CoMo steel (8 % Co, 10 % Mo) with extremely distinctive heat resistance. For processing high-strength alloys and stainless, acid-resistant and heat-resistant steel.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	●	●	○	○	○	○	○	○

● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	<b>N</b>			
			Article no. HSSE-Co 8	Cont. pcs.	Article no. HSSE-Co 8 TiAlN	Cont. pcs.
1,00	34,0	12,0	282 010 E	10	282 010 EF	10
1,10	36,0	14,0	282 011 E	10	282 011 EF	10
1,20	38,0	16,0	282 012 E	10	282 012 EF	10
1,30	38,0	16,0	282 013 E	10	282 013 EF	10
1,40	40,0	18,0	282 014 E	10	282 014 EF	10
1,50	40,0	18,0	282 015 E	10	282 015 EF	10
1,60	43,0	20,0	282 016 E	10	282 016 EF	10
1,70	43,0	20,0	282 017 E	10	282 017 EF	10
1,80	46,0	22,0	282 018 E	10	282 018 EF	10
1,90	46,0	22,0	282 019 E	10	282 019 EF	10
2,00	49,0	24,0	282 020 E	10	282 020 EF	10
2,10	49,0	24,0	282 021 E	10	282 021 EF	10
2,20	53,0	27,0	282 022 E	10	282 022 EF	10
2,30	53,0	27,0	282 023 E	10	282 023 EF	10
2,40	57,0	30,0	282 024 E	10	282 024 EF	10
2,50	57,0	30,0	282 025 E	10	282 025 EF	10
2,60	57,0	30,0	282 026 E	10	282 026 EF	10
2,70	61,0	33,0	282 027 E	10	282 027 EF	10
2,80	61,0	33,0	282 028 E	10	282 028 EF	10
2,90	61,0	33,0	282 029 E	10	282 029 EF	10
3,00	61,0	33,0	282 030 E	10	282 030 EF	10
3,10	65,0	36,0	282 031 E	10	282 031 EF	10
3,20	65,0	36,0	282 032 E	10	282 032 EF	10
3,30	65,0	36,0	282 033 E	10	282 033 EF	10
3,40	70,0	39,0	282 034 E	10	282 034 EF	10
3,50	70,0	39,0	282 035 E	10	282 035 EF	10
3,60	70,0	39,0	282 036 E	10	282 036 EF	10
3,70	70,0	39,0	282 037 E	10	282 037 EF	10
3,80	75,0	43,0	282 038 E	10	282 038 EF	10
3,90	75,0	43,0	282 039 E	10	282 039 EF	10
4,00	75,0	43,0	282 040 E	10	282 040 EF	10
4,10	75,0	43,0	282 041 E	10	282 041 EF	10
4,20	75,0	43,0	282 042 E	10	282 042 EF	10
4,30	80,0	47,0	282 043 E	10	282 043 EF	10
4,40	80,0	47,0	282 044 E	10	282 044 EF	10
4,50	80,0	47,0	282 045 E	10	282 045 EF	10



## **N** Twist drills DIN 338 type N, HSSE-Co 8 ground



1.01

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 8	Cont. pcs.		
			Article no. HSSE-Co 8 TiAIN	Cont. pcs.		
4,60	80,0	47,0	282 046 E	10	282 046 EF	10
4,70	80,0	47,0	282 047 E	10	282 047 EF	10
4,80	86,0	52,0	282 048 E	10	282 048 EF	10
4,90	86,0	52,0	282 049 E	10	282 049 EF	10
5,00	86,0	52,0	282 050 E	10	282 050 EF	10
5,10	86,0	52,0	282 051 E	10	282 051 EF	10
5,20	86,0	52,0	282 052 E	10	282 052 EF	10
5,30	86,0	52,0	282 053 E	10	282 053 EF	10
5,40	93,0	57,0	282 054 E	10	282 054 EF	10
5,50	93,0	57,0	282 055 E	10	282 055 EF	10
5,60	93,0	57,0	282 056 E	10	282 056 EF	10
5,70	93,0	57,0	282 057 E	10	282 057 EF	10
5,80	93,0	57,0	282 058 E	10	282 058 EF	10
5,90	93,0	57,0	282 059 E	10	282 059 EF	10
6,00	93,0	57,0	282 060 E	10	282 060 EF	10
6,10	101,0	63,0	282 061 E	10	282 061 EF	10
6,20	101,0	63,0	282 062 E	10	282 062 EF	10
6,30	101,0	63,0	282 063 E	10	282 063 EF	10
6,40	101,0	63,0	282 064 E	10	282 064 EF	10
6,50	101,0	63,0	282 065 E	10	282 065 EF	10
6,60	101,0	63,0	282 066 E	10	282 066 EF	10
6,70	101,0	63,0	282 067 E	10	282 067 EF	10
6,80	109,0	69,0	282 068 E	10	282 068 EF	10
6,90	109,0	69,0	282 069 E	10	282 069 EF	10
7,00	109,0	69,0	282 070 E	10	282 070 EF	10
7,10	109,0	69,0	282 071 E	10	282 071 EF	10
7,20	109,0	69,0	282 072 E	10	282 072 EF	10
7,30	109,0	69,0	282 073 E	10	282 073 EF	10
7,40	109,0	69,0	282 074 E	10	282 074 EF	10
7,50	109,0	69,0	282 075 E	10	282 075 EF	10
7,60	117,0	75,0	282 076 E	10	282 076 EF	10
7,70	117,0	75,0	282 077 E	10	282 077 EF	10
7,80	117,0	75,0	282 078 E	10	282 078 EF	10
7,90	117,0	75,0	282 079 E	10	282 079 EF	10
8,00	117,0	75,0	282 080 E	10	282 080 EF	10
8,10	117,0	75,0	282 081 E	10	282 081 EF	10
8,20	117,0	75,0	282 082 E	10	282 082 EF	10
8,30	117,0	75,0	282 083 E	10	282 083 EF	10
8,40	117,0	75,0	282 084 E	10	282 084 EF	10
8,50	117,0	75,0	282 085 E	10	282 085 EF	10
8,60	125,0	81,0	282 086 E	10	282 086 EF	10
8,70	125,0	81,0	282 087 E	10	282 087 EF	10
8,80	125,0	81,0	282 088 E	10	282 088 EF	10
8,90	125,0	81,0	282 089 E	10	282 089 EF	10
9,00	125,0	81,0	282 090 E	10	282 090 EF	10
9,10	125,0	81,0	282 091 E	10	282 091 EF	10
9,20	125,0	81,0	282 092 E	10	282 092 EF	10
9,30	125,0	81,0	282 093 E	10	282 093 EF	10
9,40	125,0	81,0	282 094 E	10	282 094 EF	10
9,50	125,0	81,0	282 095 E	10	282 095 EF	10
9,60	133,0	87,0	282 096 E	10	282 096 EF	10
9,70	133,0	87,0	282 097 E	10	282 097 EF	10
9,80	133,0	87,0	282 098 E	10	282 098 EF	10
9,90	133,0	87,0	282 099 E	10	282 099 EF	10
10,00	133,0	87,0	282 100 E	10	282 100 EF	10
10,20	133,0	87,0	282 102 E	10	282 102 EF	10
10,50	133,0	87,0	282 105 E	5	282 105 EF	5
11,00	142,0	94,0	282 110 E	5	282 110 EF	5
11,50	142,0	94,0	282 115 E	5	282 115 EF	5
12,00	151,0	101,0	282 120 E	5	282 120 EF	5
12,50	151,0	101,0	282 125 E	5	282 125 EF	5
13,00	151,0	101,0	282 130 E	5	282 130 EF	5
13,50	160,0	108,0	282 135 E	5	282 135 EF	5
14,00	160,0	108,0	282 140 E	5	282 140 EF	5
14,50	169,0	114,0	282 145 E	5	282 145 EF	5
15,00	169,0	114,0	282 150 E	5	282 150 EF	5
15,50	178,0	120,0	282 155 E	5	282 155 EF	5
16,00	178,0	120,0	282 160 E	5	282 160 EF	5

**N** Twist drill sets DIN 338 type N, HSSE-Co 8 ground



282 214 E



282 214 EF



282 214 ERO



282 214 EFRO



Description	<b>N</b>	
	Article no. HSSE-Co 8	Article no. HSSE-Co 8 TiAlN
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	282 214 E	282 214 EF
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	282 215 E	282 215 EF
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	282 214 ERO	282 214 EFRO
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	282 215 ERO	282 215 EFRO





## **N** Twist drills DIN 338 type UF-L, HSSE-Co 5 ground



Best multirange drill with distinctive heat resistance and universal deep-hole flute with special geometry for optimising chip formation and removal. Enables deeper holes to be drilled without cooling and ventilation. Particularly broad use for all middle and long-chipping materials.

The extremely wide core and broad deep-hole flute with rounded rear edges also make this drill ideal for use as a type W, type H and type VA.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	●	○	○	○	○	○	○

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAIN	Cont. pcs.
1,00	34,0	12,0	283 010 E	10	283 010 EF	10
1,10	36,0	14,0	283 011 E	10	283 011 EF	10
1,20	38,0	16,0	283 012 E	10	283 012 EF	10
1,30	38,0	16,0	283 013 E	10	283 013 EF	10
1,40	40,0	18,0	283 014 E	10	283 014 EF	10
1,50	40,0	18,0	283 015 E	10	283 015 EF	10
1,60	43,0	20,0	283 016 E	10	283 016 EF	10
1,70	43,0	20,0	283 017 E	10	283 017 EF	10
1,80	46,0	22,0	283 018 E	10	283 018 EF	10
1,90	46,0	22,0	283 019 E	10	283 019 EF	10
2,00	49,0	24,0	283 020 E	10	283 020 EF	10
2,10	49,0	24,0	283 021 E	10	283 021 EF	10
2,20	53,0	27,0	283 022 E	10	283 022 EF	10
2,30	53,0	27,0	283 023 E	10	283 023 EF	10
2,40	57,0	30,0	283 024 E	10	283 024 EF	10
2,50	57,0	30,0	283 025 E	10	283 025 EF	10
2,60	57,0	30,0	283 026 E	10	283 026 EF	10
2,70	61,0	33,0	283 027 E	10	283 027 EF	10
2,80	61,0	33,0	283 028 E	10	283 028 EF	10
2,90	61,0	33,0	283 029 E	10	283 029 EF	10
3,00	61,0	33,0	283 030 E	10	283 030 EF	10
3,10	65,0	36,0	283 031 E	10	283 031 EF	10
3,20	65,0	36,0	283 032 E	10	283 032 EF	10
3,30	65,0	36,0	283 033 E	10	283 033 EF	10
3,40	70,0	39,0	283 034 E	10	283 034 EF	10
3,50	70,0	39,0	283 035 E	10	283 035 EF	10
3,60	70,0	39,0	283 036 E	10	283 036 EF	10
3,70	70,0	39,0	283 037 E	10	283 037 EF	10
3,80	75,0	43,0	283 038 E	10	283 038 EF	10
3,90	75,0	43,0	283 039 E	10	283 039 EF	10
4,00	75,0	43,0	283 040 E	10	283 040 EF	10
4,10	75,0	43,0	283 041 E	10	283 041 EF	10
4,20	75,0	43,0	283 042 E	10	283 042 EF	10
4,30	80,0	47,0	283 043 E	10	283 043 EF	10
4,40	80,0	47,0	283 044 E	10	283 044 EF	10

N

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAIN	Cont. pcs.
4,50	80,0	47,0	283 045 E	10	283 045 EF	10
4,60	80,0	47,0	283 046 E	10	283 046 EF	10
4,70	80,0	47,0	283 047 E	10	283 047 EF	10
4,80	86,0	52,0	283 048 E	10	283 048 EF	10
4,90	86,0	52,0	283 049 E	10	283 049 EF	10
5,00	86,0	52,0	283 050 E	10	283 050 EF	10
5,10	86,0	52,0	283 051 E	10	283 051 EF	10
5,20	86,0	52,0	283 052 E	10	283 052 EF	10
5,30	86,0	52,0	283 053 E	10	283 053 EF	10
5,40	93,0	57,0	283 054 E	10	283 054 EF	10
5,50	93,0	57,0	283 055 E	10	283 055 EF	10
5,60	93,0	57,0	283 056 E	10	283 056 EF	10
5,70	93,0	57,0	283 057 E	10	283 057 EF	10
5,80	93,0	57,0	283 058 E	10	283 058 EF	10
5,90	93,0	57,0	283 059 E	10	283 059 EF	10
6,00	93,0	57,0	283 060 E	10	283 060 EF	10
6,10	101,0	63,0	283 061 E	10	283 061 EF	10
6,20	101,0	63,0	283 062 E	10	283 062 EF	10
6,30	101,0	63,0	283 063 E	10	283 063 EF	10
6,40	101,0	63,0	283 064 E	10	283 064 EF	10
6,50	101,0	63,0	283 065 E	10	283 065 EF	10
6,60	101,0	63,0	283 066 E	10	283 066 EF	10
6,70	101,0	63,0	283 067 E	10	283 067 EF	10
6,80	109,0	69,0	283 068 E	10	283 068 EF	10
6,90	109,0	69,0	283 069 E	10	283 069 EF	10
7,00	109,0	69,0	283 070 E	10	283 070 EF	10
7,10	109,0	69,0	283 071 E	10	283 071 EF	10
7,20	109,0	69,0	283 072 E	10	283 072 EF	10
7,30	109,0	69,0	283 073 E	10	283 073 EF	10
7,40	109,0	69,0	283 074 E	10	283 074 EF	10
7,50	109,0	69,0	283 075 E	10	283 075 EF	10
7,60	117,0	75,0	283 076 E	10	283 076 EF	10
7,70	117,0	75,0	283 077 E	10	283 077 EF	10
7,80	117,0	75,0	283 078 E	10	283 078 EF	10
7,90	117,0	75,0	283 079 E	10	283 079 EF	10
8,00	117,0	75,0	283 080 E	10	283 080 EF	10
8,10	117,0	75,0	283 081 E	10	283 081 EF	10
8,20	117,0	75,0	283 082 E	10	283 082 EF	10
8,30	117,0	75,0	283 083 E	10	283 083 EF	10
8,40	117,0	75,0	283 084 E	10	283 084 EF	10
8,50	117,0	75,0	283 085 E	10	283 085 EF	10
8,60	125,0	81,0	283 086 E	10	283 086 EF	10
8,70	125,0	81,0	283 087 E	10	283 087 EF	10
8,80	125,0	81,0	283 088 E	10	283 088 EF	10
8,90	125,0	81,0	283 089 E	10	283 089 EF	10
9,00	125,0	81,0	283 090 E	10	283 090 EF	10
9,10	125,0	81,0	283 091 E	10	283 091 EF	10
9,20	125,0	81,0	283 092 E	10	283 092 EF	10
9,30	125,0	81,0	283 093 E	10	283 093 EF	10
9,40	125,0	81,0	283 094 E	10	283 094 EF	10
9,50	125,0	81,0	283 095 E	10	283 095 EF	10
9,60	133,0	87,0	283 096 E	10	283 096 EF	10
9,70	133,0	87,0	283 097 E	10	283 097 EF	10
9,80	133,0	87,0	283 098 E	10	283 098 EF	10
9,90	133,0	87,0	283 099 E	10	283 099 EF	10
10,00	133,0	87,0	283 100 E	10	283 100 EF	10
10,10	133,0	87,0	283 101 E	10	283 101 EF	10
10,20	133,0	87,0	283 102 E	10	283 102 EF	10
10,30	133,0	87,0	283 103 E	5	283 103 EF	5
10,40	133,0	87,0	283 104 E	5	283 104 EF	5
10,50	133,0	87,0	283 105 E	5	283 105 EF	5
10,60	133,0	87,0	283 106 E	5	283 106 EF	5
10,70	142,0	94,0	283 107 E	5	283 107 EF	5
10,80	142,0	94,0	283 108 E	5	283 108 EF	5
10,90	142,0	94,0	283 109 E	5	283 109 EF	5
11,00	142,0	94,0	283 110 E	5	283 110 EF	5
11,10	142,0	94,0	283 111 E	5	283 111 EF	5



1.01

## **N** Twist drills DIN 338 type UF-L, HSSE-Co 5 ground

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 5	Cont. pcs.		
			Article no. HSSE-Co 5 TiAIN	Cont. pcs.		
11,20	142,0	94,0	283 112 E	5	283 112 EF	5
11,30	142,0	94,0	283 113 E	5	283 113 EF	5
11,40	142,0	94,0	283 114 E	5	283 114 EF	5
11,50	142,0	94,0	283 115 E	5	283 115 EF	5
11,60	142,0	94,0	283 116 E	5	283 116 EF	5
11,70	142,0	94,0	283 117 E	5	283 117 EF	5
11,80	142,0	94,0	283 118 E	5	283 118 EF	5
11,90	151,0	101,0	283 119 E	5	283 119 EF	5
12,00	151,0	101,0	283 120 E	5	283 120 EF	5
12,10	151,0	101,0	283 121 E	5	283 121 EF	5
12,20	151,0	101,0	283 122 E	5	283 122 EF	5
12,30	151,0	101,0	283 123 E	5	283 123 EF	5
12,40	151,0	101,0	283 124 E	5	283 124 EF	5
12,50	151,0	101,0	283 125 E	5	283 125 EF	5
12,60	151,0	101,0	283 126 E	5	283 126 EF	5
12,70	151,0	101,0	283 127 E	5	283 127 EF	5
12,80	151,0	101,0	283 128 E	5	283 128 EF	5
12,90	151,0	101,0	283 129 E	5	283 129 EF	5
13,00	151,0	101,0	283 130 E	5	283 130 EF	5
13,50	160,0	108,0	283 135 E	5	283 135 EF	5
14,00	160,0	108,0	283 140 E	5	283 140 EF	5
14,50	169,0	114,0	283 145 E	5	283 145 EF	5
15,00	169,0	114,0	283 150 E	5	283 150 EF	5
15,50	178,0	120,0	283 155 E	5	283 155 EF	5
16,00	178,0	120,0	283 160 E	5	283 160 EF	5

## **N** Twist drill sets DIN 338 type UF-L, HSSE-Co 5 ground



283 214 E



283 214 EF



283 214 ERO



283 214 EFRO

Description	<b>N</b>	
	Article no. HSSE-Co 5	Article no. HSSE-Co 5 TiAIN
19-piece set of twist drills DIN 338 type UF-L Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	283 214 E	283 214 EF
25-piece set of twist drills DIN 338 type UF-L Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	283 215 E	283 215 EF
19-piece set of twist drills DIN 338 type UF-L Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	283 214 ERO	283 214 EFRO
25-piece set of twist drills DIN 338 type UF-L Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	283 215 ERO	283 215 EFRO

**N** Twist drills DIN 338 type FO, HSSE-Co 5 ground



Highly stable multirange drill with excellent thermal resilience, a large chip space, a rounded rear edge and a very thick core. Ideal for drilling materials of low to high strength.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	●	○	○	○		○	

● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
1,00	34,0	12,0	280 010 E	10
1,10	36,0	14,0	280 011 E	10
1,20	38,0	16,0	280 012 E	10
1,30	38,0	16,0	280 013 E	10
1,40	40,0	18,0	280 014 E	10
1,50	40,0	18,0	280 015 E	10
1,60	43,0	20,0	280 016 E	10
1,70	43,0	20,0	280 017 E	10
1,80	46,0	22,0	280 018 E	10
1,90	46,0	22,0	280 019 E	10
2,00	49,0	24,0	280 020 E	10
2,10	49,0	24,0	280 021 E	10
2,20	53,0	27,0	280 022 E	10
2,30	53,0	27,0	280 023 E	10
2,40	57,0	30,0	280 024 E	10
2,50	57,0	30,0	280 025 E	10
2,60	57,0	30,0	280 026 E	10
2,70	61,0	33,0	280 027 E	10
2,80	61,0	33,0	280 028 E	10
2,90	61,0	33,0	280 029 E	10
3,00	61,0	33,0	280 030 E	10
3,10	65,0	36,0	280 031 E	10
3,20	65,0	36,0	280 032 E	10
3,30	65,0	36,0	280 033 E	10
3,40	70,0	39,0	280 034 E	10
3,50	70,0	39,0	280 035 E	10
3,60	70,0	39,0	280 036 E	10
3,70	70,0	39,0	280 037 E	10
3,80	75,0	43,0	280 038 E	10
3,90	75,0	43,0	280 039 E	10
4,00	75,0	43,0	280 040 E	10
4,10	75,0	43,0	280 041 E	10
4,20	75,0	43,0	280 042 E	10
4,30	80,0	47,0	280 043 E	10
4,40	80,0	47,0	280 044 E	10

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
4,50	80,0	47,0	280 045 E	10
4,60	80,0	47,0	280 046 E	10
4,70	80,0	47,0	280 047 E	10
4,80	86,0	52,0	280 048 E	10
4,90	86,0	52,0	280 049 E	10
5,00	86,0	52,0	280 050 E	10
5,10	86,0	52,0	280 051 E	10
5,20	86,0	52,0	280 052 E	10
5,30	86,0	52,0	280 053 E	10
5,40	93,0	57,0	280 054 E	10
5,50	93,0	57,0	280 055 E	10
5,60	93,0	57,0	280 056 E	10
5,70	93,0	57,0	280 057 E	10
5,80	93,0	57,0	280 058 E	10
5,90	93,0	57,0	280 059 E	10
6,00	93,0	57,0	280 060 E	10
6,10	101,0	63,0	280 061 E	10
6,20	101,0	63,0	280 062 E	10
6,30	101,0	63,0	280 063 E	10
6,40	101,0	63,0	280 064 E	10
6,50	101,0	63,0	280 065 E	10
6,60	101,0	63,0	280 066 E	10
6,70	101,0	63,0	280 067 E	10
6,80	109,0	69,0	280 068 E	10
6,90	109,0	69,0	280 069 E	10
7,00	109,0	69,0	280 070 E	10
7,10	109,0	69,0	280 071 E	10
7,20	109,0	69,0	280 072 E	10
7,30	109,0	69,0	280 073 E	10
7,40	109,0	69,0	280 074 E	10
7,50	109,0	69,0	280 075 E	10
7,60	117,0	75,0	280 076 E	10
7,70	117,0	75,0	280 077 E	10
7,80	117,0	75,0	280 078 E	10
7,90	117,0	75,0	280 079 E	10





## **N** Twist drills DIN 338 type FO, HSSE-Co 5 ground

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
8,00	117,0	75,0	280 080 E	10
8,10	117,0	75,0	280 081 E	10
8,20	117,0	75,0	280 082 E	10
8,30	117,0	75,0	280 083 E	10
8,40	117,0	75,0	280 084 E	10
8,50	117,0	75,0	280 085 E	10
8,60	125,0	81,0	280 086 E	10
8,70	125,0	81,0	280 087 E	10
8,80	125,0	81,0	280 088 E	10
8,90	125,0	81,0	280 089 E	10
9,00	125,0	81,0	280 090 E	10
9,10	125,0	81,0	280 091 E	10
9,20	125,0	81,0	280 092 E	10
9,30	125,0	81,0	280 093 E	10
9,40	125,0	81,0	280 094 E	10
9,50	125,0	81,0	280 095 E	10
9,60	133,0	87,0	280 096 E	10

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
9,70	133,0	87,0	280 097 E	10
9,80	133,0	87,0	280 098 E	10
9,90	133,0	87,0	280 099 E	10
10,00	133,0	87,0	280 100 E	10
10,20	133,0	87,0	280 102 E	10
10,50	133,0	87,0	280 105 E	5
11,00	142,0	94,0	280 110 E	5
11,50	142,0	94,0	280 115 E	5
12,00	151,0	101,0	280 120 E	5
12,50	151,0	101,0	280 125 E	5
13,00	151,0	101,0	280 130 E	5
13,50	160,0	108,0	280 135 E	5
14,00	160,0	108,0	280 140 E	5
14,50	169,0	114,0	280 145 E	5
15,00	169,0	114,0	280 150 E	5
15,50	178,0	120,0	280 155 E	5
16,00	178,0	120,0	280 160 E	5



## **N** Twist drill sets DIN 338 type FO, HSSE-Co 5 ground

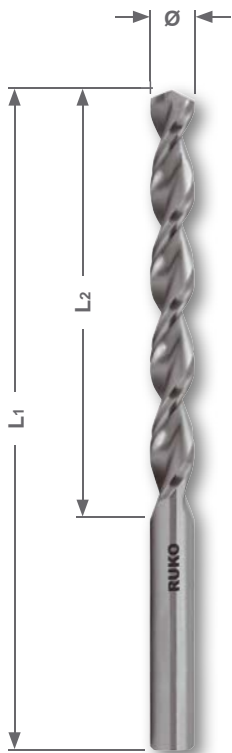
Description	Article no. HSSE-Co 5
19-piece set of twist drills DIN 338 type FO Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	280 214 E
25-piece set of twist drills DIN 338 type FO Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	280 215 E
19-piece set of twist drills DIN 338 type FO Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	280 214 ERO
25-piece set of twist drills DIN 338 type FO Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm plastic case	280 215 ERO



280 214 E



## Twist drills DIN 338 TL 3000, HSSE-Co 5 ground



Highly stable multirange drill with outstanding heat resistance, a reinforced drill core and a parabolic flute for ideal chip removal. Ideal for drilling medium and long-chipping materials. Thanks to its thick core and the special flute with a rounded rear edge, this drill is best suited for high-performance use. It covers types N, H and W for a wide range of applications.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	○	○	○	○	○	○	

● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	N			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
1,00	34,0	12,0	229 010	10	229 010 F	10
1,10	36,0	14,0	229 011	10	229 011 F	10
1,20	38,0	16,0	229 012	10	229 012 F	10
1,30	38,0	16,0	229 013	10	229 013 F	10
1,40	40,0	18,0	229 014	10	229 014 F	10
1,50	40,0	18,0	229 015	10	229 015 F	10
1,60	43,0	20,0	229 016	10	229 016 F	10
1,70	43,0	20,0	229 017	10	229 017 F	10
1,80	46,0	22,0	229 018	10	229 018 F	10
1,90	46,0	22,0	229 019	10	229 019 F	10
2,00	49,0	24,0	229 020	10	229 020 F	10
2,10	49,0	24,0	229 021	10	229 021 F	10
2,20	53,0	27,0	229 022	10	229 022 F	10
2,30	53,0	27,0	229 023	10	229 023 F	10
2,40	57,0	30,0	229 024	10	229 024 F	10
2,50	57,0	30,0	229 025	10	229 025 F	10
2,60	57,0	30,0	229 026	10	229 026 F	10
2,70	61,0	33,0	229 027	10	229 027 F	10
2,80	61,0	33,0	229 028	10	229 028 F	10
2,90	61,0	33,0	229 029	10	229 029 F	10
3,00	61,0	33,0	229 030	10	229 030 F	10
3,10	65,0	36,0	229 031	10	229 031 F	10
3,20	65,0	36,0	229 032	10	229 032 F	10
3,30	65,0	36,0	229 033	10	229 033 F	10
3,40	70,0	39,0	229 034	10	229 034 F	10
3,50	70,0	39,0	229 035	10	229 035 F	10
3,60	70,0	39,0	229 036	10	229 036 F	10
3,70	70,0	39,0	229 037	10	229 037 F	10
3,80	75,0	43,0	229 038	10	229 038 F	10
3,90	75,0	43,0	229 039	10	229 039 F	10
4,00	75,0	43,0	229 040	10	229 040 F	10
4,10	75,0	43,0	229 041	10	229 041 F	10
4,20	75,0	43,0	229 042	10	229 042 F	10
4,30	80,0	47,0	229 043	10	229 043 F	10
4,40	80,0	47,0	229 044	10	229 044 F	10



## Twist drills DIN 338 TL 3000, HSSE-Co 5 ground



1.01

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAIN	Cont. pcs.
4,50	80,0	47,0	229 045	10	229 045 F	10
4,60	80,0	47,0	229 046	10	229 046 F	10
4,70	80,0	47,0	229 047	10	229 047 F	10
4,80	86,0	52,0	229 048	10	229 048 F	10
4,90	86,0	52,0	229 049	10	229 049 F	10
5,00	86,0	52,0	229 050	10	229 050 F	10
5,10	86,0	52,0	229 051	10	229 051 F	10
5,20	86,0	52,0	229 052	10	229 052 F	10
5,30	86,0	52,0	229 053	10	229 053 F	10
5,40	93,0	57,0	229 054	10	229 054 F	10
5,50	93,0	57,0	229 055	10	229 055 F	10
5,60	93,0	57,0	229 056	10	229 056 F	10
5,70	93,0	57,0	229 057	10	229 057 F	10
5,80	93,0	57,0	229 058	10	229 058 F	10
5,90	93,0	57,0	229 059	10	229 059 F	10
6,00	93,0	57,0	229 060	10	229 060 F	10
6,10	101,0	63,0	229 061	10	229 061 F	10
6,20	101,0	63,0	229 062	10	229 062 F	10
6,30	101,0	63,0	229 063	10	229 063 F	10
6,40	101,0	63,0	229 064	10	229 064 F	10
6,50	101,0	63,0	229 065	10	229 065 F	10
6,60	101,0	63,0	229 066	10	229 066 F	10
6,70	101,0	63,0	229 067	10	229 067 F	10
6,80	109,0	69,0	229 068	10	229 068 F	10
6,90	109,0	69,0	229 069	10	229 069 F	10
7,00	109,0	69,0	229 070	10	229 070 F	10
7,10	109,0	69,0	229 071	10	229 071 F	10
7,20	109,0	69,0	229 072	10	229 072 F	10
7,30	109,0	69,0	229 073	10	229 073 F	10
7,40	109,0	69,0	229 074	10	229 074 F	10
7,50	109,0	69,0	229 075	10	229 075 F	10
7,60	117,0	75,0	229 076	10	229 076 F	10
7,70	117,0	75,0	229 077	10	229 077 F	10
7,80	117,0	75,0	229 078	10	229 078 F	10
7,90	117,0	75,0	229 079	10	229 079 F	10
8,00	117,0	75,0	229 080	10	229 080 F	10
8,10	117,0	75,0	229 081	10	229 081 F	10
8,20	117,0	75,0	229 082	10	229 082 F	10
8,30	117,0	75,0	229 083	10	229 083 F	10
8,40	117,0	75,0	229 084	10	229 084 F	10
8,50	117,0	75,0	229 085	10	229 085 F	10
8,60	125,0	81,0	229 086	10	229 086 F	10
8,70	125,0	81,0	229 087	10	229 087 F	10
8,80	125,0	81,0	229 088	10	229 088 F	10
8,90	125,0	81,0	229 089	10	229 089 F	10
9,00	125,0	81,0	229 090	10	229 090 F	10
9,10	125,0	81,0	229 091	10	229 091 F	10
9,20	125,0	81,0	229 092	10	229 092 F	10
9,30	125,0	81,0	229 093	10	229 093 F	10
9,40	125,0	81,0	229 094	10	229 094 F	10
9,50	125,0	81,0	229 095	10	229 095 F	10
9,60	133,0	87,0	229 096	10	229 096 F	10
9,70	133,0	87,0	229 097	10	229 097 F	10
9,80	133,0	87,0	229 098	10	229 098 F	10
9,90	133,0	87,0	229 099	10	229 099 F	10
10,00	133,0	87,0	229 100	10	229 100 F	10
10,10	133,0	87,0	229 101	10	229 101 F	10
10,20	133,0	87,0	229 102	10	229 102 F	10
10,30	133,0	87,0	229 103	5	229 103 F	5
10,40	133,0	87,0	229 104	5	229 104 F	5
10,50	133,0	87,0	229 105	5	229 105 F	5
10,60	133,0	87,0	229 106	5	229 106 F	5
10,70	142,0	94,0	229 107	5	229 107 F	5
10,80	142,0	94,0	229 108	5	229 108 F	5
10,90	142,0	94,0	229 109	5	229 109 F	5
11,00	142,0	94,0	229 110	5	229 110 F	5
11,10	142,0	94,0	229 111	5	229 111 F	5

## Twist drills DIN 338 TL 3000, HSSE-Co 5 ground

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
11,20	142,0	94,0	229 112	5	229 112 F	5
11,30	142,0	94,0	229 113	5	229 113 F	5
11,40	142,0	94,0	229 114	5	229 114 F	5
11,50	142,0	94,0	229 115	5	229 115 F	5
11,60	142,0	94,0	229 116	5	229 116 F	5
11,70	142,0	94,0	229 117	5	229 117 F	5
11,80	142,0	94,0	229 118	5	229 118 F	5
11,90	151,0	101,0	229 119	5	229 119 F	5
12,00	151,0	101,0	229 120	5	229 120 F	5
12,10	151,0	101,0	229 121	5	229 121 F	5
12,20	151,0	101,0	229 122	5	229 122 F	5
12,30	151,0	101,0	229 123	5	229 123 F	5
12,40	151,0	101,0	229 124	5	229 124 F	5
12,50	151,0	101,0	229 125	5	229 125 F	5
12,60	151,0	101,0	229 126	5	229 126 F	5
12,70	151,0	101,0	229 127	5	229 127 F	5
12,80	151,0	101,0	229 128	5	229 128 F	5
12,90	151,0	101,0	229 129	5	229 129 F	5
13,00	151,0	101,0	229 130	5	229 130 F	5
13,50	160,0	108,0	229 135	5	229 135 F	5
14,00	160,0	108,0	229 140	5	229 140 F	5
14,50	169,0	114,0	229 145	5	229 145 F	5
15,00	169,0	114,0	229 150	5	229 150 F	5
15,50	178,0	120,0	229 155	5	229 155 F	5
16,00	178,0	120,0	229 160	5	229 160 F	5



## Twist drill sets DIN 338 TL 3000, HSSE-Co 5 ground



229 214



229 214 F



229 214 RO



229 214 FRO

Description	N	
	Article no. HSSE-Co 5	Article no. HSSE-Co 5 TiAlN
19-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	229 214	229 214 F
25-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	229 215	229 215 F
19-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	229 214 RO	229 214 FRO
25-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	229 215 RO	229 215 FRO



## Twist drills DIN 338 type VA, HSSE-Co 5 ground



Powerful right-hand cutting high-performance drill with distinctive heat resistance. Ideal for drilling high-strength stainless, acid-resistant and heat-resistant steel.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		●						○

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
1,00	34,0	12,0	215 010	10
1,10	36,0	14,0	215 011	10
1,20	38,0	16,0	215 012	10
1,25	38,0	16,0	215 0125	10
1,30	38,0	16,0	215 013	10
1,40	40,0	18,0	215 014	10
1,50	40,0	18,0	215 015	10
1,60	43,0	20,0	215 016	10
1,70	43,0	20,0	215 017	10
1,75	46,0	22,0	215 0175	10
1,80	46,0	22,0	215 018	10
1,90	46,0	22,0	215 019	10
2,00	49,0	24,0	215 020	10
2,10	49,0	24,0	215 021	10
2,20	53,0	27,0	215 022	10
2,25	53,0	27,0	215 0225	10
2,30	53,0	27,0	215 023	10
2,40	57,0	30,0	215 024	10
2,50	57,0	30,0	215 025	10
2,60	57,0	30,0	215 026	10
2,70	61,0	33,0	215 027	10
2,75	61,0	33,0	215 0275	10
2,80	61,0	33,0	215 028	10
2,90	61,0	33,0	215 029	10
3,00	61,0	33,0	215 030	10
3,10	65,0	36,0	215 031	10
3,20	65,0	36,0	215 032	10
3,25	65,0	36,0	215 0325	10
3,30	65,0	36,0	215 033	10
3,40	70,0	39,0	215 034	10
3,50	70,0	39,0	215 035	10
3,60	70,0	39,0	215 036	10
3,70	70,0	39,0	215 037	10
3,75	70,0	39,0	215 0375	10
3,80	75,0	43,0	215 038	10
3,90	75,0	43,0	215 039	10
4,00	75,0	43,0	215 040	10

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
4,10	75,0	43,0	215 041	10
4,20	75,0	43,0	215 042	10
4,25	75,0	43,0	215 0425	10
4,30	80,0	47,0	215 043	10
4,40	80,0	47,0	215 044	10
4,50	80,0	47,0	215 045	10
4,60	80,0	47,0	215 046	10
4,70	80,0	47,0	215 047	10
4,75	80,0	47,0	215 0475	10
4,80	86,0	52,0	215 048	10
4,90	86,0	52,0	215 049	10
5,00	86,0	52,0	215 050	10
5,10	86,0	52,0	215 051	10
5,20	86,0	52,0	215 052	10
5,25	86,0	52,0	215 0525	10
5,30	86,0	52,0	215 053	10
5,40	93,0	57,0	215 054	10
5,50	93,0	57,0	215 055	10
5,60	93,0	57,0	215 056	10
5,70	93,0	57,0	215 057	10
5,75	93,0	57,0	215 0575	10
5,80	93,0	57,0	215 058	10
5,90	93,0	57,0	215 059	10
6,00	93,0	57,0	215 060	10
6,10	101,0	63,0	215 061	10
6,20	101,0	63,0	215 062	10
6,25	101,0	63,0	215 0625	10
6,30	101,0	63,0	215 063	10
6,40	101,0	63,0	215 064	10
6,50	101,0	63,0	215 065	10
6,60	101,0	63,0	215 066	10
6,70	101,0	63,0	215 067	10
6,75	101,0	63,0	215 0675	10
6,80	109,0	69,0	215 068	10
6,90	109,0	69,0	215 069	10
7,00	109,0	69,0	215 070	10
7,10	109,0	69,0	215 071	10



Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
7,20	109,0	69,0	215 072	10
7,25	109,0	69,0	215 0725	10
7,30	109,0	69,0	215 073	10
7,40	109,0	69,0	215 074	10
7,50	109,0	69,0	215 075	10
7,60	117,0	75,0	215 076	10
7,70	117,0	75,0	215 077	10
7,75	117,0	75,0	215 0775	10
7,80	117,0	75,0	215 078	10
7,90	117,0	75,0	215 079	10
8,00	117,0	75,0	215 080	10
8,10	117,0	75,0	215 081	10
8,20	117,0	75,0	215 082	10
8,25	117,0	75,0	215 0825	10
8,30	117,0	75,0	215 083	10
8,40	117,0	75,0	215 084	10
8,50	117,0	75,0	215 085	10
8,60	125,0	81,0	215 086	10
8,70	125,0	81,0	215 087	10
8,75	125,0	81,0	215 0875	10
8,80	125,0	81,0	215 088	10
8,90	125,0	81,0	215 089	10
9,00	125,0	81,0	215 090	10
9,10	125,0	81,0	215 091	10
9,20	125,0	81,0	215 092	10
9,25	125,0	81,0	215 0925	10
9,30	125,0	81,0	215 093	10
9,40	125,0	81,0	215 094	10
9,50	125,0	81,0	215 095	10
9,60	133,0	87,0	215 096	10
9,70	133,0	87,0	215 097	10
9,75	133,0	87,0	215 0975	10
9,80	133,0	87,0	215 098	10
9,90	133,0	87,0	215 099	10
10,00	133,0	87,0	215 100	10
10,10	133,0	87,0	215 101	10
10,20	133,0	87,0	215 102	10
10,30	133,0	87,0	215 103	5
10,40	133,0	87,0	215 104	5
10,50	133,0	87,0	215 105	5

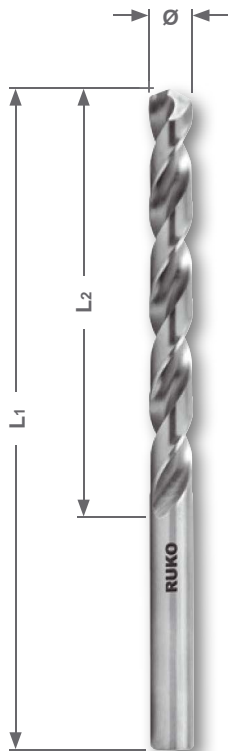
Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
10,60	133,0	87,0	215 106	5
10,70	142,0	94,0	215 107	5
10,80	142,0	94,0	215 108	5
10,90	142,0	94,0	215 109	5
11,00	142,0	94,0	215 110	5
11,10	142,0	94,0	215 111	5
11,20	142,0	94,0	215 112	5
11,30	142,0	94,0	215 113	5
11,40	142,0	94,0	215 114	5
11,50	142,0	94,0	215 115	5
11,60	142,0	94,0	215 116	5
11,70	142,0	94,0	215 117	5
11,80	142,0	94,0	215 118	5
11,90	151,0	101,0	215 119	5
12,00	151,0	101,0	215 120	5
12,10	151,0	101,0	215 121	5
12,20	151,0	101,0	215 122	5
12,30	151,0	101,0	215 123	5
12,40	151,0	101,0	215 124	5
12,50	151,0	101,0	215 125	5
12,60	151,0	101,0	215 126	5
12,70	151,0	101,0	215 127	5
12,80	151,0	101,0	215 128	5
12,90	151,0	101,0	215 129	5
13,00	151,0	101,0	215 130	5
13,50	160,0	108,0	215 135	5
14,00	160,0	108,0	215 140	5
14,50	169,0	114,0	215 145	5
15,00	169,0	114,0	215 150	5
15,50	178,0	120,0	215 155	5
16,00	178,0	120,0	215 160	5
16,50	184,0	125,0	215 165	1
17,00	184,0	125,0	215 170	1
17,50	191,0	130,0	215 175	1
18,00	191,0	130,0	215 180	1
18,50	198,0	135,0	215 185	1
19,00	198,0	135,0	215 190	1
19,50	205,0	140,0	215 195	1
20,00	205,0	140,0	215 210	1
—	—	—	—	—

## Twist drill sets DIN 338 type VA, HSSE-Co 5 ground

Description	Article no. HSSE-Co 5
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	215 214
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	215 215
41-piece set of twist drills DIN 338 type VA Ø 6,0 mm up to 10,0 mm in increments of 0,1 mm in steel case	215 218
50-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 5,9 mm in increments of 0,1 mm in steel case	215 217
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	215 214 RO
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	215 215 RO



215 214



## **N** Twist drills DIN 338 type VA, HSSE-Co 5 ground



Powerful right-hand cutting high-performance drill with distinctive heat resistance and **reinforced drill core**. Ideal for drilling high-strength stainless, acid-resistant and heat-resistant steel.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		●						○

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
1,00	34,0	12,0	215 010 Z	10	215 010 F	10
1,10	36,0	14,0	215 011 Z	10	215 011 F	10
1,20	38,0	16,0	215 012 Z	10	215 012 F	10
1,25	38,0	16,0	215 0125 Z	10	215 0125 F	10
1,30	38,0	16,0	215 013 Z	10	215 013 F	10
1,40	40,0	18,0	215 014 Z	10	215 014 F	10
1,50	40,0	18,0	215 015 Z	10	215 015 F	10
1,60	43,0	20,0	215 016 Z	10	215 016 F	10
1,70	43,0	20,0	215 017 Z	10	215 017 F	10
1,75	46,0	22,0	215 0175 Z	10	215 0175 F	10
1,80	46,0	22,0	215 018 Z	10	215 018 F	10
1,90	46,0	22,0	215 019 Z	10	215 019 F	10
2,00	49,0	24,0	215 020 Z	10	215 020 F	10
2,10	49,0	24,0	215 021 Z	10	215 021 F	10
2,20	53,0	27,0	215 022 Z	10	215 022 F	10
2,25	53,0	27,0	215 0225 Z	10	215 0225 F	10
2,30	53,0	27,0	215 023 Z	10	215 023 F	10
2,40	57,0	30,0	215 024 Z	10	215 024 F	10
2,50	57,0	30,0	215 025 Z	10	215 025 F	10
2,60	57,0	30,0	215 026 Z	10	215 026 F	10
2,70	61,0	33,0	215 027 Z	10	215 027 F	10
2,75	61,0	33,0	215 0275 Z	10	215 0275 F	10
2,80	61,0	33,0	215 028 Z	10	215 028 F	10
2,90	61,0	33,0	215 029 Z	10	215 029 F	10
3,00	61,0	33,0	215 030 Z	10	215 030 F	10
3,10	65,0	36,0	215 031 Z	10	215 031 F	10
3,20	65,0	36,0	215 032 Z	10	215 032 F	10
3,25	65,0	36,0	215 0325 Z	10	215 0325 F	10
3,30	65,0	36,0	215 033 Z	10	215 033 F	10
3,40	70,0	39,0	215 034 Z	10	215 034 F	10
3,50	70,0	39,0	215 035 Z	10	215 035 F	10
3,60	70,0	39,0	215 036 Z	10	215 036 F	10
3,70	70,0	39,0	215 037 Z	10	215 037 F	10
3,75	70,0	39,0	215 0375 Z	10	215 0375 F	10
3,80	75,0	43,0	215 038 Z	10	215 038 F	10

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAIN	Cont. pcs.
3,90	75,0	43,0	215 039 Z	10	215 039 F	10
4,00	75,0	43,0	215 040 Z	10	215 040 F	10
4,10	75,0	43,0	215 041 Z	10	215 041 F	10
4,20	75,0	43,0	215 042 Z	10	215 042 F	10
4,25	75,0	43,0	215 0425 Z	10	215 0425 F	10
4,30	80,0	47,0	215 043 Z	10	215 043 F	10
4,40	80,0	47,0	215 044 Z	10	215 044 F	10
4,50	80,0	47,0	215 045 Z	10	215 045 F	10
4,60	80,0	47,0	215 046 Z	10	215 046 F	10
4,70	80,0	47,0	215 047 Z	10	215 047 F	10
4,75	80,0	47,0	215 0475 Z	10	215 0475 F	10
4,80	86,0	52,0	215 048 Z	10	215 048 F	10
4,90	86,0	52,0	215 049 Z	10	215 049 F	10
5,00	86,0	52,0	215 050 Z	10	215 050 F	10
5,10	86,0	52,0	215 051 Z	10	215 051 F	10
5,20	86,0	52,0	215 052 Z	10	215 052 F	10
5,25	86,0	52,0	215 0525 Z	10	215 0525 F	10
5,30	86,0	52,0	215 053 Z	10	215 053 F	10
5,40	93,0	57,0	215 054 Z	10	215 054 F	10
5,50	93,0	57,0	215 055 Z	10	215 055 F	10
5,60	93,0	57,0	215 056 Z	10	215 056 F	10
5,70	93,0	57,0	215 057 Z	10	215 057 F	10
5,75	93,0	57,0	215 0575 Z	10	215 0575 F	10
5,80	93,0	57,0	215 058 Z	10	215 058 F	10
5,90	93,0	57,0	215 059 Z	10	215 059 F	10
6,00	93,0	57,0	215 060 Z	10	215 060 F	10
6,10	101,0	63,0	215 061 Z	10	215 061 F	10
6,20	101,0	63,0	215 062 Z	10	215 062 F	10
6,25	101,0	63,0	215 0625 Z	10	215 0625 F	10
6,30	101,0	63,0	215 063 Z	10	215 063 F	10
6,40	101,0	63,0	215 064 Z	10	215 064 F	10
6,50	101,0	63,0	215 065 Z	10	215 065 F	10
6,60	101,0	63,0	215 066 Z	10	215 066 F	10
6,70	101,0	63,0	215 067 Z	10	215 067 F	10
6,75	101,0	63,0	215 0675 Z	10	215 0675 F	10
6,80	109,0	69,0	215 068 Z	10	215 068 F	10
6,90	109,0	69,0	215 069 Z	10	215 069 F	10
7,00	109,0	69,0	215 070 Z	10	215 070 F	10
7,10	109,0	69,0	215 071 Z	10	215 071 F	10
7,20	109,0	69,0	215 072 Z	10	215 072 F	10
7,25	109,0	69,0	215 0725 Z	10	215 0725 F	10
7,30	109,0	69,0	215 073 Z	10	215 073 F	10
7,40	109,0	69,0	215 074 Z	10	215 074 F	10
7,50	109,0	69,0	215 075 Z	10	215 075 F	10
7,60	117,0	75,0	215 076 Z	10	215 076 F	10
7,70	117,0	75,0	215 077 Z	10	215 077 F	10
7,75	117,0	75,0	215 0775 Z	10	215 0775 F	10
7,80	117,0	75,0	215 078 Z	10	215 078 F	10
7,90	117,0	75,0	215 079 Z	10	215 079 F	10
8,00	117,0	75,0	215 080 Z	10	215 080 F	10
8,10	117,0	75,0	215 081 Z	10	215 081 F	10
8,20	117,0	75,0	215 082 Z	10	215 082 F	10
8,25	117,0	75,0	215 0825 Z	10	215 0825 F	10
8,30	117,0	75,0	215 083 Z	10	215 083 F	10
8,40	117,0	75,0	215 084 Z	10	215 084 F	10
8,50	117,0	75,0	215 085 Z	10	215 085 F	10
8,60	125,0	81,0	215 086 Z	10	215 086 F	10
8,70	125,0	81,0	215 087 Z	10	215 087 F	10
8,75	125,0	81,0	215 0875 Z	10	215 0875 F	10
8,80	125,0	81,0	215 088 Z	10	215 088 F	10
8,90	125,0	81,0	215 089 Z	10	215 089 F	10
9,00	125,0	81,0	215 090 Z	10	215 090 F	10
9,10	125,0	81,0	215 091 Z	10	215 091 F	10
9,20	125,0	81,0	215 092 Z	10	215 092 F	10
9,25	125,0	81,0	215 0925 Z	10	215 0925 F	10
9,30	125,0	81,0	215 093 Z	10	215 093 F	10
9,40	125,0	81,0	215 094 Z	10	215 094 F	10

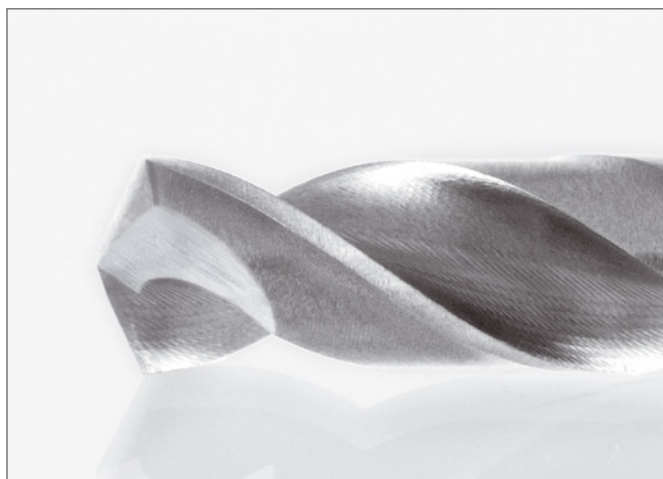


## **N** Twist drills DIN 338 type VA, HSSE-Co 5 ground



1.01

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
9,50	125,0	81,0	215 095 Z	10	215 095 F	10
9,60	133,0	87,0	215 096 Z	10	215 096 F	10
9,70	133,0	87,0	215 097 Z	10	215 097 F	10
9,75	133,0	87,0	215 0975 Z	10	215 0975 F	10
9,80	133,0	87,0	215 098 Z	10	215 098 F	10
9,90	133,0	87,0	215 099 Z	10	215 099 F	10
10,00	133,0	87,0	215 100 Z	10	215 100 F	10
10,10	133,0	87,0	215 101 Z	10	215 101 F	10
10,20	133,0	87,0	215 102 Z	10	215 102 F	10
10,30	133,0	87,0	215 103 Z	5	215 103 F	5
10,40	133,0	87,0	215 104 Z	5	215 104 F	5
10,50	133,0	87,0	215 105 Z	5	215 105 F	5
10,60	133,0	87,0	215 106 Z	5	215 106 F	5
10,70	142,0	94,0	215 107 Z	5	215 107 F	5
10,80	142,0	94,0	215 108 Z	5	215 108 F	5
10,90	142,0	94,0	215 109 Z	5	215 109 F	5
11,00	142,0	94,0	215 110 Z	5	215 110 F	5
11,10	142,0	94,0	215 111 Z	5	215 111 F	5
11,20	142,0	94,0	215 112 Z	5	215 112 F	5
11,30	142,0	94,0	215 113 Z	5	215 113 F	5
11,40	142,0	94,0	215 114 Z	5	215 114 F	5
11,50	142,0	94,0	215 115 Z	5	215 115 F	5
11,60	142,0	94,0	215 116 Z	5	215 116 F	5
11,70	142,0	94,0	215 117 Z	5	215 117 F	5
11,80	142,0	94,0	215 118 Z	5	215 118 F	5
11,90	151,0	101,0	215 119 Z	5	215 119 F	5
12,00	151,0	101,0	215 120 Z	5	215 120 F	5
12,10	151,0	101,0	215 121 Z	5	215 121 F	5
12,20	151,0	101,0	215 122 Z	5	215 122 F	5
12,30	151,0	101,0	215 123 Z	5	215 123 F	5
12,40	151,0	101,0	215 124 Z	5	215 124 F	5
12,50	151,0	101,0	215 125 Z	5	215 125 F	5
12,60	151,0	101,0	215 126 Z	5	215 126 F	5
12,70	151,0	101,0	215 127 Z	5	215 127 F	5
12,80	151,0	101,0	215 128 Z	5	215 128 F	5
12,90	151,0	101,0	215 129 Z	5	215 129 F	5
13,00	151,0	101,0	215 130 Z	5	215 130 F	5
13,50	160,0	108,0	215 135 Z	5	215 135 F	5
14,00	160,0	108,0	215 140 Z	5	215 140 F	5
14,50	169,0	114,0	215 145 Z	5	215 145 F	5
15,00	169,0	114,0	215 150 Z	5	215 150 F	5
15,50	178,0	120,0	215 155 Z	5	215 155 F	5
16,00	178,0	120,0	215 160 Z	5	215 160 F	5





**N** Twist drill sets DIN 338 type VA, HSSE-Co 5 ground



215 214 Z



215 214 F



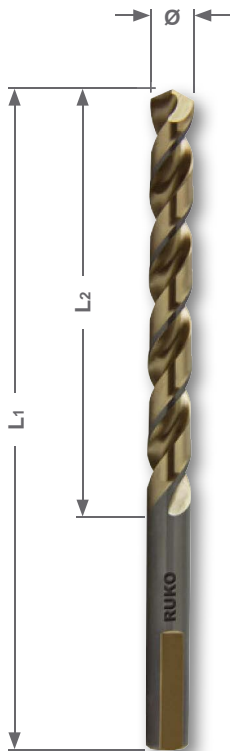
215 214 ZRO



215 214 FRO



Description	<b>N</b>	
	Article no. HSSE-Co 5	Article no. HSSE-Co 5 TiAIN
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	215 214 Z	215 214 F
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	215 215 Z	215 215 F
41-piece set of twist drills DIN 338 type VA Ø 6,0 mm up to 10,0 mm in increments of 0,1 mm in steel case	215 218 Z	—
50-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 5,9 mm in increments of 0,1 mm in steel case	215 217 Z	—
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	215 214 ZRO	215 214 FRO
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	215 215 ZRO	215 215 FRO



## **N** Twist drills DIN 338 type UNI, HSSE-Co 5 ground



High performance twist drill for all-purpose use in drilling machines and cordless drills.  
(Materials up to 5,0 mm thickness)

- » The 3-surface-shank provides an excellent fixing within the drill chuck with little effort. In addition, the shank ensures an ideal power transmission. No spinning of the drill!
- » The 135° high performance cutting edge ensures a very high aligned preciseness, particularly when hand-operated with a cordless drilling machine. The edge prevents sliding off corrugated surfaces whilst spot-drilling.
- » Increased wear resistance of the rechargeable battery due to reduction of cutting forces.
- » The black bevel increases the wear resistance and prevents cold welding and build-up edges.
- » The 40° helix angle enables a perfect and fast chip removal and provides a high cutting speed along with increased stability and accuracy.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		○	○	○	○	○	○	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no. HSSE-Co 5	Cont. pcs.
1,00	34,0	12,0	228 010	10
1,10	36,0	14,0	228 011	10
1,20	38,0	16,0	228 012	10
1,30	38,0	16,0	228 013	10
1,40	40,0	18,0	228 014	10
1,50	40,0	18,0	228 015	10
1,60	43,0	20,0	228 016	10
1,70	43,0	20,0	228 017	10
1,80	46,0	22,0	228 018	10
1,90	46,0	22,0	228 019	10
2,00	49,0	24,0	228 020	10
2,10	49,0	24,0	228 021	10
2,20	53,0	27,0	228 022	10
2,30	53,0	27,0	228 023	10
2,40	57,0	30,0	228 024	10
2,50	57,0	30,0	228 025	10
2,60	57,0	30,0	228 026	10
2,70	61,0	33,0	228 027	10
2,80	61,0	33,0	228 028	10
2,90	61,0	33,0	228 029	10
3,00	61,0	33,0	228 030	10
3,10	65,0	36,0	228 031	10
3,20	65,0	36,0	228 032	10
3,30	65,0	36,0	228 033	10
3,40	70,0	39,0	228 034	10
3,50	70,0	39,0	228 035	10
3,60	70,0	39,0	228 036	10
3,70	70,0	39,0	228 037	10
3,80	75,0	43,0	228 038	10

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no. HSSE-Co 5	Cont. pcs.
3,90	75,0	43,0	228 039	10
4,00	75,0	43,0	228 040	10
4,10	75,0	43,0	228 041	10
4,20	75,0	43,0	228 042	10
4,30	80,0	47,0	228 043	10
4,40	80,0	47,0	228 044	10
4,50	80,0	47,0	228 045	10
4,60	80,0	47,0	228 046	10
4,70	80,0	47,0	228 047	10
4,80	86,0	52,0	228 048	10
4,90	86,0	52,0	228 049	10
5,00	86,0	52,0	228 050	10
5,10	86,0	52,0	228 051	10
5,20	86,0	52,0	228 052	10
5,30	86,0	52,0	228 053	10
5,40	93,0	57,0	228 054	10
5,50	93,0	57,0	228 055	10
5,60	93,0	57,0	228 056	10
5,70	93,0	57,0	228 057	10
5,80	93,0	57,0	228 058	10
5,90	93,0	57,0	228 059	10
6,00	93,0	57,0	228 060	10
6,10	101,0	63,0	228 061	10
6,20	101,0	63,0	228 062	10
6,30	101,0	63,0	228 063	10
6,40	101,0	63,0	228 064	10
6,50	101,0	63,0	228 065	10
6,60	101,0	63,0	228 066	10
6,70	101,0	63,0	228 067	10

**N** Twist drills DIN 338 type UNI, HSSE-Co 5 ground

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
6,80	109,0	69,0	228 068	10
6,90	109,0	69,0	228 069	10
7,00	109,0	69,0	228 070	10
7,10	109,0	69,0	228 071	10
7,20	109,0	69,0	228 072	10
7,30	109,0	69,0	228 073	10
7,40	109,0	69,0	228 074	10
7,50	109,0	69,0	228 075	10
7,60	117,0	75,0	228 076	10
7,70	117,0	75,0	228 077	10
7,80	117,0	75,0	228 078	10
7,90	117,0	75,0	228 079	10
8,00	117,0	75,0	228 080	10
8,10	117,0	75,0	228 081	10
8,20	117,0	75,0	228 082	10
8,30	117,0	75,0	228 083	10
8,40	117,0	75,0	228 084	10
8,50	117,0	75,0	228 085	10
8,60	125,0	81,0	228 086	10
8,70	125,0	81,0	228 087	10

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.
8,80	125,0	81,0	228 088	10
8,90	125,0	81,0	228 089	10
9,00	125,0	81,0	228 090	10
9,10	125,0	81,0	228 091	10
9,20	125,0	81,0	228 092	10
9,30	125,0	81,0	228 093	10
9,40	125,0	81,0	228 094	10
9,50	125,0	81,0	228 095	10
9,60	133,0	87,0	228 096	10
9,70	133,0	87,0	228 097	10
9,80	133,0	87,0	228 098	10
9,90	133,0	87,0	228 099	10
10,00	133,0	87,0	228 100	10
10,20	133,0	87,0	228 102	10
10,50	133,0	87,0	228 105	5
11,00	142,0	94,0	228 110	5
11,50	142,0	94,0	228 115	5
12,00	151,0	101,0	228 120	5
12,50	151,0	101,0	228 125	5
13,00	151,0	101,0	228 130	5

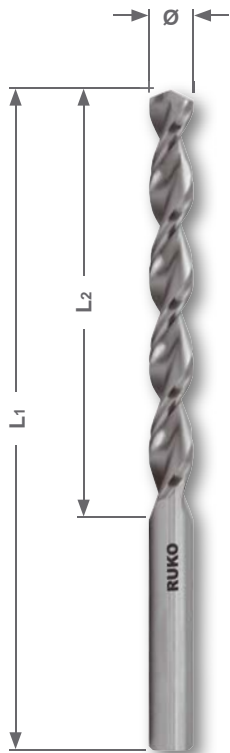


**N** Twist drill sets DIN 338 type UNI, HSSE-Co5 ground

Description	Article no. HSSE-Co 5
19-piece set of twist drills DIN 338 type UNI Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	228 214
25-piece set of twist drills DIN 338 type UNI Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	228 215
19-piece set of twist drills DIN 338 type UNI Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	228 214 RO
25-piece set of twist drills DIN 338 type UNI Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	228 215 RO



228 214 RO



## Twist drills DIN 338 TL 3000, HSS ground



Stable multirange drill with reinforced drill core and parabolic flute for ideal chip removal. Ideal for drilling medium and long-chipping materials.

Thanks to its thick core and the special flute with a rounded rear edge, this drill is best suited for high-performance use. It covers types N, H and W for a wide range of applications.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○			○	○	○	○	○	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	HSS-G		HSS-G TiN		HSS-G TiAlN	
			Article no.	Cont. pcs.	Article no.	Cont. pcs.	Article no.	Cont. pcs.
1,00	34,0	12,0	258 010	10	258 010 T	10	258 010 F	10
1,10	36,0	14,0	258 011	10	258 011 T	10	258 011 F	10
1,20	38,0	16,0	258 012	10	258 012 T	10	258 012 F	10
1,30	38,0	16,0	258 013	10	258 013 T	10	258 013 F	10
1,40	40,0	18,0	258 014	10	258 014 T	10	258 014 F	10
1,50	40,0	18,0	258 015	10	258 015 T	10	258 015 F	10
1,60	43,0	20,0	258 016	10	258 016 T	10	258 016 F	10
1,70	43,0	20,0	258 017	10	258 017 T	10	258 017 F	10
1,80	46,0	22,0	258 018	10	258 018 T	10	258 018 F	10
1,90	46,0	22,0	258 019	10	258 019 T	10	258 019 F	10
2,00	49,0	24,0	258 020	10	258 020 T	10	258 020 F	10
2,10	49,0	24,0	258 021	10	258 021 T	10	258 021 F	10
2,20	53,0	27,0	258 022	10	258 022 T	10	258 022 F	10
2,30	53,0	27,0	258 023	10	258 023 T	10	258 023 F	10
2,40	57,0	30,0	258 024	10	258 024 T	10	258 024 F	10
2,50	57,0	30,0	258 025	10	258 025 T	10	258 025 F	10
2,60	57,0	30,0	258 026	10	258 026 T	10	258 026 F	10
2,70	61,0	33,0	258 027	10	258 027 T	10	258 027 F	10
2,80	61,0	33,0	258 028	10	258 028 T	10	258 028 F	10
2,90	61,0	33,0	258 029	10	258 029 T	10	258 029 F	10
3,00	61,0	33,0	258 030	10	258 030 T	10	258 030 F	10
3,10	65,0	36,0	258 031	10	258 031 T	10	258 031 F	10
3,20	65,0	36,0	258 032	10	258 032 T	10	258 032 F	10
3,30	65,0	36,0	258 033	10	258 033 T	10	258 033 F	10
3,40	70,0	39,0	258 034	10	258 034 T	10	258 034 F	10
3,50	70,0	39,0	258 035	10	258 035 T	10	258 035 F	10
3,60	70,0	39,0	258 036	10	258 036 T	10	258 036 F	10
3,70	70,0	39,0	258 037	10	258 037 T	10	258 037 F	10
3,80	75,0	43,0	258 038	10	258 038 T	10	258 038 F	10
3,90	75,0	43,0	258 039	10	258 039 T	10	258 039 F	10
4,00	75,0	43,0	258 040	10	258 040 T	10	258 040 F	10
4,10	75,0	43,0	258 041	10	258 041 T	10	258 041 F	10
4,20	75,0	43,0	258 042	10	258 042 T	10	258 042 F	10
4,30	80,0	47,0	258 043	10	258 043 T	10	258 043 F	10
4,40	80,0	47,0	258 044	10	258 044 T	10	258 044 F	10

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.	Article no. HSS-G TiAIN	Cont. pcs.
4,50	80,0	47,0	258 045	10	258 045 T	10	258 045 F	10
4,60	80,0	47,0	258 046	10	258 046 T	10	258 046 F	10
4,70	80,0	47,0	258 047	10	258 047 T	10	258 047 F	10
4,80	86,0	52,0	258 048	10	258 048 T	10	258 048 F	10
4,90	86,0	52,0	258 049	10	258 049 T	10	258 049 F	10
5,00	86,0	52,0	258 050	10	258 050 T	10	258 050 F	10
5,10	86,0	52,0	258 051	10	258 051 T	10	258 051 F	10
5,20	86,0	52,0	258 052	10	258 052 T	10	258 052 F	10
5,30	86,0	52,0	258 053	10	258 053 T	10	258 053 F	10
5,40	93,0	57,0	258 054	10	258 054 T	10	258 054 F	10
5,50	93,0	57,0	258 055	10	258 055 T	10	258 055 F	10
5,60	93,0	57,0	258 056	10	258 056 T	10	258 056 F	10
5,70	93,0	57,0	258 057	10	258 057 T	10	258 057 F	10
5,80	93,0	57,0	258 058	10	258 058 T	10	258 058 F	10
5,90	93,0	57,0	258 059	10	258 059 T	10	258 059 F	10
6,00	93,0	57,0	258 060	10	258 060 T	10	258 060 F	10
6,10	101,0	63,0	258 061	10	258 061 T	10	258 061 F	10
6,20	101,0	63,0	258 062	10	258 062 T	10	258 062 F	10
6,30	101,0	63,0	258 063	10	258 063 T	10	258 063 F	10
6,40	101,0	63,0	258 064	10	258 064 T	10	258 064 F	10
6,50	101,0	63,0	258 065	10	258 065 T	10	258 065 F	10
6,60	101,0	63,0	258 066	10	258 066 T	10	258 066 F	10
6,70	101,0	63,0	258 067	10	258 067 T	10	258 067 F	10
6,80	109,0	69,0	258 068	10	258 068 T	10	258 068 F	10
6,90	109,0	69,0	258 069	10	258 069 T	10	258 069 F	10
7,00	109,0	69,0	258 070	10	258 070 T	10	258 070 F	10
7,10	109,0	69,0	258 071	10	258 071 T	10	258 071 F	10
7,20	109,0	69,0	258 072	10	258 072 T	10	258 072 F	10
7,30	109,0	69,0	258 073	10	258 073 T	10	258 073 F	10
7,40	109,0	69,0	258 074	10	258 074 T	10	258 074 F	10
7,50	109,0	69,0	258 075	10	258 075 T	10	258 075 F	10
7,60	117,0	75,0	258 076	10	258 076 T	10	258 076 F	10
7,70	117,0	75,0	258 077	10	258 077 T	10	258 077 F	10
7,80	117,0	75,0	258 078	10	258 078 T	10	258 078 F	10
7,90	117,0	75,0	258 079	10	258 079 T	10	258 079 F	10
8,00	117,0	75,0	258 080	10	258 080 T	10	258 080 F	10
8,10	117,0	75,0	258 081	10	258 081 T	10	258 081 F	10
8,20	117,0	75,0	258 082	10	258 082 T	10	258 082 F	10
8,30	117,0	75,0	258 083	10	258 083 T	10	258 083 F	10
8,40	117,0	75,0	258 084	10	258 084 T	10	258 084 F	10
8,50	117,0	75,0	258 085	10	258 085 T	10	258 085 F	10
8,60	125,0	81,0	258 086	10	258 086 T	10	258 086 F	10
8,70	125,0	81,0	258 087	10	258 087 T	10	258 087 F	10
8,80	125,0	81,0	258 088	10	258 088 T	10	258 088 F	10
8,90	125,0	81,0	258 089	10	258 089 T	10	258 089 F	10
9,00	125,0	81,0	258 090	10	258 090 T	10	258 090 F	10
9,10	125,0	81,0	258 091	10	258 091 T	10	258 091 F	10
9,20	125,0	81,0	258 092	10	258 092 T	10	258 092 F	10
9,30	125,0	81,0	258 093	10	258 093 T	10	258 093 F	10
9,40	125,0	81,0	258 094	10	258 094 T	10	258 094 F	10
9,50	125,0	81,0	258 095	10	258 095 T	10	258 095 F	10
9,60	133,0	87,0	258 096	10	258 096 T	10	258 096 F	10
9,70	133,0	87,0	258 097	10	258 097 T	10	258 097 F	10
9,80	133,0	87,0	258 098	10	258 098 T	10	258 098 F	10
9,90	133,0	87,0	258 099	10	258 099 T	10	258 099 F	10
10,00	133,0	87,0	258 100	10	258 100 T	10	258 100 F	10
10,10	133,0	87,0	258 101	10	258 101 T	10	258 101 F	10
10,20	133,0	87,0	258 102	10	258 102 T	10	258 102 F	10
10,30	133,0	87,0	258 103	5	258 103 T	5	258 103 F	5
10,40	133,0	87,0	258 104	5	258 104 T	5	258 104 F	5
10,50	133,0	87,0	258 105	5	258 105 T	5	258 105 F	5
10,60	133,0	87,0	258 106	5	258 106 T	5	258 106 F	5
10,70	142,0	94,0	258 107	5	258 107 T	5	258 107 F	5
10,80	142,0	94,0	258 108	5	258 108 T	5	258 108 F	5
10,90	142,0	94,0	258 109	5	258 109 T	5	258 109 F	5
11,00	142,0	94,0	258 110	5	258 110 T	5	258 110 F	5
11,10	142,0	94,0	258 111	5	258 111 T	5	258 111 F	5



1.01



## Twist drills DIN 338 TL 3000, HSS ground

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no.	Cont. pcs.	Article no.	Cont. pcs.	Article no.	Cont. pcs.
			HSS-G		HSS-G TiN		HSS-G TiAIN	
11,20	142,0	94,0	258 112	5	258 112 T	5	258 112 F	5
11,30	142,0	94,0	258 113	5	258 113 T	5	258 113 F	5
11,40	142,0	94,0	258 114	5	258 114 T	5	258 114 F	5
11,50	142,0	94,0	258 115	5	258 115 T	5	258 115 F	5
11,60	142,0	94,0	258 116	5	258 116 T	5	258 116 F	5
11,70	142,0	94,0	258 117	5	258 117 T	5	258 117 F	5
11,80	142,0	94,0	258 118	5	258 118 T	5	258 118 F	5
11,90	151,0	101,0	258 119	5	258 119 T	5	258 119 F	5
12,00	151,0	101,0	258 120	5	258 120 T	5	258 120 F	5
12,10	151,0	101,0	258 121	5	258 121 T	5	258 121 F	5
12,20	151,0	101,0	258 122	5	258 122 T	5	258 122 F	5
12,30	151,0	101,0	258 123	5	258 123 T	5	258 123 F	5
12,40	151,0	101,0	258 124	5	258 124 T	5	258 124 F	5
12,50	151,0	101,0	258 125	5	258 125 T	5	258 125 F	5
12,60	151,0	101,0	258 126	5	258 126 T	5	258 126 F	5
12,70	151,0	101,0	258 127	5	258 127 T	5	258 127 F	5
12,80	151,0	101,0	258 128	5	258 128 T	5	258 128 F	5
12,90	151,0	101,0	258 129	5	258 129 T	5	258 129 F	5
13,00	151,0	101,0	258 130	5	258 130 T	5	258 130 F	5
13,50	160,0	108,0	258 135	5	258 135 T	5	258 135 F	5
14,00	160,0	108,0	258 140	5	258 140 T	5	258 140 F	5
14,50	169,0	114,0	258 145	5	258 145 T	5	258 145 F	5
15,00	169,0	114,0	258 150	5	258 150 T	5	258 150 F	5
15,50	178,0	120,0	258 155	5	258 155 T	5	258 155 F	5
16,00	178,0	120,0	258 160	5	258 160 T	5	258 160 F	5

## Twist drill sets DIN 338 TL 3000, HSS ground



258 214



258 214 T



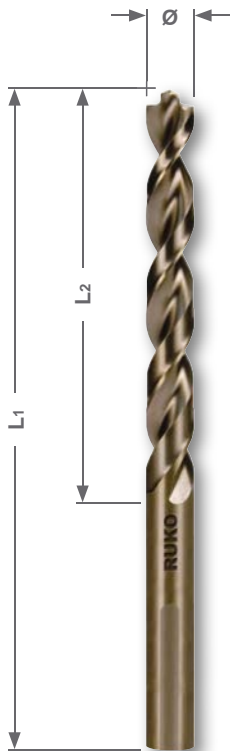
258 214 RO



258 214 FRO

Description	Article no.	Article no.	Article no.
	HSS-G	HSS-G TiN	HSS-G TiAIN
19-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	258 214	258 214 T	258 214 F
25-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	258 215	258 215 T	258 215 F
19-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	258 214 RO	258 214 TRO	258 214 FRO
25-piece set of twist drills DIN 338 type TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	258 215 RO	258 215 TRO	258 215 FRO





## Twist drills DIN 338 type TURBO, HSS ground



**High-performance twist drill, particularly suited for handheld drilling of thin-walled materials.**

Ground twist drill in high-performance high-speed steel. Drills very cleanly with burr-free hole edges. Immediate drilling start after insertion as no prepunching is necessary. Shatter stability is increased by up to 50 % as the core diameter increases constantly in the direction of the shank (from Ø 3,2 mm). Triple milled clamping areas prevent the drill from spinning in the machine (from Ø 5,0 mm).

For use on: non-alloy and alloy steel (up to grade of approx. 900 N/mm<sup>2</sup>), for drilling thin-walled profiles and sheeting up to 5,0 mm, plastics and wood.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●				○			○		

● Main application      ○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no. HSS-G	Cont. pcs.
1,00	34,0	12,0	2146 010	10
1,50	40,0	18,0	2146 015	10
2,00	49,0	24,0	2146 020	10
2,50	57,0	30,0	2146 025	10
3,00	61,0	33,0	2146 030	10
3,20	65,0	36,0	2146 032	10
3,30	65,0	36,0	2146 033	10
3,50	70,0	39,0	2146 035	10
4,00	75,0	43,0	2146 040	10
4,10	75,0	43,0	2146 041	10
4,20	75,0	43,0	2146 042	10
4,50	80,0	46,0	2146 045	10
4,80	86,0	46,0	2146 048	10
5,00	86,0	46,0	2146 050	10
5,10	86,0	46,0	2146 051	10
5,20	86,0	46,0	2146 052	10
5,40	93,0	52,0	2146 054	10
5,50	93,0	52,0	2146 055	10
6,00	93,0	57,0	2146 060	10
6,50	101,0	58,0	2146 065	10
6,80	109,0	66,0	2146 068	10
7,00	109,0	66,0	2146 070	10
7,50	109,0	66,0	2146 075	10
8,00	117,0	72,0	2146 080	10
8,50	117,0	72,0	2146 085	10
9,00	125,0	78,0	2146 090	10
9,50	125,0	78,0	2146 095	10
10,00	133,0	84,0	2146 100	10
10,50	133,0	84,0	2146 105	5
11,00	142,0	91,0	2146 110	5
11,50	142,0	91,0	2146 115	5
12,00	151,0	98,0	2146 120	5
12,50	151,0	98,0	2146 125	5
13,00	151,0	98,0	2146 130	5



Twist drill sets DIN 338 type TURBO, HSS ground



214 614



214 615



214 614 RO

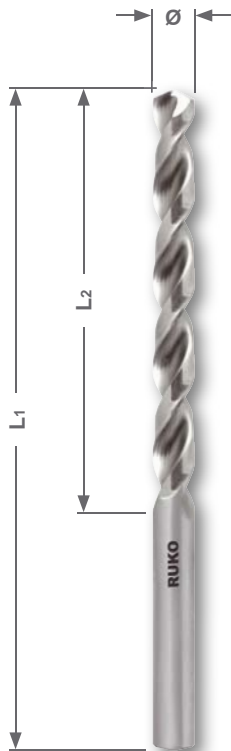


214 615 RO



Description	Article no. <b>HSS-G</b>
19-piece set of twist drills DIN 338 type TURBO Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	214 614
25-piece set of twist drills DIN 338 type TURBO Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	214 615
19-piece set of twist drills DIN 338 type TURBO Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	214 614 RO
19-piece set of twist drills DIN 338 type TURBO Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	214 615 RO





## **N** Twist drills DIN 338 type W, HSS ground



For drilling soft and long-chipping materials such as aluminium, zinc, copper, plastic and wood.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●				●	○	○	○		

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>	
			Article no. HSS-G	Cont. pcs.
1,00	34,0	12,0	280 010	10
1,50	40,0	18,0	280 015	10
2,00	49,0	24,0	280 020	10
2,50	57,0	30,0	280 025	10
3,00	61,0	33,0	280 030	10
3,20	65,0	36,0	280 032	10
3,30	65,0	36,0	280 033	10
3,50	70,0	39,0	280 035	10
4,00	75,0	43,0	280 040	10
4,20	75,0	43,0	280 042	10
4,50	80,0	47,0	280 045	10
4,80	86,0	52,0	280 048	10
5,00	86,0	52,0	280 050	10
5,50	93,0	57,0	280 055	10
6,00	93,0	57,0	280 060	10
6,40	101,0	63,0	280 064	10
6,50	101,0	63,0	280 065	10
6,80	109,0	69,0	280 068	10
7,00	109,0	69,0	280 070	10
7,50	109,0	69,0	280 075	10
8,00	117,0	75,0	280 080	10
8,50	117,0	75,0	280 085	10
8,70	125,0	81,0	280 087	10
9,00	125,0	81,0	280 090	10
9,50	125,0	81,0	280 095	10
10,00	133,0	87,0	280 100	10
10,20	133,0	87,0	280 102	10
10,50	133,0	87,0	280 105	5
11,00	142,0	94,0	280 110	5
11,50	142,0	94,0	280 115	5
12,00	151,0	101,0	280 120	5
12,50	151,0	101,0	280 125	5
13,00	151,0	101,0	280 130	5

**N** Twist drill sets DIN 338 type W, HSS ground



280 214



280 215



280 214 RO



280 215 RO



Description	Article no. <b>HSS-G</b>
19-piece set of twist drills DIN 338 type W Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	280 214
25-piece set of twist drills DIN 338 type W Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	280 215
19-piece set of twist drills DIN 338 type W Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	280 214 RO
25-piece set of twist drills DIN 338 type W Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	280 215 RO





## **N** Twist drills DIN 338 type N, HSS ground



High-performance ground standard twist drill made from heavy-duty high speed steel. The fully ground twist drill has a precise concentricity. Thanks to the split point, this drill has good centring properties and requires little pressure.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	●	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no. HSS-G	Cont. pcs.
0,30	19,0	3,0	287 003	10
0,40	20,0	5,0	287 004	10
0,50	22,0	6,0	287 005	10
0,60	24,0	7,0	287 006	10
0,70	28,0	9,0	287 007	10
0,80	30,0	10,0	287 008	10
0,90	32,0	11,0	287 009	10
1,00	34,0	12,0	287 010	10
1,10	36,0	14,0	287 011	10
1,20	38,0	16,0	287 012	10
1,25	38,0	16,0	287 0125	10
1,30	38,0	16,0	287 013	10
1,40	40,0	18,0	287 014	10
1,50	40,0	18,0	287 015	10
1,60	43,0	20,0	287 016	10
1,70	43,0	20,0	287 017	10
1,75	46,0	20,0	287 0175	10
1,80	46,0	22,0	287 018	10
1,90	46,0	22,0	287 019	10
2,00	49,0	24,0	287 020	10
2,10	49,0	24,0	287 021	10
2,20	53,0	27,0	287 022	10
2,25	53,0	27,0	287 0225	10
2,30	53,0	27,0	287 023	10
2,40	57,0	30,0	287 024	10
2,50	57,0	30,0	287 025	10
2,60	57,0	30,0	287 026	10
2,70	61,0	33,0	287 027	10
2,75	61,0	33,0	287 0275	10
2,80	61,0	33,0	287 028	10
2,90	61,0	33,0	287 029	10
3,00	61,0	33,0	287 030	10
3,10	65,0	36,0	287 031	10
3,20	65,0	36,0	287 032	10
3,25	65,0	36,0	287 0325	10

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no. HSS-G	Cont. pcs.
3,30	65,0	36,0	287 033	10
3,40	70,0	39,0	287 034	10
3,50	70,0	39,0	287 035	10
3,60	70,0	39,0	287 036	10
3,70	70,0	39,0	287 037	10
3,75	70,0	39,0	287 0375	10
3,80	75,0	43,0	287 038	10
3,90	75,0	43,0	287 039	10
4,00	75,0	43,0	287 040	10
4,10	75,0	43,0	287 041	10
4,20	75,0	43,0	287 042	10
4,25	75,0	43,0	287 0425	10
4,30	80,0	47,0	287 043	10
4,40	80,0	47,0	287 044	10
4,50	80,0	47,0	287 045	10
4,60	80,0	47,0	287 046	10
4,70	80,0	47,0	287 047	10
4,75	80,0	47,0	287 0475	10
4,80	86,0	52,0	287 048	10
4,90	86,0	52,0	287 049	10
5,00	86,0	52,0	287 050	10
5,10	86,0	52,0	287 051	10
5,20	86,0	52,0	287 052	10
5,25	86,0	52,0	287 0525	10
5,30	86,0	52,0	287 053	10
5,40	93,0	57,0	287 054	10
5,50	93,0	57,0	287 055	10
5,60	93,0	57,0	287 056	10
6,25	101,0	63,0	287 0625	10
6,30	101,0	63,0	287 063	10
6,40	101,0	63,0	287 064	10
6,50	101,0	63,0	287 065	10
6,60	101,0	63,0	287 066	10
6,70	101,0	63,0	287 067	10
6,75	101,0	63,0	287 0675	10

**N** Twist drills DIN 338 type N, HSS ground

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
6,80	109,0	69,0	287 068	10
6,90	109,0	69,0	287 069	10
7,00	109,0	69,0	287 070	10
7,10	109,0	69,0	287 071	10
7,20	109,0	69,0	287 072	10
7,25	109,0	69,0	287 0725	10
7,30	109,0	69,0	287 073	10
7,40	109,0	69,0	287 074	10
7,50	109,0	69,0	287 075	10
7,60	117,0	75,0	287 076	10
7,70	117,0	75,0	287 077	10
7,75	117,0	75,0	287 0775	10
7,80	117,0	75,0	287 078	10
7,90	117,0	75,0	287 079	10
8,00	117,0	75,0	287 080	10
8,10	117,0	75,0	287 081	10
8,20	117,0	75,0	287 082	10
8,25	117,0	75,0	287 0825	10
8,30	117,0	75,0	287 083	10
8,40	117,0	75,0	287 084	10
8,50	117,0	75,0	287 085	10
8,60	125,0	81,0	287 086	10
8,70	125,0	81,0	287 087	10
8,75	125,0	81,0	287 0875	10
8,80	125,0	81,0	287 088	10
8,90	125,0	81,0	287 089	10
9,00	125,0	81,0	287 090	10
9,10	125,0	81,0	287 091	10
9,20	125,0	81,0	287 092	10
9,25	125,0	81,0	287 0925	10
9,30	125,0	81,0	287 093	10
9,40	125,0	81,0	287 094	10
9,50	125,0	81,0	287 095	10
9,60	133,0	87,0	287 096	10
9,70	133,0	87,0	287 097	10
9,75	133,0	87,0	287 0975	10
9,80	133,0	87,0	287 098	10
9,90	133,0	87,0	287 099	10

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
10,00	133,0	87,0	287 100	10
10,10	133,0	87,0	287 101	10
10,20	133,0	87,0	287 102	10
10,30	133,0	87,0	287 103	10
10,40	133,0	87,0	287 104	10
10,50	133,0	87,0	287 105	5
10,60	133,0	87,0	287 106	5
10,70	142,0	94,0	287 107	5
10,80	142,0	94,0	287 108	5
10,90	142,0	94,0	287 109	5
11,00	142,0	94,0	287 110	5
11,10	142,0	94,0	287 111	5
11,20	142,0	94,0	287 112	5
11,30	142,0	94,0	287 113	5
11,40	142,0	94,0	287 114	5
11,50	142,0	94,0	287 115	5
11,60	142,0	94,0	287 116	5
11,70	142,0	94,0	287 117	5
11,80	142,0	94,0	287 118	5
11,90	151,0	101,0	287 119	5
12,00	151,0	101,0	287 120	5
12,10	151,0	101,0	287 121	5
12,20	151,0	101,0	287 122	5
12,30	151,0	101,0	287 123	5
12,40	151,0	101,0	287 124	5
12,50	151,0	101,0	287 125	5
12,60	151,0	101,0	287 126	5
12,70	151,0	101,0	287 127	5
12,80	151,0	101,0	287 128	5
12,90	151,0	101,0	287 129	5
13,00	151,0	101,0	287 130	5
13,50	160,0	108,0	287 135	5
14,00	160,0	108,0	287 140	5
14,50	169,0	114,0	287 145	5
15,00	169,0	114,0	287 150	5
15,50	178,0	120,0	287 155	5
16,00	178,0	120,0	287 160	5
—	—	—	—	—



**N** Twist drill sets DIN 338 type N, HSS ground

Description	Article no. HSS-G
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	287 214
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	287 215
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	287 214 RO
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	287 215 RO



287 214



## Twist drills DIN 338 type N, HSS ground



High-performance ground standard twist drill made from heavy-duty high speed steel. The fully ground twist drill has a precise concentricity. Thanks to the split point, this drill has good centring properties and requires little pressure.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	●	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>					
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G Black	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
0,30	19,0	3,0	214 003	10	214 003 S	10	250 003 T	10
0,40	20,0	5,0	214 004	10	214 004 S	10	250 004 T	10
0,50	22,0	6,0	214 005	10	214 005 S	10	250 005 T	10
0,60	24,0	7,0	214 006	10	214 006 S	10	250 006 T	10
0,70	28,0	9,0	214 007	10	214 007 S	10	250 007 T	10
0,80	30,0	10,0	214 008	10	214 008 S	10	250 008 T	10
0,90	32,0	11,0	214 009	10	214 009 S	10	250 009 T	10
1,00	34,0	12,0	214 010	10	214 010 S	10	250 010 T	10
1,10	36,0	14,0	214 011	10	214 011 S	10	250 011 T	10
1,20	38,0	16,0	214 012	10	214 012 S	10	250 012 T	10
1,25	38,0	16,0	214 0125	10	214 0125 S	10	250 0125 T	10
1,30	38,0	16,0	214 013	10	214 013 S	10	250 013 T	10
1,40	40,0	18,0	214 014	10	214 014 S	10	250 014 T	10
1,50	40,0	18,0	214 015	10	214 015 S	10	250 015 T	10
1,60	43,0	20,0	214 016	10	214 016 S	10	250 016 T	10
1,70	43,0	20,0	214 017	10	214 017 S	10	250 017 T	10
1,75	46,0	20,0	214 0175	10	214 0175 S	10	250 0175 T	10
1,80	46,0	22,0	214 018	10	214 018 S	10	250 018 T	10
1,90	46,0	22,0	214 019	10	214 019 S	10	250 019 T	10
2,00	49,0	24,0	214 020	10	214 020 S	10	250 020 T	10
2,10	49,0	24,0	214 021	10	214 021 S	10	250 021 T	10
2,20	53,0	27,0	214 022	10	214 022 S	10	250 022 T	10
2,25	53,0	27,0	214 0225	10	214 0225 S	10	250 0225 T	10
2,30	53,0	27,0	214 023	10	214 023 S	10	250 023 T	10
2,40	57,0	30,0	214 024	10	214 024 S	10	250 024 T	10
2,50	57,0	30,0	214 025	10	214 025 S	10	250 025 T	10
2,60	57,0	30,0	214 026	10	214 026 S	10	250 026 T	10
2,70	61,0	33,0	214 027	10	214 027 S	10	250 027 T	10
2,75	61,0	33,0	214 0275	10	214 0275 S	10	250 0275 T	10
2,80	61,0	33,0	214 028	10	214 028 S	10	250 028 T	10
2,90	61,0	33,0	214 029	10	214 029 S	10	250 029 T	10
3,00	61,0	33,0	214 030	10	214 030 S	10	250 030 T	10
3,10	65,0	36,0	214 031	10	214 031 S	10	250 031 T	10
3,20	65,0	36,0	214 032	10	214 032 S	10	250 032 T	10
3,25	65,0	36,0	214 0325	10	214 0325 S	10	250 0325 T	10

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N		N		N	
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
3,30	65,0	36,0	214 033	10	214 033 S	10	250 033 T	10
3,40	70,0	39,0	214 034	10	214 034 S	10	250 034 T	10
3,50	70,0	39,0	214 035	10	214 035 S	10	250 035 T	10
3,60	70,0	39,0	214 036	10	214 036 S	10	250 036 T	10
3,70	70,0	39,0	214 037	10	214 037 S	10	250 037 T	10
3,75	70,0	39,0	214 0375	10	214 0375 S	10	250 0375 T	10
3,80	75,0	43,0	214 038	10	214 038 S	10	250 038 T	10
3,90	75,0	43,0	214 039	10	214 039 S	10	250 039 T	10
4,00	75,0	43,0	214 040	10	214 040 S	10	250 040 T	10
4,10	75,0	43,0	214 041	10	214 041 S	10	250 041 T	10
4,20	75,0	43,0	214 042	10	214 042 S	10	250 042 T	10
4,25	75,0	43,0	214 0425	10	214 0425 S	10	250 0425 T	10
4,30	80,0	47,0	214 043	10	214 043 S	10	250 043 T	10
4,40	80,0	47,0	214 044	10	214 044 S	10	250 044 T	10
4,50	80,0	47,0	214 045	10	214 045 S	10	250 045 T	10
4,60	80,0	47,0	214 046	10	214 046 S	10	250 046 T	10
4,70	80,0	47,0	214 047	10	214 047 S	10	250 047 T	10
4,75	80,0	47,0	214 0475	10	214 0475 S	10	250 0475 T	10
4,80	86,0	52,0	214 048	10	214 048 S	10	250 048 T	10
4,90	86,0	52,0	214 049	10	214 049 S	10	250 049 T	10
5,00	86,0	52,0	214 050	10	214 050 S	10	250 050 T	10
5,10	86,0	52,0	214 051	10	214 051 S	10	250 051 T	10
5,20	86,0	52,0	214 052	10	214 052 S	10	250 052 T	10
5,25	86,0	52,0	214 0525	10	214 0525 S	10	250 0525 T	10
5,30	86,0	52,0	214 053	10	214 053 S	10	250 053 T	10
5,40	93,0	57,0	214 054	10	214 054 S	10	250 054 T	10
5,50	93,0	57,0	214 055	10	214 055 S	10	250 055 T	10
5,60	93,0	57,0	214 056	10	214 056 S	10	250 056 T	10
5,70	93,0	57,0	214 057	10	214 057 S	10	250 057 T	10
5,75	93,0	57,0	214 0575	10	214 0575 S	10	250 0575 T	10
5,80	93,0	57,0	214 058	10	214 058 S	10	250 058 T	10
5,90	93,0	57,0	214 059	10	214 059 S	10	250 059 T	10
6,00	93,0	57,0	214 060	10	214 060 S	10	250 060 T	10
6,10	101,0	63,0	214 061	10	214 061 S	10	250 061 T	10
6,20	101,0	63,0	214 062	10	214 062 S	10	250 062 T	10
6,25	101,0	63,0	214 0625	10	214 0625 S	10	250 0625 T	10
6,30	101,0	63,0	214 063	10	214 063 S	10	250 063 T	10
6,40	101,0	63,0	214 064	10	214 064 S	10	250 064 T	10
6,50	101,0	63,0	214 065	10	214 065 S	10	250 065 T	10
6,60	101,0	63,0	214 066	10	214 066 S	10	250 066 T	10
6,70	101,0	63,0	214 067	10	214 067 S	10	250 067 T	10
6,75	101,0	63,0	214 0675	10	214 0675 S	10	250 0675 T	10
6,80	109,0	69,0	214 068	10	214 068 S	10	250 068 T	10
6,90	109,0	69,0	214 069	10	214 069 S	10	250 069 T	10
7,00	109,0	69,0	214 070	10	214 070 S	10	250 070 T	10
7,10	109,0	69,0	214 071	10	214 071 S	10	250 071 T	10
7,20	109,0	69,0	214 072	10	214 072 S	10	250 072 T	10
7,25	109,0	69,0	214 0725	10	214 0725 S	10	250 0725 T	10
7,30	109,0	69,0	214 073	10	214 073 S	10	250 073 T	10
7,40	109,0	69,0	214 074	10	214 074 S	10	250 074 T	10
7,50	109,0	69,0	214 075	10	214 075 S	10	250 075 T	10
7,60	117,0	75,0	214 076	10	214 076 S	10	250 076 T	10
7,70	117,0	75,0	214 077	10	214 077 S	10	250 077 T	10
7,75	117,0	75,0	214 0775	10	214 0775 S	10	250 0775 T	10
7,80	117,0	75,0	214 078	10	214 078 S	10	250 078 T	10
7,90	117,0	75,0	214 079	10	214 079 S	10	250 079 T	10
8,00	117,0	75,0	214 080	10	214 080 S	10	250 080 T	10
8,10	117,0	75,0	214 081	10	214 081 S	10	250 081 T	10
8,20	117,0	75,0	214 082	10	214 082 S	10	250 082 T	10
8,25	117,0	75,0	214 0825	10	214 0825 S	10	250 0825 T	10
8,30	117,0	75,0	214 083	10	214 083 S	10	250 083 T	10
8,40	117,0	75,0	214 084	10	214 084 S	10	250 084 T	10
8,50	117,0	75,0	214 085	10	214 085 S	10	250 085 T	10
8,60	125,0	81,0	214 086	10	214 086 S	10	250 086 T	10
8,70	125,0	81,0	214 087	10	214 087 S	10	250 087 T	10
8,75	125,0	81,0	214 0875	10	214 0875 S	10	250 0875 T	10
8,80	125,0	81,0	214 088	10	214 088 S	10	250 088 T	10



1.01

## Twist drills DIN 338 type N, HSS ground



1.01

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>					
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
8,90	125,0	81,0	214 089	10	214 089 S	10	250 089 T	10
9,00	125,0	81,0	214 090	10	214 090 S	10	250 090 T	10
9,10	125,0	81,0	214 091	10	214 091 S	10	250 091 T	10
9,20	125,0	81,0	214 092	10	214 092 S	10	250 092 T	10
9,25	125,0	81,0	214 0925	10	214 0925 S	10	250 0925 T	10
9,30	125,0	81,0	214 093	10	214 093 S	10	250 093 T	10
9,40	125,0	81,0	214 094	10	214 094 S	10	250 094 T	10
9,50	125,0	81,0	214 095	10	214 095 S	10	250 095 T	10
9,60	133,0	87,0	214 096	10	214 096 S	10	250 096 T	10
9,70	133,0	87,0	214 097	10	214 097 S	10	250 097 T	10
9,75	133,0	87,0	214 0975	10	214 0975 S	10	250 0975 T	10
9,80	133,0	87,0	214 098	10	214 098 S	10	250 098 T	10
9,90	133,0	87,0	214 099	10	214 099 S	10	250 099 T	10
10,00	133,0	87,0	214 100	10	214 100 S	10	250 100 T	10
10,10	133,0	87,0	214 101	10	214 101 S	10	250 101 T	10
10,20	133,0	87,0	214 102	10	214 102 S	10	250 102 T	10
10,30	133,0	87,0	214 103	10	214 103 S	10	250 103 T	10
10,40	133,0	87,0	214 104	10	214 104 S	10	250 104 T	10
10,50	133,0	87,0	214 105	5	214 105 S	5	250 105 T	5
10,60	133,0	87,0	214 106	5	214 106 S	5	250 106 T	5
10,70	142,0	94,0	214 107	5	214 107 S	5	250 107 T	5
10,80	142,0	94,0	214 108	5	214 108 S	5	250 108 T	5
10,90	142,0	94,0	214 109	5	214 109 S	5	250 109 T	5
11,00	142,0	94,0	214 110	5	214 110 S	5	250 110 T	5
11,10	142,0	94,0	214 111	5	214 111 S	5	250 111 T	5
11,20	142,0	94,0	214 112	5	214 112 S	5	250 112 T	5
11,30	142,0	94,0	214 113	5	214 113 S	5	250 113 T	5
11,40	142,0	94,0	214 114	5	214 114 S	5	250 114 T	5
11,50	142,0	94,0	214 115	5	214 115 S	5	250 115 T	5
11,60	142,0	94,0	214 116	5	214 116 S	5	250 116 T	5
11,70	142,0	94,0	214 117	5	214 117 S	5	250 117 T	5
11,80	142,0	94,0	214 118	5	214 118 S	5	250 118 T	5
11,90	151,0	101,0	214 119	5	214 119 S	5	250 119 T	5
12,00	151,0	101,0	214 120	5	214 120 S	5	250 120 T	5
12,10	151,0	101,0	214 121	5	214 121 S	5	250 121 T	5
12,20	151,0	101,0	214 122	5	214 122 S	5	250 122 T	5
12,30	151,0	101,0	214 123	5	214 123 S	5	250 123 T	5
12,40	151,0	101,0	214 124	5	214 124 S	5	250 124 T	5
12,50	151,0	101,0	214 125	5	214 125 S	5	250 125 T	5
12,60	151,0	101,0	214 126	5	214 126 S	5	250 126 T	5
12,70	151,0	101,0	214 127	5	214 127 S	5	250 127 T	5
12,80	151,0	101,0	214 128	5	214 128 S	5	250 128 T	5
12,90	151,0	101,0	214 129	5	214 129 S	5	250 129 T	5
13,00	151,0	101,0	214 130	5	214 130 S	5	250 130 T	5
13,50	160,0	108,0	214 135	5	214 135 S	5	250 135 T	5
14,00	160,0	108,0	214 140	5	214 140 S	5	250 140 T	5
14,50	169,0	114,0	214 145	5	214 145 S	5	250 145 T	5
15,00	169,0	114,0	214 150	5	214 150 S	5	250 150 T	5
15,50	178,0	120,0	214 155	5	214 155 S	5	250 155 T	5
16,00	178,0	120,0	214 160	5	214 160 S	5	250 160 T	5
16,50	184,0	125,0	214 165	1	—	—	—	—
17,00	184,0	125,0	214 170	1	—	—	—	—
17,50	191,0	130,0	214 175	1	—	—	—	—
18,00	191,0	130,0	214 180	1	—	—	—	—
18,50	198,0	135,0	214 185	1	—	—	—	—
19,00	198,0	135,0	214 190	1	—	—	—	—
19,50	205,0	140,0	214 195	1	—	—	—	—
20,00	205,0	140,0	214 200	1	—	—	—	—



## Twist drill sets DIN 338 type N, HSS ground



214 214



214 214 S



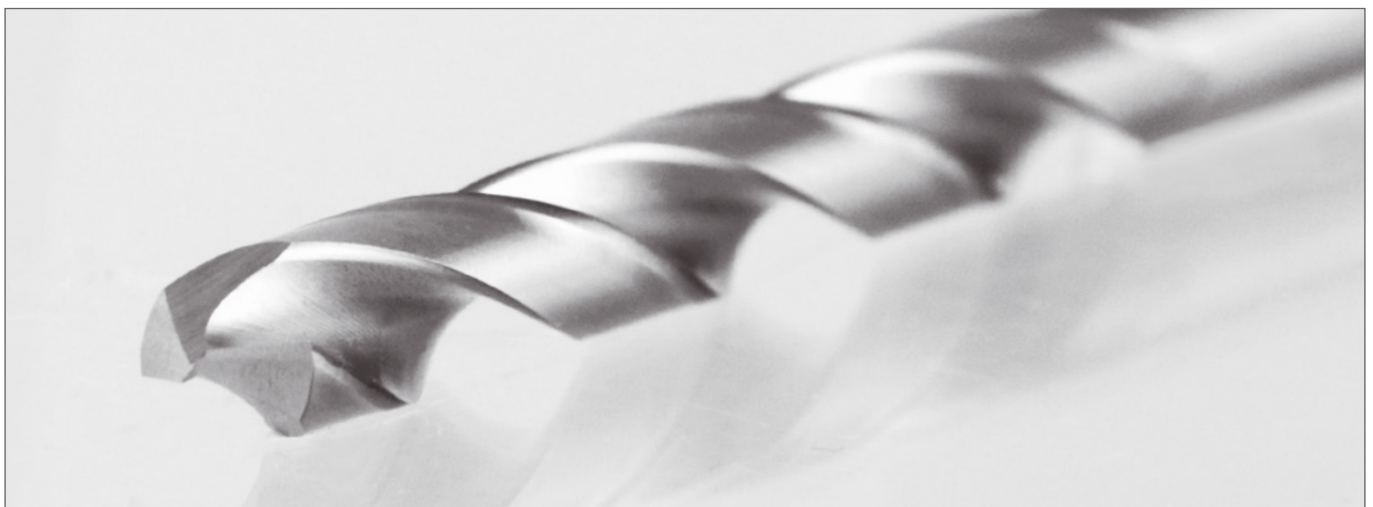
214 214 RO



250 214 TRO



Description	<b>N</b>		
	Article no. HSS-G	Article no. HSS-G	Article no. HSS-G TIN
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	214 214	214 214 S	250 214 T
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	214 215	214 215 S	250 215 T
41-piece set of twist drills DIN 338 type N Ø 6,0 mm up to 10,0 mm in increments of 0,1 mm in steel case	214 218	—	—
50-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 5,9 mm in increments of 0,1 mm in steel case	214 217	—	—
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	214 214 RO	214 214 SRO	250 214 TRO
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	214 215 RO	214 215 SRO	250 215 TRO





## **N** Twist drills DIN 338 type N, HSS ground - left hand cutting



High-performance ground twist drill made from heavy-duty high speed steel.  
The fully ground twist drill has a precise concentricity.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	●	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	<b>N</b>			
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
1,00	34,0	12,0	214 010 Li	10	214 010 Li T	10
1,50	40,0	18,0	214 015 Li	10	214 015 Li T	10
2,00	49,0	24,0	214 020 Li	10	214 020 Li T	10
2,50	57,0	30,0	214 025 Li	10	214 025 Li T	10
3,00	61,0	33,0	214 030 Li	10	214 030 Li T	10
3,20	65,0	36,0	214 032 Li	10	214 032 Li T	10
3,30	65,0	36,0	214 033 Li	10	214 033 Li T	10
3,50	70,0	39,0	214 035 Li	10	214 035 Li T	10
4,00	75,0	43,0	214 040 Li	10	214 040 Li T	10
4,20	75,0	43,0	214 042 Li	10	214 042 Li T	10
4,50	80,0	47,0	214 045 Li	10	214 045 Li T	10
4,80	86,0	52,0	214 048 Li	10	214 048 Li T	10
5,00	86,0	52,0	214 050 Li	10	214 050 Li T	10
5,50	93,0	57,0	214 055 Li	10	214 055 Li T	10
6,00	93,0	57,0	214 060 Li	10	214 060 Li T	10
6,40	101,0	63,0	214 064 Li	10	214 064 Li T	10
6,50	101,0	63,0	214 065 Li	10	214 065 Li T	10
6,80	109,0	69,0	214 068 Li	10	214 068 Li T	10
7,00	109,0	69,0	214 070 Li	10	214 070 Li T	10
7,50	109,0	69,0	214 075 Li	10	214 075 Li T	10
8,00	117,0	75,0	214 080 Li	10	214 080 Li T	10
8,50	117,0	75,0	214 085 Li	10	214 085 Li T	10
8,70	125,0	81,0	214 087 Li	10	214 087 Li T	10
9,00	125,0	81,0	214 090 Li	10	214 090 Li T	10
9,50	125,0	81,0	214 095 Li	10	214 095 Li T	10
10,00	133,0	87,0	214 100 Li	10	214 100 Li T	10
10,20	133,0	87,0	214 102 Li	10	214 102 Li T	10
10,50	133,0	87,0	214 105 Li	5	214 105 Li T	5
11,00	142,0	94,0	214 110 Li	5	214 110 Li T	5
11,50	142,0	94,0	214 115 Li	5	214 115 Li T	5
12,00	151,0	101,0	214 120 Li	5	214 120 Li T	5
12,50	151,0	101,0	214 125 Li	5	214 125 Li T	5
13,00	151,0	101,0	214 130 Li	5	214 130 Li T	5

**N** Twist drill sets DIN 338 type N, HSS ground - left hand cutting



214 214 Li



214 214 Li T



214 214 Li RO



214 214 Li TRO



Description	Article no. HSS-G	Article no. HSS-G TIN
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	214 214 Li	214 214 Li T
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	214 215 Li	214 215 Li T
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	214 214 Li RO	214 214 Li TRO
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	214 215 Li RO	214 215 Li TRO



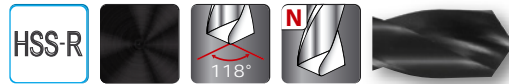


## Twist drills DIN 338 type N, with reduced shank



Ideally suitable for drilling larger drilling diameters on all commonly-used drilling machines with a clamping chuck up to 13,0 mm.

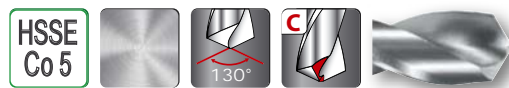
Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●					○	○		●	



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		●						○

● Main application      ○ Other application

Ø <sub>1</sub> mm	L <sub>1</sub> mm	Ø <sub>2</sub> mm	L <sub>2</sub> mm	Article no. HSS-R	Article no. HSS-G	Article no. HSSE-Co 5	Cont. pcs.
10,50	133,0	10,0	30,0	200 105	200 4 105	200 5 105	1
11,00	142,0	10,0	30,0	200 110	200 4 110	200 5 110	1
11,50	142,0	10,0	30,0	200 115	200 4 115	200 5 115	1
12,00	151,0	10,0	30,0	200 120	200 4 120	200 5 120	1
12,50	151,0	10,0	30,0	200 125	200 4 125	200 5 125	1
13,00	151,0	10,0	30,0	200 130	200 4 130	200 5 130	1
13,50	160,0	10,0	30,0	200 135	200 4 135	200 5 135	1
14,00	160,0	10,0	30,0	200 140	200 4 140	200 5 140	1
14,50	169,0	10,0	30,0	200 145	200 4 145	200 5 145	1
15,00	169,0	10,0	30,0	200 150	200 4 150	200 5 150	1
15,50	178,0	10,0	30,0	200 155	200 4 155	200 5 155	1
16,00	178,0	10,0	30,0	200 160	200 4 160	200 5 160	1
16,50	184,0	13,0	35,0	200 165	200 4 165	200 5 165	1
17,00	184,0	13,0	35,0	200 170	200 4 170	200 5 170	1
17,50	191,0	13,0	35,0	200 175	200 4 175	200 5 175	1
18,00	191,0	13,0	35,0	200 180	200 4 180	200 5 180	1
18,50	198,0	13,0	35,0	200 185	200 4 185	200 5 185	1
19,00	198,0	13,0	35,0	200 190	200 4 190	200 5 190	1
19,50	205,0	13,0	35,0	200 195	200 4 195	200 5 195	1
20,00	205,0	13,0	35,0	200 200	200 4 200	200 5 200	1
22,00	205,0	13,0	35,0	200 220	—	—	1
24,00	205,0	13,0	35,0	200 240	—	—	1
25,00	205,0	13,0	35,0	200 250	—	—	1



## Twist drills DIN 338 type N, HSS rolled



High-performance rolled, steam-treated twist drill made from heavy-duty high speed steel. The manufacturing procedure (no structural disruption) solidifies the material making it more elasticated. This makes it more resistant to fracture and suitable for robust drilling units (e.g. hand-held drilling machines).

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●					○	○		●	

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	Article no. HSS-R	Cont. pcs.
0,30	19,0	3,0	201 003	10
0,40	20,0	5,0	201 004	10
0,50	22,0	6,0	201 005	10
0,60	24,0	7,0	201 006	10
0,70	28,0	9,0	201 007	10
0,80	30,0	10,0	201 008	10
0,90	32,0	11,0	201 009	10
1,00	34,0	12,0	201 010	10
1,10	36,0	14,0	201 011	10
1,20	38,0	16,0	201 012	10
1,25	38,0	16,0	201 0125	10
1,30	38,0	16,0	201 013	10
1,40	40,0	18,0	201 014	10
1,50	40,0	18,0	201 015	10
1,60	43,0	20,0	201 016	10
1,70	43,0	20,0	201 017	10
1,75	46,0	20,0	201 0175	10
1,80	46,0	22,0	201 018	10
1,90	46,0	22,0	201 019	10
2,00	49,0	24,0	201 020	10
2,10	49,0	24,0	201 021	10
2,20	53,0	27,0	201 022	10
2,25	53,0	27,0	201 0225	10
2,30	53,0	27,0	201 023	10
2,40	57,0	30,0	201 024	10
2,50	57,0	30,0	201 025	10
2,60	57,0	30,0	201 026	10
2,70	61,0	33,0	201 027	10
2,75	61,0	33,0	201 0275	10
2,80	61,0	33,0	201 028	10
2,90	61,0	33,0	201 029	10
3,00	61,0	33,0	201 030	10
3,10	65,0	36,0	201 031	10
3,20	65,0	36,0	201 032	10
3,25	65,0	36,0	201 0325	10

Ø mm	L1 mm	L2 mm	Article no. HSS-R	Cont. pcs.
3,30	65,0	36,0	201 033	10
3,40	70,0	39,0	201 034	10
3,50	70,0	39,0	201 035	10
3,60	70,0	39,0	201 036	10
3,70	70,0	39,0	201 037	10
3,75	70,0	39,0	201 0375	10
3,80	75,0	43,0	201 038	10
3,90	75,0	43,0	201 039	10
4,00	75,0	43,0	201 040	10
4,10	75,0	43,0	201 041	10
4,20	75,0	43,0	201 042	10
4,25	75,0	43,0	201 0425	10
4,30	80,0	47,0	201 043	10
4,40	80,0	47,0	201 044	10
4,50	80,0	47,0	201 045	10
4,60	80,0	47,0	201 046	10
4,70	80,0	47,0	201 047	10
4,75	80,0	47,0	201 0475	10
4,80	86,0	52,0	201 048	10
4,90	86,0	52,0	201 049	10
5,00	86,0	52,0	201 050	10
5,10	86,0	52,0	201 051	10
5,20	86,0	52,0	201 052	10
5,25	86,0	52,0	201 0525	10
5,30	86,0	52,0	201 053	10
5,40	93,0	57,0	201 054	10
5,50	93,0	57,0	201 055	10
5,60	93,0	57,0	201 056	10
5,70	93,0	57,0	201 057	10
5,75	93,0	57,0	201 0575	10
5,80	93,0	57,0	201 058	10
5,90	93,0	57,0	201 059	10
6,00	93,0	57,0	201 060	10
6,10	101,0	63,0	201 061	10
6,20	101,0	63,0	201 062	10



## Twist drills DIN 338 type N, HSS rolled



1.01

Ø mm	L1 mm	L2 mm	Article no. HSS-R	Cont. pcs.
6,25	101,0	63,0	201 0625	10
6,30	101,0	63,0	201 063	10
6,40	101,0	63,0	201 064	10
6,50	101,0	63,0	201 065	10
6,60	101,0	63,0	201 066	10
6,70	101,0	63,0	201 067	10
6,75	101,0	63,0	201 0675	10
6,80	109,0	69,0	201 068	10
6,90	109,0	69,0	201 069	10
7,00	109,0	69,0	201 070	10
7,10	109,0	69,0	201 071	10
7,20	109,0	69,0	201 072	10
7,25	109,0	69,0	201 0725	10
7,30	109,0	69,0	201 073	10
7,40	109,0	69,0	201 074	10
7,50	109,0	69,0	201 075	10
7,60	117,0	75,0	201 076	10
7,70	117,0	75,0	201 077	10
7,75	117,0	75,0	201 0775	10
7,80	117,0	75,0	201 078	10
7,90	117,0	75,0	201 079	10
8,00	117,0	75,0	201 080	10
8,10	117,0	75,0	201 081	10
8,20	117,0	75,0	201 082	10
8,25	117,0	75,0	201 0825	10
8,30	117,0	75,0	201 083	10
8,40	117,0	75,0	201 084	10
8,50	117,0	75,0	201 085	10
8,60	125,0	81,0	201 086	10
8,70	125,0	81,0	201 087	10
8,75	125,0	81,0	201 0875	10
8,80	125,0	81,0	201 088	10
8,90	125,0	81,0	201 089	10
9,00	125,0	81,0	201 090	10
9,10	125,0	81,0	201 091	10
9,20	125,0	81,0	201 092	10
9,25	125,0	81,0	201 0925	10
9,30	125,0	81,0	201 093	10
9,40	125,0	81,0	201 094	10
9,50	125,0	81,0	201 095	10
9,60	133,0	87,0	201 096	10
9,70	133,0	87,0	201 097	10
9,75	133,0	87,0	201 0975	10
9,80	133,0	87,0	201 098	10
9,90	133,0	87,0	201 099	10

Ø mm	L1 mm	L2 mm	Article no. HSS-R	Cont. pcs.
10,00	133,0	87,0	201 100	10
10,10	133,0	87,0	201 101	10
10,20	133,0	87,0	201 102	10
10,30	133,0	87,0	201 103	10
10,40	133,0	87,0	201 104	10
10,50	133,0	87,0	201 105	5
10,60	133,0	87,0	201 106	5
10,70	142,0	94,0	201 107	5
10,80	142,0	94,0	201 108	5
10,90	142,0	94,0	201 109	5
11,00	142,0	94,0	201 110	5
11,10	142,0	94,0	201 111	5
11,20	142,0	94,0	201 112	5
11,30	142,0	94,0	201 113	5
11,40	142,0	94,0	201 114	5
11,50	142,0	94,0	201 115	5
11,60	142,0	94,0	201 116	5
11,70	142,0	94,0	201 117	5
11,80	142,0	94,0	201 118	5
11,90	151,0	101,0	201 119	5
12,00	151,0	101,0	201 120	5
12,10	151,0	101,0	201 121	5
12,20	151,0	101,0	201 122	5
12,30	151,0	101,0	201 123	5
12,40	151,0	101,0	201 124	5
12,50	151,0	101,0	201 125	5
12,60	151,0	101,0	201 126	5
12,70	151,0	101,0	201 127	5
12,80	151,0	101,0	201 128	5
12,90	151,0	101,0	201 129	5
13,00	151,0	101,0	201 130	5
13,50	160,0	108,0	201 135	5
14,00	160,0	108,0	201 140	5
14,50	169,0	114,0	201 145	5
15,00	169,0	114,0	201 150	5
15,50	178,0	120,0	201 155	5
16,00	178,0	120,0	201 160	5
16,50	184,0	125,0	201 165	1
17,00	184,0	125,0	201 170	1
17,50	191,0	130,0	201 175	1
18,00	191,0	130,0	201 180	1
18,50	198,0	135,0	201 185	1
19,00	198,0	135,0	201 190	1
19,50	205,0	140,0	201 195	1
20,00	205,0	140,0	201 200	1

## Twist drill sets DIN 338 type N, HSS rolled

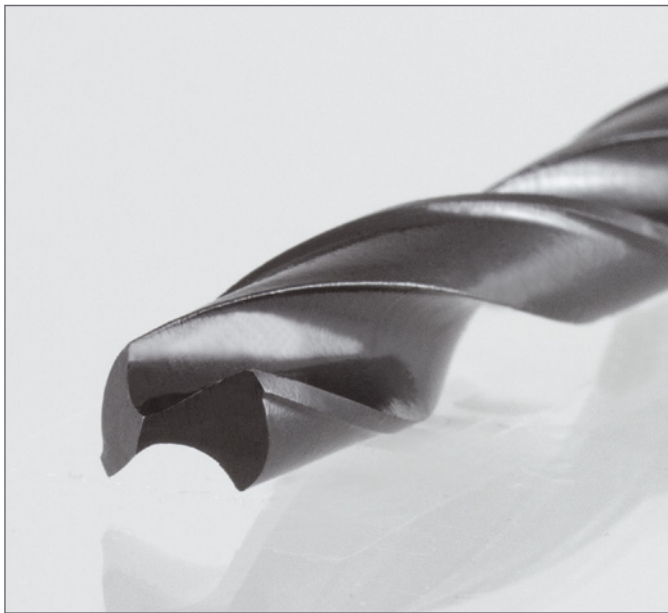
Description	Article no. HSS-R
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	205 212
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	205 213
41-piece set of twist drills DIN 338 type N Ø 6,0 mm up to 10,0 mm in increments of 0,1 mm in steel case	205 218
50-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 5,9 mm in increments of 0,1 mm in steel case	205 217
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	205 212 RO
25-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	205 213 RO

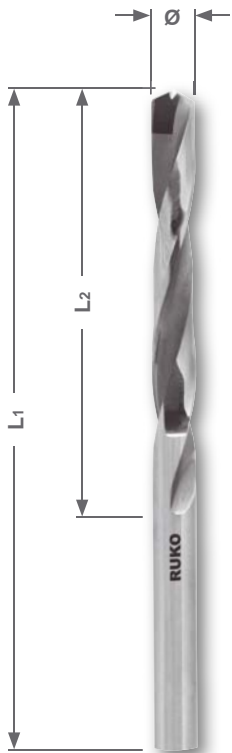


205 212 RO



1.01



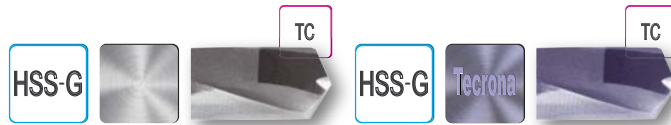


## **N** Twist drill DIN 338 Type N, with brazed-on TC cutting inserts



High-performance HSS-G twist drill with brazed-on HM cutting inserts made from K20 fine grained material. It is suited for universal applications and for high-strength steel. Continuous cooling is required when drilling into high-strength steel. With stepped shank starting at 13,5 mm drill diameter (10,0 mm shank Ø, 30,0 mm shank length).

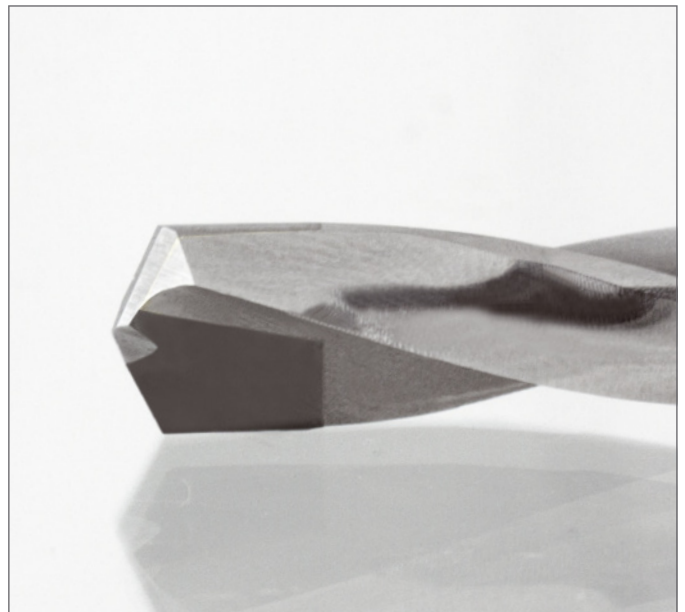
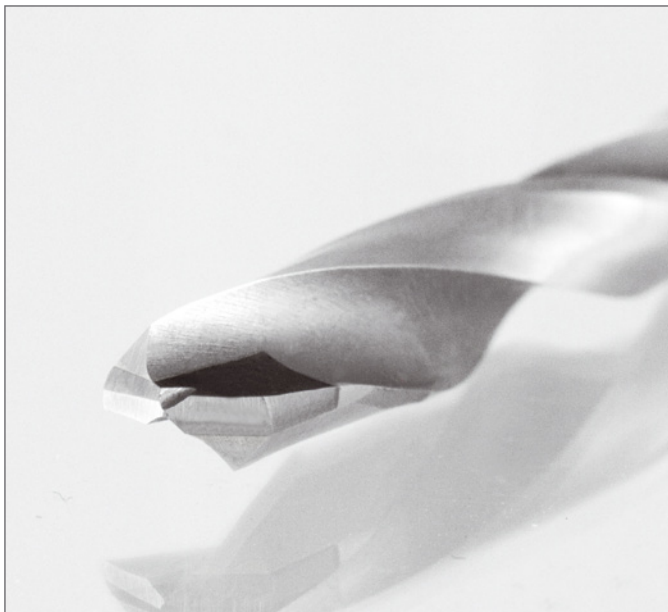
Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	○	○	○	○	○	○	○

● Main application

○ Other application





Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N	
			Article no. HSS-G / TC	Cont. pcs.
2,00	49,0	24,0	815 020	10
2,50	57,0	30,0	815 025	10
3,00	61,0	33,0	815 030	10
3,10	65,0	36,0	815 031	10
3,20	65,0	36,0	815 032	10
3,30	65,0	36,0	815 033	10
3,50	70,0	39,0	815 035	10
3,60	70,0	39,0	815 036	10
4,00	75,0	43,0	815 040	10
4,20	75,0	43,0	815 042	10
4,30	80,0	47,0	815 043	10
4,50	80,0	47,0	815 045	10
5,00	86,0	52,0	815 050	10
5,10	86,0	52,0	815 051	10
5,20	86,0	52,0	815 052	10
5,30	86,0	52,0	815 053	10
5,50	93,0	57,0	815 055	10
5,80	93,0	57,0	815 058	10
6,00	93,0	57,0	815 060	10
6,50	101,0	63,0	815 065	10
6,70	101,0	63,0	815 067	10
6,80	109,0	69,0	815 068	10
7,00	109,0	69,0	815 070	10
7,10	109,0	69,0	815 071	10
7,50	109,0	69,0	815 075	10
8,00	117,0	75,0	815 080	10
8,50	117,0	75,0	815 085	10
9,00	125,0	81,0	815 090	10
9,50	125,0	81,0	815 095	10
10,00	133,0	87,0	815 100	10
10,20	133,0	87,0	815 102	10
10,50	133,0	87,0	815 105	5
11,00	142,0	94,0	815 110	5
11,50	142,0	94,0	815 115	5
12,00	151,0	101,0	815 120	5
12,50	151,0	101,0	815 125	5
13,00	151,0	101,0	815 130	5
13,50	160,0	108,0	815 135	5
14,00	160,0	108,0	815 140	5
15,00	169,0	114,0	815 150	5
16,00	178,0	120,0	815 160	5



**N** Twist drill sets DIN 338 Type N,  
with brazed-on TC cutting inserts

Description	N	
	Article no. HSS-G / TC	Article no. HSS-G / TC Tecrona
17-piece set of twist drills DIN 338 type N Ø 2,0 mm up to 10,0 mm in increments of 0,5 mm in steel case	815 214	815 214 C
23-piece set of twist drills DIN 338 type N Ø 2,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	815 215	815 215 C
17-piece set of twist drills DIN 338 type N Ø 2,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	815 214 RO	815 214 CRO
23-piece set of twist drills DIN 338 type N Ø 2,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	815 215 RO	815 215 CRO



815 214 RO



## Solid TC twist drills DIN 338 type N



High performance solid carbide K 20 twist drill, especially well suited for high strength steels at high cutting speeds.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	○	○	○	○	●		○

● Main application      ○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no.	Cont. pcs.
3,00	61,0	33,0	814 030	1
3,50	70,0	39,0	814 035	1
4,00	75,0	43,0	814 040	1
4,50	80,0	47,0	814 045	1
5,00	86,0	52,0	814 050	1
5,50	93,0	57,0	814 055	1
6,00	93,0	57,0	814 060	1
6,50	101,0	63,0	814 065	1
7,00	109,0	69,0	814 070	1
7,50	109,0	69,0	814 075	1
8,00	117,0	75,0	814 080	1
8,50	117,0	75,0	814 085	1
9,00	125,0	81,0	814 090	1
9,50	125,0	81,0	814 095	1
10,00	133,0	87,0	814 100	1
10,50	133,0	87,0	814 105	1
11,00	142,0	94,0	814 110	1
11,50	142,0	94,0	814 115	1
12,00	151,0	101,0	814 120	1
12,50	151,0	101,0	814 125	1
13,00	151,0	101,0	814 130	1



## Twist drill sets, DIN 338 type N and type VA in bench stand

Description	Article no.
91-piece set of twist drills DIN 338 type N HSS rolled Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	205 223
91-piece set of twist drills DIN 338 type N HSS ground Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	214 223
91-piece set of twist drills DIN 338 type VA HSSE-Co5 ground Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	215 223



214 223



## Twist drill sets, DIN 338 type N and type VA in magazine

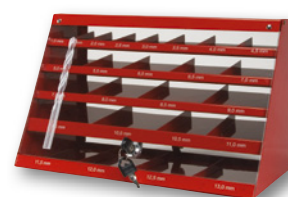
Description	Article no.
Consisting of 170 twist drills DIN 338 type N HSS ground 10 pcs, Ø 1,0 - 8,0 mm in increments of 0,5 mm 5 pcs, Ø 8,5 - 10,0 mm in increments of 0,5 mm	214 200
Consisting of 170 twist drills DIN 338 type VA HSS-Co 5 ground 10 pcs, Ø 1,0 - 8,0 mm in increments of 0,5 mm 5 pcs, Ø 8,5 - 10,0 mm in increments of 0,5 mm	215 200



214 200

## Drill cabinet, DIN 338 type N and type VA

Description	Article no.
Drill cabinet empty Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm + Ø 10,5 mm up to 13,0 mm in increments of 0,5 mm	205 208 L
Drill cabinet empty Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm	205 208 L
Drill cabinet consisting of 570 twist drills DIN 338 type N HSS rolled contents list see below	205 208
Drill cabinet consisting of 570 twist drills DIN 338 type N HSS ground contents list see below	214 208
Drill cabinet consisting of 570 twist drills DIN 338 type VA HSSE-Co5 ground contents list see below	215 208



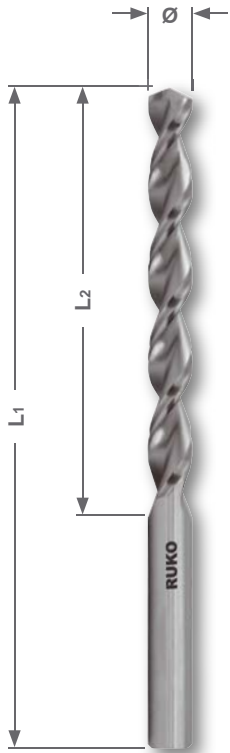
205 208 L

### Contents list:

Ø mm x pcs.	Ø mm x pcs.	Ø mm x pcs.	Ø mm x pcs.	Ø mm x pcs.
1,0 x 50	3,5 x 30	6,0 x 20	8,5 x 10	11,0 x 10
1,5 x 50	4,0 x 30	6,5 x 20	9,0 x 10	11,5 x 10
2,0 x 50	4,5 x 30	7,0 x 20	9,5 x 10	12,0 x 10
2,5 x 50	5,0 x 30	7,5 x 20	10,0 x 10	12,5 x 10
3,0 x 30	5,5 x 30	8,0 x 10	10,5 x 10	13,0 x 10



205 208 L



## Twist drills DIN 338 TL 3000, in fractional sizes



Highly stable multirange drill with outstanding heat resistance, a reinforced drill core and a parabolic flute for ideal chip removal. Ideal for drilling medium and long-chipping materials. Thanks to its thick core and the special flute with a rounded rear edge, this drill is best suited for high-performance use. It covers types N, H and W for a wide range of applications.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○			○	○	○	○	○	



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	○	○	○	○	○	○	

● Main application      ○ Other application



## Twist drills DIN 338 TL 3000, in fractional sizes

Ø inch	Ø mm	L1 inch	L2 inch	Article no.	Cont.	Article no.	Cont.	Article no.	Cont.	Article no.	Cont.
				HSS-G	pcs.	HSS-G TiN	pcs.	HSS-G TiAlN	pcs.	HSSE-Co 5	pcs.
1/16	1,59	1 7/8	7/8	258 801	10	258 801 T	10	258 801 F	10	229 801	10
5/64	1,98	2	1	258 802	10	258 802 T	10	258 802 F	10	229 802	10
3/32	2,38	2 1/4	1 1/4	258 803	10	258 803 T	10	258 803 F	10	229 803	10
7/64	2,78	2 5/8	1 1/2	258 804	10	258 804 T	10	258 804 F	10	229 804	10
1/8	3,18	2 3/4	1 5/8	258 805	10	258 805 T	10	258 805 F	10	229 805	10
9/64	3,57	2 7/8	1 3/4	258 806	10	258 806 T	10	258 806 F	10	229 806	10
5/32	3,97	3 1/8	2	258 807	10	258 807 T	10	258 807 F	10	229 807	10
11/64	4,37	3 1/4	2 1/8	258 808	10	258 808 T	10	258 808 F	10	229 808	10
3/16	4,76	3 1/2	2 5/16	258 809	10	258 809 T	10	258 809 F	10	229 809	10
13/64	5,16	3 5/8	2 7/16	258 810	10	258 810 T	10	258 810 F	10	229 810	10
7/32	5,56	3 3/4	2 1/2	258 811	10	258 811 T	10	258 811 F	10	229 811	10
15/64	5,95	3 7/8	2 5/8	258 812	10	258 812 T	10	258 812 F	10	229 812	10
1/4	6,35	4	2 3/4	258 813	10	258 813 T	10	258 813 F	10	229 813	10
17/64	6,75	4 1/8	2 7/8	258 814	10	258 814 T	10	258 814 F	10	229 814	10
9/32	7,14	4 1/4	2 15/16	258 815	10	258 815 T	10	258 815 F	10	229 815	10
19/64	7,54	4 3/8	3 1/16	258 816	10	258 816 T	10	258 816 F	10	229 816	10
5/16	7,94	4 1/2	3 3/16	258 817	10	258 817 T	10	258 817 F	10	229 817	10
21/64	8,33	4 5/8	3 5/16	258 818	10	258 818 T	10	258 818 F	10	229 818	10
11/32	8,73	4 3/4	3 7/16	258 819	10	258 819 T	10	258 819 F	10	229 819	10
23/64	9,13	4 7/8	3 1/2	258 820	10	258 820 T	10	258 820 F	10	229 820	10
3/8	9,53	5	3 5/8	258 821	10	258 821 T	10	258 821 F	10	229 821	10
25/64	9,92	5 1/8	3 3/4	258 822	10	258 822 T	10	258 822 F	10	229 822	10
13/32	10,32	5 1/4	3 7/8	258 823	10	258 823 T	10	258 823 F	10	229 823	10
27/64	10,72	5 3/8	3 15/16	258 824	5	258 824 T	5	258 824 F	5	229 824	5
7/16	11,11	5 1/2	4 1/16	258 825	5	258 825 T	5	258 825 F	5	229 825	5
29/64	11,51	5 5/8	4 3/16	258 826	5	258 826 T	5	258 826 F	5	229 826	5
15/32	11,91	5 3/4	4 5/16	258 827	5	258 827 T	5	258 827 F	5	229 827	5
31/64	12,30	5 7/8	4 3/8	258 828	5	258 828 T	5	258 828 F	5	229 828	5
1/2	12,70	6	4 1/2	258 829	5	258 829 T	5	258 829 F	5	229 829	5

## Twist drill sets DIN 338 TL 3000, in fractional sizes



258 850



258 850 T



258 850 F



229 850

Description	Article no. HSS-G	Article no. HSS-G TiN	Article no. HSS-G TiAlN	Article no. HSSE-Co 5
21-piece set of twist drills DIN 338 TL 3000, in fractional sizes Ø 1/16" up to 3/8" in increments of 1/64" in steel case	258 850	258 850 T	258 850 F	229 850
29-piece set of twist drills DIN 338 TL 3000, in fractional sizes Ø 1/16" up to 1/2" in increments of 1/64" in steel case	258 851	258 851 T	258 851 F	229 851



## Twist drills DIN 338 type N, in fractional sizes



High-performance ground standard twist drill made from heavy-duty high speed steel. The fully ground twist drill has a precise concentricity. Thanks to the split point, this drill has good centring properties and requires little pressure.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	●	

● Main application      ○ Other application

Ø inch	Ø mm	L <sub>1</sub> in inch	L <sub>2</sub> in inch	Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
1/16	1,59	1 7/8	7/8	214 801	10	250 801 T	10
5/64	1,98	2	1	214 802	10	250 802 T	10
3/32	2,38	2 1/4	1 1/4	214 803	10	250 803 T	10
7/64	2,78	2 5/8	1 1/2	214 804	10	250 804 T	10
1/8	3,18	2 3/4	1 5/8	214 805	10	250 805 T	10
9/64	3,57	2 7/8	1 3/4	214 806	10	250 806 T	10
5/32	3,97	3 1/8	2	214 807	10	250 807 T	10
11/64	4,37	3 1/4	2 1/8	214 808	10	250 808 T	10
3/16	4,76	3 1/2	2 5/16	214 809	10	250 809 T	10
13/64	5,16	3 5/8	2 7/16	214 810	10	250 810 T	10
7/32	5,56	3 3/4	2 1/2	214 811	10	250 811 T	10
15/64	5,95	3 7/8	2 5/8	214 812	10	250 812 T	10
1/4	6,35	4	2 3/4	214 813	10	250 813 T	10
17/64	6,75	4 1/8	2 7/8	214 814	10	250 814 T	10
9/32	7,14	4 1/4	2 15/16	214 815	10	250 815 T	10
19/64	7,54	4 3/8	3 1/16	214 816	10	250 816 T	10
5/16	7,94	4 1/2	3 3/16	214 817	10	250 817 T	10
21/64	8,33	4 5/8	3 5/16	214 818	10	250 818 T	10
11/32	8,73	4 3/4	3 7/16	214 819	10	250 819 T	10
23/64	9,13	4 7/8	3 1/2	214 820	10	250 820 T	10
3/8	9,53	5	3 5/8	214 821	10	250 821 T	10
25/64	9,92	5 1/8	3 3/4	214 822	10	250 822 T	10
13/32	10,32	5 1/4	3 7/8	214 823	10	250 823 T	10
27/64	10,72	5 3/8	3 15/16	214 824	5	250 824 T	5
7/16	11,11	5 1/2	4 1/16	214 825	5	250 825 T	5
29/64	11,51	5 5/8	4 3/16	214 826	5	250 826 T	5
15/32	11,91	5 3/4	4 5/16	214 827	5	250 827 T	5
31/64	12,30	5 7/8	4 3/8	214 828	5	250 828 T	5
1/2	12,70	6	4 1/2	214 829	5	250 829 T	5

Description	Article no. HSS-G	Article no. HSS-G TiN
21-piece set of twist drills DIN 338 type N, in fractional sizes Ø 1/16" up to 3/8" in increments of 1/64" in steel case	214 850	250 850 T
29-piece set of twist drills DIN 338 type N, in fractional sizes Ø 1/16" up to 1/2" in increments of 1/64" in steel case	214 851	250 851 T



## Twist drills DIN 338 type VA, in fractional sizes



Powerful right-hand cutting high-performance drill with distinctive heat resistance and **reinforced drill core**. Ideal for drilling high-strength stainless, acid-resistant and heat-resistant steel.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		●						○

● Main application      ○ Other application

Ø inch	Ø mm	L1 in inch	L2 in inch	Article no. HSSE-Co5	Cont. pcs.	Article no. HSSE-Co5	Cont. pcs.
1/16	1,59	1 7/8	7/8	215 801	10	215 801 Z	10
5/64	1,98	2	1	215 802	10	215 802 Z	10
3/32	2,38	2 1/4	1 1/4	215 803	10	215 803 Z	10
7/64	2,78	2 5/8	1 1/2	215 804	10	215 804 Z	10
1/8	3,18	2 3/4	1 5/8	215 805	10	215 805 Z	10
9/64	3,57	2 7/8	1 3/4	215 806	10	215 806 Z	10
5/32	3,97	3 1/8	2	215 807	10	215 807 Z	10
11/64	4,37	3 1/4	2 1/8	215 808	10	215 808 Z	10
3/16	4,76	3 1/2	2 5/16	215 809	10	215 809 Z	10
13/64	5,16	3 5/8	2 7/16	215 810	10	215 810 Z	10
7/32	5,56	3 3/4	2 1/2	215 811	10	215 811 Z	10
15/64	5,95	3 7/8	2 5/8	215 812	10	215 812 Z	10
1/4	6,35	4	2 3/4	215 813	10	215 813 Z	10
17/64	6,75	4 1/8	2 7/8	215 814	10	215 814 Z	10
9/32	7,14	4 1/4	2 15/16	215 815	10	215 815 Z	10
19/64	7,54	4 3/8	3 1/16	215 816	10	215 816 Z	10
5/16	7,94	4 1/2	3 3/16	215 817	10	215 817 Z	10
21/64	8,33	4 5/8	3 5/16	215 818	10	215 818 Z	10
11/32	8,73	4 3/4	3 7/16	215 819	10	215 819 Z	10
23/64	9,13	4 7/8	3 1/2	215 820	10	215 820 Z	10
3/8	9,53	5	3 5/8	215 821	10	215 821 Z	10
25/64	9,92	5 1/8	3 3/4	215 822	10	215 822 Z	10
13/32	10,32	5 1/4	3 7/8	215 823	10	215 823 Z	10
27/64	10,72	5 3/8	3 15/16	215 824	5	215 824 Z	5
7/16	11,11	5 1/2	4 1/16	215 825	5	215 825 Z	5
29/64	11,51	5 5/8	4 3/16	215 826	5	215 826 Z	5
15/32	11,91	5 3/4	4 5/16	215 827	5	215 827 Z	5
31/64	12,30	5 7/8	4 3/8	215 828	5	215 828 Z	5
1/2	12,70	6	4 1/2	215 829	5	215 829 Z	5

Description	Article no. HSSE-Co5	Article no. HSSE-Co5
21-piece set of twist drills DIN 338 type VA, in fractional sizes Ø 1/16" up to 3/8" in increments of 1/64" in steel case	215 850	215 850 Z
29-piece set of twist drills DIN 338 type VA, in fractional sizes Ø 1/16" up to 1/2" in increments of 1/64" in steel case	215 851	215 851 Z





## Twist drills DIN 340 TL 3000, HSSE-Co 5 ground



Highly stable multirange drill with outstanding heat resistance, a reinforced drill core and a parabolic flute for ideal chip removal. Ideal for drilling medium and long-chipping materials. Thanks to its thick core and the special flute with a rounded rear edge, this drill is best suited for high-performance use. It covers types N, H and W for a wide range of applications.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	○	○	○	○	○	○	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	N	
			Article no. HSSE-Co 5	Cont. pcs.
			N	
			Article no. HSSE-Co 5 TiAlN	Cont. pcs.
2,50	95,0	62,0	253 025	10
3,00	100,0	66,0	253 030	10
3,10	106,0	69,0	253 031	10
3,20	106,0	69,0	253 032	10
3,30	106,0	69,0	253 033	10
3,40	112,0	73,0	253 034	10
3,50	112,0	73,0	253 035	10
3,60	112,0	73,0	253 036	10
3,70	112,0	73,0	253 037	10
3,80	119,0	78,0	253 038	10
3,90	119,0	78,0	253 039	10
4,00	119,0	78,0	253 040	10
4,10	119,0	78,0	253 041	10
4,20	119,0	78,0	253 042	10
4,30	126,0	82,0	253 043	10
4,40	126,0	82,0	253 044	10
4,50	126,0	82,0	253 045	10
4,60	126,0	82,0	253 046	10
4,70	126,0	82,0	253 047	10
4,80	132,0	87,0	253 048	10
4,90	132,0	87,0	253 049	10
5,00	132,0	87,0	253 050	10
5,10	132,0	87,0	253 051	10
5,20	132,0	87,0	253 052	10
5,30	132,0	87,0	253 053	10
5,40	139,0	91,0	253 054	10
5,50	139,0	91,0	253 055	10
5,60	139,0	91,0	253 056	10
5,70	139,0	91,0	253 057	10
5,80	139,0	91,0	253 058	10
5,90	139,0	91,0	253 059	10
6,00	139,0	91,0	253 060	10
6,10	148,0	97,0	253 061	10
6,20	148,0	97,0	253 062	10
6,30	148,0	97,0	253 063	10



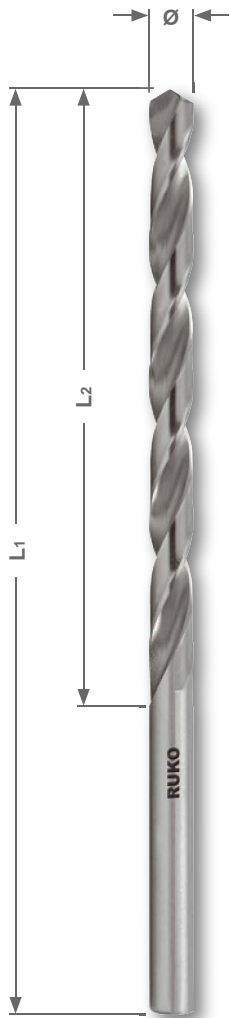
**N**

Ø mm	L1 mm	L2 mm	Article no.	Cont. pcs.	Article no.	Cont. pcs.
			HSSE-Co 5		HSSE-Co 5 TiAIN	
6,40	148,0	97,0	253 064	10	253 064 F	10
6,50	148,0	97,0	253 065	10	253 065 F	10
6,60	148,0	97,0	253 066	10	253 066 F	10
6,70	148,0	97,0	253 067	10	253 067 F	10
6,80	156,0	102,0	253 068	10	253 068 F	10
6,90	156,0	102,0	253 069	10	253 069 F	10
7,00	156,0	102,0	253 070	10	253 070 F	10
7,10	156,0	102,0	253 071	10	253 071 F	10
7,20	156,0	102,0	253 072	10	253 072 F	10
7,30	156,0	102,0	253 073	10	253 073 F	10
7,40	156,0	102,0	253 074	10	253 074 F	10
7,50	156,0	102,0	253 075	10	253 075 F	10
7,60	165,0	109,0	253 076	10	253 076 F	10
7,70	165,0	109,0	253 077	10	253 077 F	10
7,80	165,0	109,0	253 078	10	253 078 F	10
7,90	165,0	109,0	253 079	10	253 079 F	10
8,00	165,0	109,0	253 080	10	253 080 F	10
8,10	165,0	109,0	253 081	10	253 081 F	10
8,20	165,0	109,0	253 082	10	253 082 F	10
8,30	165,0	109,0	253 083	10	253 083 F	10
8,40	165,0	109,0	253 084	10	253 084 F	10
8,50	165,0	109,0	253 085	10	253 085 F	10
8,60	175,0	115,0	253 086	10	253 086 F	10
8,70	175,0	115,0	253 087	10	253 087 F	10
8,80	175,0	115,0	253 088	10	253 088 F	10
8,90	175,0	115,0	253 089	10	253 089 F	10
9,00	175,0	115,0	253 090	10	253 090 F	10
9,10	175,0	115,0	253 091	10	253 091 F	10
9,20	175,0	115,0	253 092	10	253 092 F	10
9,30	175,0	115,0	253 093	10	253 093 F	10
9,40	175,0	115,0	253 094	10	253 094 F	10
9,50	175,0	115,0	253 095	10	253 095 F	10
9,60	184,0	121,0	253 096	10	253 096 F	10
9,70	184,0	121,0	253 097	10	253 097 F	10
9,80	184,0	121,0	253 098	10	253 098 F	10
9,90	184,0	121,0	253 099	10	253 099 F	10
10,00	184,0	121,0	253 100	10	253 100 F	10
10,50	184,0	121,0	253 105	10	253 105 F	10
11,00	195,0	128,0	253 110	5	253 110 F	5
11,50	195,0	128,0	253 115	5	253 115 F	5
12,00	205,0	134,0	253 120	5	253 120 F	5
12,50	205,0	134,0	253 125	5	253 125 F	5
13,00	205,0	134,0	253 130	5	253 130 F	5



1.01





## Twist drills DIN 340 type N, HSS ground



High-performance ground standard twist drill made from heavy-duty high speed steel. The fully ground twist drill has a precise concentricity.

Packing unit: in plastic box



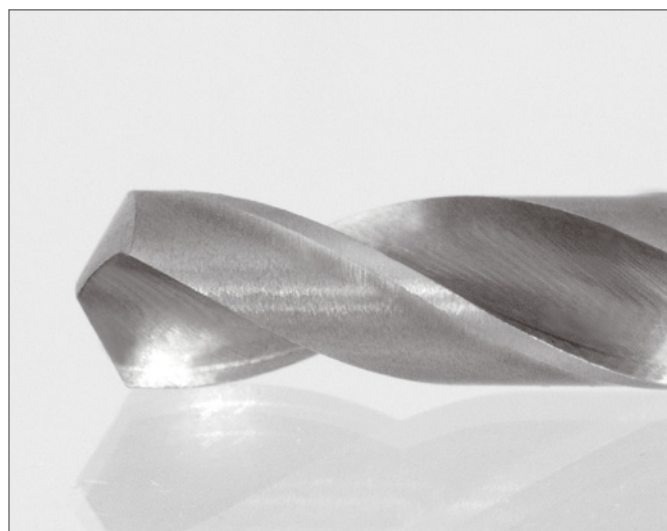
steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	N			
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
2,50	95,0	62,0	203 025	10	203 025 T	10
3,00	100,0	66,0	203 030	10	203 030 T	10
3,10	106,0	69,0	203 031	10	203 031 T	10
3,20	106,0	69,0	203 032	10	203 032 T	10
3,30	106,0	69,0	203 033	10	203 033 T	10
3,40	112,0	73,0	203 034	10	203 034 T	10
3,50	112,0	73,0	203 035	10	203 035 T	10
3,60	112,0	73,0	203 036	10	203 036 T	10
3,70	112,0	73,0	203 037	10	203 037 T	10
3,80	119,0	78,0	203 038	10	203 038 T	10
3,90	119,0	78,0	203 039	10	203 039 T	10
4,00	119,0	78,0	203 040	10	203 040 T	10
4,10	119,0	78,0	203 041	10	203 041 T	10
4,20	119,0	78,0	203 042	10	203 042 T	10
4,30	126,0	82,0	203 043	10	203 043 T	10
4,40	126,0	82,0	203 044	10	203 044 T	10
4,50	126,0	82,0	203 045	10	203 045 T	10
4,60	126,0	82,0	203 046	10	203 046 T	10
4,70	126,0	82,0	203 047	10	203 047 T	10
4,80	132,0	87,0	203 048	10	203 048 T	10
4,90	132,0	87,0	203 049	10	203 049 T	10
5,00	132,0	87,0	203 050	10	203 050 T	10
5,10	132,0	87,0	203 051	10	203 051 T	10
5,20	132,0	87,0	203 052	10	203 052 T	10
5,30	132,0	87,0	203 053	10	203 053 T	10
5,40	139,0	91,0	203 054	10	203 054 T	10
5,50	139,0	91,0	203 055	10	203 055 T	10
5,60	139,0	91,0	203 056	10	203 056 T	10
5,70	139,0	91,0	203 057	10	203 057 T	10
5,80	139,0	91,0	203 058	10	203 058 T	10
5,90	139,0	91,0	203 059	10	203 059 T	10
6,00	139,0	91,0	203 060	10	203 060 T	10
6,10	148,0	97,0	203 061	10	203 061 T	10
6,20	148,0	97,0	203 062	10	203 062 T	10
6,30	148,0	97,0	203 063	10	203 063 T	10

Ø mm	L1 mm	L2 mm	N			
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
6,40	148,0	97,0	203 064	10	203 064 T	10
6,50	148,0	97,0	203 065	10	203 065 T	10
6,60	148,0	97,0	203 066	10	203 066 T	10
6,70	148,0	97,0	203 067	10	203 067 T	10
6,80	156,0	102,0	203 068	10	203 068 T	10
6,90	156,0	102,0	203 069	10	203 069 T	10
7,00	156,0	102,0	203 070	10	203 070 T	10
7,10	156,0	102,0	203 071	10	203 071 T	10
7,20	156,0	102,0	203 072	10	203 072 T	10
7,30	156,0	102,0	203 073	10	203 073 T	10
7,40	156,0	102,0	203 074	10	203 074 T	10
7,50	156,0	102,0	203 075	10	203 075 T	10
7,60	165,0	109,0	203 076	10	203 076 T	10
7,70	165,0	109,0	203 077	10	203 077 T	10
7,80	165,0	109,0	203 078	10	203 078 T	10
7,90	165,0	109,0	203 079	10	203 079 T	10
8,00	165,0	109,0	203 080	10	203 080 T	10
8,10	165,0	109,0	203 081	10	203 081 T	10
8,20	165,0	109,0	203 082	10	203 082 T	10
8,30	165,0	109,0	203 083	10	203 083 T	10
8,40	165,0	109,0	203 084	10	203 084 T	10
8,50	165,0	109,0	203 085	10	203 085 T	10
8,60	175,0	115,0	203 086	10	203 086 T	10
8,70	175,0	115,0	203 087	10	203 087 T	10
8,80	175,0	115,0	203 088	10	203 088 T	10
8,90	175,0	115,0	203 089	10	203 089 T	10
9,00	175,0	115,0	203 090	10	203 090 T	10
9,10	175,0	115,0	203 091	10	203 091 T	10
9,20	175,0	115,0	203 092	10	203 092 T	10
9,30	175,0	115,0	203 093	10	203 093 T	10
9,40	175,0	115,0	203 094	10	203 094 T	10
9,50	175,0	115,0	203 095	10	203 095 T	10
9,60	184,0	121,0	203 096	10	203 096 T	10
9,70	184,0	121,0	203 097	10	203 097 T	10
9,80	184,0	121,0	203 098	10	203 098 T	10
9,90	184,0	121,0	203 099	10	203 099 T	10
10,00	184,0	121,0	203 100	10	203 100 T	10
10,50	184,0	121,0	203 105	5	203 105 T	5
11,00	195,0	128,0	203 110	5	203 110 T	5
11,50	195,0	128,0	203 115	5	203 115 T	5
12,00	205,0	134,0	203 120	5	203 120 T	5
12,50	205,0	134,0	203 125	5	203 125 T	5
13,00	205,0	134,0	203 130	5	203 130 T	5





## Twist drills DIN 1869 TL 3000, HSS ground - extra long



Stable special drill. Ideally suitable for deep holes under difficult conditions, e.g. bad chipping materials.

Suitable for all usual drilling work in all normal materials. High rotational precision. For drilling deep holes please use small feed and remove chips frequently.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	

● Main application

○ Other application





1.01

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
2,00	125,0	85,0	254 020	1
2,50	140,0	95,0	254 025	1
3,00	150,0	100,0	254 030	1
3,20	155,0	105,0	254 032	1
3,30	155,0	105,0	254 033	1
3,50	165,0	115,0	254 035	1
4,00	175,0	120,0	254 040	1
4,20	175,0	120,0	254 042	1
4,50	185,0	125,0	254 045	1
5,00	195,0	135,0	254 050	1
5,50	205,0	140,0	254 055	1
6,00	205,0	140,0	254 060	1
6,50	215,0	150,0	254 065	1

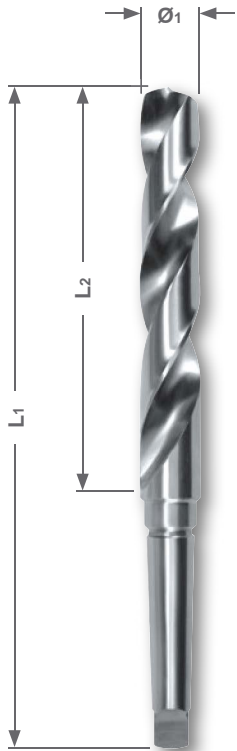
Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
7,00	225,0	155,0	254 070	1
7,50	225,0	155,0	254 075	1
8,00	240,0	165,0	254 080	1
8,50	240,0	165,0	254 085	1
9,00	250,0	175,0	254 090	1
9,50	250,0	175,0	254 095	1
10,00	265,0	185,0	254 100	1
10,50	265,0	185,0	254 105	1
11,00	280,0	195,0	254 110	1
11,50	280,0	195,0	254 115	1
12,00	295,0	205,0	254 120	1
12,50	295,0	205,0	254 125	1
13,00	295,0	205,0	254 130	1

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
3,00	190,0	130,0	255 030	1
3,20	200,0	135,0	255 032	1
3,30	200,0	135,0	255 033	1
3,50	210,0	145,0	255 035	1
4,00	220,0	150,0	255 040	1
4,20	220,0	150,0	255 042	1
4,50	235,0	160,0	255 045	1
5,00	245,0	170,0	255 050	1
5,50	260,0	180,0	255 055	1
6,00	260,0	180,0	255 060	1
6,50	275,0	190,0	255 065	1
7,00	290,0	200,0	255 070	1

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
7,50	290,0	200,0	255 075	1
8,00	305,0	210,0	255 080	1
8,50	305,0	210,0	255 085	1
9,00	320,0	220,0	255 090	1
9,50	320,0	220,0	255 095	1
10,00	340,0	235,0	255 100	1
10,50	340,0	235,0	255 105	1
11,00	365,0	250,0	255 110	1
11,50	365,0	250,0	255 115	1
12,00	375,0	260,0	255 120	1
12,50	375,0	260,0	255 125	1
13,00	375,0	260,0	255 130	1

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
3,50	265,0	180,0	256 035	1
4,00	280,0	190,0	256 040	1
4,20	280,0	190,0	256 042	1
4,50	295,0	200,0	256 045	1
5,00	315,0	210,0	256 050	1
5,50	330,0	225,0	256 055	1
6,00	330,0	225,0	256 060	1
6,50	350,0	235,0	256 065	1
7,00	370,0	250,0	256 070	1
7,50	370,0	250,0	256 075	1
8,00	390,0	265,0	256 080	1

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.
8,50	390,0	265,0	256 085	1
9,00	410,0	280,0	256 090	1
9,50	410,0	280,0	256 095	1
10,00	430,0	295,0	256 100	1
10,50	430,0	295,0	256 105	1
11,00	455,0	310,0	256 110	1
11,50	455,0	310,0	256 115	1
12,00	480,0	330,0	256 120	1
12,50	480,0	330,0	256 125	1
13,00	480,0	330,0	256 130	1
—	—	—	—	—



## Twist drills DIN 345 type N, HSS and HSSE-Co 5

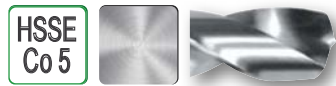


Highly efficient standard drill with morse taper. For drilling steel, cast steel and cast iron – alloyed and unalloyed. Highly secure against fracture.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●					○	○		●	



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		○	○	○	○	○	○	



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		○	○	○	○	○	○	○

● Main application      ○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Morse taper no.	HSS		HSSE-Co 5		HSSE-Co 5 TiN	
				Article no.	Cont. pcs.	Article no.	Cont. pcs.	Article no.	Cont. pcs.
10,00	168,0	87,0	1	204 100	1	204 100 E	1	204 100 T	1
10,50	168,0	87,0	1	204 105	1	204 105 E	1	204 105 T	1
11,00	175,0	94,0	1	204 110	1	204 110 E	1	204 110 T	1
11,50	175,0	94,0	1	204 115	1	204 115 E	1	204 115 T	1
12,00	182,0	101,0	1	204 120	1	204 120 E	1	204 120 T	1
12,50	182,0	101,0	1	204 125	1	204 125 E	1	204 125 T	1
13,00	182,0	101,0	1	204 130	1	204 130 E	1	204 130 T	1
13,50	189,0	108,0	1	204 135	1	204 135 E	1	204 135 T	1
14,00	189,0	108,0	1	204 140	1	204 140 E	1	204 140 T	1
14,50	212,0	114,0	2	204 145	1	204 145 E	1	204 145 T	1
15,00	212,0	114,0	2	204 150	1	204 150 E	1	204 150 T	1
15,50	218,0	120,0	2	204 155	1	204 155 E	1	204 155 T	1
16,00	218,0	120,0	2	204 160	1	204 160 E	1	204 160 T	1
16,50	223,0	125,0	2	204 165	1	204 165 E	1	204 165 T	1
17,00	223,0	125,0	2	204 170	1	204 170 E	1	204 170 T	1
17,50	228,0	130,0	2	204 175	1	204 175 E	1	204 175 T	1
18,00	228,0	130,0	2	204 180	1	204 180 E	1	204 180 T	1
18,50	233,0	135,0	2	204 185	1	204 185 E	1	204 185 T	1
19,00	233,0	135,0	2	204 190	1	204 190 E	1	204 190 T	1
19,50	238,0	140,0	2	204 195	1	204 195 E	1	204 195 T	1
20,00	238,0	140,0	2	204 200	1	204 200 E	1	204 200 T	1

Ø mm	L1 mm	L2 mm	Morse taper no.	Article no. HSS	Cont. pcs.	Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiN	Cont. pcs.
20,50	243,0	145,0	2	204 205	1	204 205 E	1	204 205 T	1
21,00	243,0	145,0	2	204 210	1	204 210 E	1	204 210 T	1
21,50	248,0	150,0	2	204 215	1	204 215 E	1	204 215 T	1
22,00	248,0	150,0	2	204 220	1	204 220 E	1	204 220 T	1
22,50	253,0	155,0	2	204 225	1	204 225 E	1	204 225 T	1
23,00	253,0	155,0	2	204 230	1	204 230 E	1	204 230 T	1
23,50	276,0	155,0	3	204 235	1	204 235 E	1	204 235 T	1
24,00	281,0	160,0	3	204 240	1	204 240 E	1	204 240 T	1
24,50	281,0	160,0	3	204 245	1	204 245 E	1	204 245 T	1
25,00	281,0	160,0	3	204 250	1	204 250 E	1	204 250 T	1
25,50	286,0	165,0	3	204 255	1	204 255 E	1	204 255 T	1
26,00	286,0	165,0	3	204 260	1	204 260 E	1	204 260 T	1
26,50	286,0	165,0	3	204 265	1	204 265 E	1	204 265 T	1
27,00	291,0	170,0	3	204 270	1	204 270 E	1	204 270 T	1
27,50	291,0	170,0	3	204 275	1	204 275 E	1	204 275 T	1
28,00	291,0	170,0	3	204 280	1	204 280 E	1	204 280 T	1
28,50	296,0	175,0	3	204 285	1	204 285 E	1	204 285 T	1
29,00	296,0	175,0	3	204 290	1	204 290 E	1	204 290 T	1
29,50	296,0	175,0	3	204 295	1	204 295 E	1	204 295 T	1
30,00	296,0	175,0	3	204 300	1	204 300 E	1	204 300 T	1
30,50	301,0	180,0	3	204 305	1	—	—	—	—
31,00	301,0	180,0	3	204 310	1	—	—	—	—
31,50	301,0	180,0	3	204 315	1	—	—	—	—
32,00	334,0	185,0	4	204 320	1	—	—	—	—
32,50	334,0	185,0	4	204 325	1	—	—	—	—
33,00	334,0	185,0	4	204 330	1	—	—	—	—
33,50	334,0	185,0	4	204 335	1	—	—	—	—
34,00	339,0	190,0	4	204 340	1	—	—	—	—
34,50	339,0	190,0	4	204 345	1	—	—	—	—
35,00	339,0	190,0	4	204 350	1	—	—	—	—
35,50	339,0	190,0	4	204 355	1	—	—	—	—
36,00	344,0	195,0	4	204 360	1	—	—	—	—
36,50	344,0	195,0	4	204 365	1	—	—	—	—
37,00	344,0	195,0	4	204 370	1	—	—	—	—
37,50	344,0	195,0	4	204 375	1	—	—	—	—
38,00	349,0	200,0	4	204 380	1	—	—	—	—
38,50	349,0	200,0	4	204 385	1	—	—	—	—
39,00	349,0	200,0	4	204 390	1	—	—	—	—
39,50	349,0	200,0	4	204 395	1	—	—	—	—
40,00	349,0	200,0	4	204 400	1	—	—	—	—
40,50	354,0	205,0	4	204 405	1	—	—	—	—
41,00	354,0	205,0	4	204 410	1	—	—	—	—
41,50	354,0	205,0	4	204 415	1	—	—	—	—
42,00	354,0	205,0	4	204 420	1	—	—	—	—
42,50	354,0	205,0	4	204 425	1	—	—	—	—
43,00	359,0	210,0	4	204 430	1	—	—	—	—
43,50	359,0	210,0	4	204 435	1	—	—	—	—
44,00	359,0	210,0	4	204 440	1	—	—	—	—
44,50	359,0	210,0	4	204 445	1	—	—	—	—
45,00	359,0	210,0	4	204 450	1	—	—	—	—
45,50	364,0	215,0	4	204 455	1	—	—	—	—
46,00	364,0	215,0	4	204 460	1	—	—	—	—
46,50	364,0	215,0	4	204 465	1	—	—	—	—
47,00	364,0	215,0	4	204 470	1	—	—	—	—
47,50	364,0	215,0	4	204 475	1	—	—	—	—
48,00	369,0	220,0	4	204 480	1	—	—	—	—
48,50	369,0	220,0	4	204 485	1	—	—	—	—
49,00	369,0	220,0	4	204 490	1	—	—	—	—
49,50	369,0	220,0	4	204 495	1	—	—	—	—
50,00	369,0	220,0	4	204 500	1	—	—	—	—
51,00	412,0	225,0	5	204 510	1	—	—	—	—
52,00	412,0	225,0	5	204 520	1	—	—	—	—
53,00	412,0	225,0	5	204 530	1	—	—	—	—
54,00	417,0	230,0	5	204 540	1	—	—	—	—
55,00	417,0	230,0	5	204 550	1	—	—	—	—
56,00	417,0	230,0	5	204 560	1	—	—	—	—
57,00	422,0	235,0	5	204 570	1	—	—	—	—
58,00	422,0	235,0	5	204 580	1	—	—	—	—
59,00	422,0	235,0	5	204 590	1	—	—	—	—
60,00	422,0	235,0	5	204 600	1	—	—	—	—



1.01



## **N** Twist drills DIN 1897 type UF-L, HSSE-Co 5 ground - short



Short and highly stable multirange drill with outstanding heat resistance and special geometry for optimising chip formation and removal. Ideally suited for assembly work in thin-walled materials such as sheet steels, flat steel and profile steel comprising of medium and long-chipping materials.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	○	●	○	○	○	○	○	○

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	<b>N</b>			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
2,00	38,0	12,0	284 020 E	10	284 020 EF	10
2,50	43,0	14,0	284 025 E	10	284 025 EF	10
2,80	46,0	16,0	284 028 E	10	284 028 EF	10
3,00	46,0	16,0	284 030 E	10	284 030 EF	10
3,10	49,0	18,0	284 031 E	10	284 031 EF	10
3,20	49,0	18,0	284 032 E	10	284 032 EF	10
3,30	49,0	18,0	284 033 E	10	284 033 EF	10
3,40	52,0	20,0	284 034 E	10	284 034 EF	10
3,50	52,0	20,0	284 035 E	10	284 035 EF	10
3,60	52,0	20,0	284 036 E	10	284 036 EF	10
3,70	52,0	20,0	284 037 E	10	284 037 EF	10
3,80	55,0	22,0	284 038 E	10	284 038 EF	10
3,90	55,0	22,0	284 039 E	10	284 039 EF	10
4,00	55,0	22,0	284 040 E	10	284 040 EF	10
4,10	55,0	22,0	284 041 E	10	284 041 EF	10
4,20	55,0	22,0	284 042 E	10	284 042 EF	10
4,30	58,0	24,0	284 043 E	10	284 043 EF	10
4,40	58,0	24,0	284 044 E	10	284 044 EF	10
4,50	58,0	24,0	284 045 E	10	284 045 EF	10
4,60	58,0	24,0	284 046 E	10	284 046 EF	10
4,70	58,0	24,0	284 047 E	10	284 047 EF	10
4,80	62,0	26,0	284 048 E	10	284 048 EF	10
4,90	62,0	26,0	284 049 E	10	284 049 EF	10
5,00	62,0	26,0	284 050 E	10	284 050 EF	10
5,10	62,0	26,0	284 051 E	10	284 051 EF	10
5,20	62,0	26,0	284 052 E	10	284 052 EF	10
5,30	62,0	26,0	284 053 E	10	284 053 EF	10
5,40	66,0	28,0	284 054 E	10	284 054 EF	10
5,50	66,0	28,0	284 055 E	10	284 055 EF	10
5,60	66,0	28,0	284 056 E	10	284 056 EF	10
5,70	66,0	28,0	284 057 E	10	284 057 EF	10
5,80	66,0	28,0	284 058 E	10	284 058 EF	10
5,90	66,0	28,0	284 059 E	10	284 059 EF	10

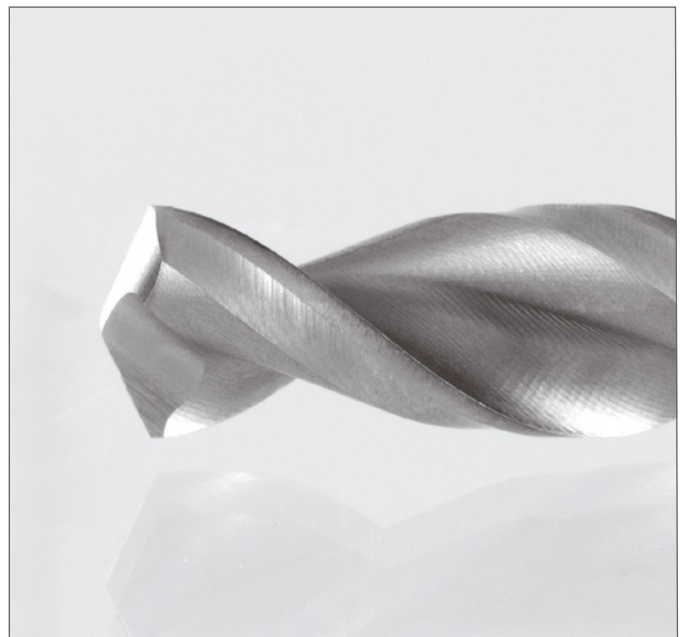
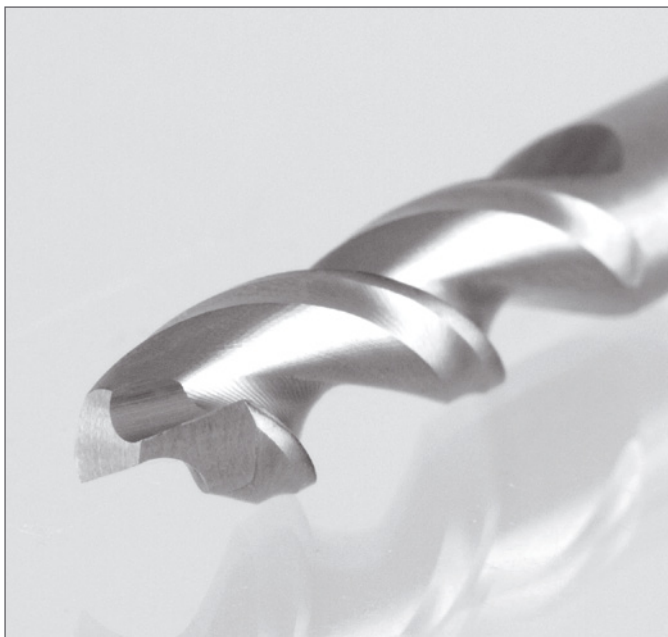


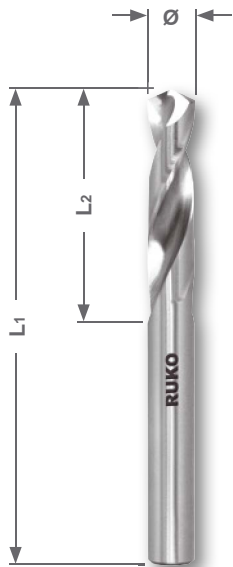
**N**

Ø mm	L1 mm	L2 mm	Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
6,00	66,0	28,0	284 060 E	10	284 060 EF	10
6,10	70,0	31,0	284 061 E	10	284 061 EF	10
6,20	70,0	31,0	284 062 E	10	284 062 EF	10
6,50	70,0	31,0	284 065 E	10	284 065 EF	10
6,80	74,0	34,0	284 068 E	10	284 068 EF	10
7,00	74,0	34,0	284 070 E	10	284 070 EF	10
7,20	74,0	34,0	284 072 E	10	284 072 EF	10
7,50	74,0	34,0	284 075 E	10	284 075 EF	10
7,80	79,0	37,0	284 078 E	10	284 078 EF	10
8,00	79,0	37,0	284 080 E	10	284 080 EF	10
8,20	79,0	37,0	284 082 E	10	284 082 EF	10
8,50	79,0	37,0	284 085 E	10	284 085 EF	10
8,80	84,0	40,0	284 088 E	10	284 088 EF	10
9,00	84,0	40,0	284 090 E	10	284 090 EF	10
9,20	84,0	40,0	284 092 E	10	284 092 EF	10
9,50	84,0	40,0	284 095 E	10	284 095 EF	10
9,80	89,0	43,0	284 098 E	10	284 098 EF	10
10,00	89,0	43,0	284 100 E	10	284 100 EF	10
10,20	89,0	43,0	284 102 E	10	284 102 EF	10
10,50	89,0	43,0	284 105 E	5	284 105 EF	5
10,80	95,0	47,0	284 108 E	5	284 108 EF	5
11,00	95,0	47,0	284 110 E	5	284 110 EF	5
11,20	95,0	47,0	284 112 E	5	284 112 EF	5
11,50	95,0	47,0	284 115 E	5	284 115 EF	5
11,80	95,0	47,0	284 118 E	5	284 118 EF	5
12,00	102,0	51,0	284 120 E	5	284 120 EF	5
12,50	102,0	51,0	284 125 E	5	284 125 EF	5
12,80	102,0	51,0	284 128 E	5	284 128 EF	5
13,00	102,0	51,0	284 130 E	5	284 130 EF	5
13,50	107,0	54,0	284 135 E	5	284 135 EF	5
14,00	107,0	54,0	284 140 E	5	284 140 EF	5
14,50	111,0	56,0	284 145 E	5	284 145 EF	5
15,00	111,0	56,0	284 150 E	5	284 150 EF	5
15,50	115,0	58,0	284 155 E	5	284 155 EF	5
16,00	115,0	58,0	284 160 E	5	284 160 EF	5



1.01





## Twist drills DIN 1897 type N, HSSE-Co 5 ground - short



Short and stable twist drill with distinctive heat resistance. Ideally suited for assembly work with thin-walled materials such as sheet steels, flat steels and profile steel in bodyshell construction. Use in hand-held drilling machines, with automatic machines and with turret lathes.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●		●						○

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	N	
			Article no. HSSE-Co 5	Cont. pcs.
2,00	38,0	12,0	202 020 E	10
2,10	38,0	12,0	202 021 E	10
2,20	40,0	13,0	202 022 E	10
2,30	40,0	13,0	202 023 E	10
2,40	43,0	14,0	202 024 E	10
2,50	43,0	14,0	202 025 E	10
2,60	43,0	14,0	202 026 E	10
2,70	46,0	16,0	202 027 E	10
2,80	46,0	16,0	202 028 E	10
2,90	46,0	16,0	202 029 E	10
3,00	46,0	16,0	202 030 E	10
3,10	49,0	18,0	202 031 E	10
3,20	49,0	18,0	202 032 E	10
3,30	49,0	18,0	202 033 E	10
3,40	52,0	20,0	202 034 E	10
3,50	52,0	20,0	202 035 E	10
3,60	52,0	20,0	202 036 E	10
3,70	52,0	20,0	202 037 E	10
3,80	55,0	22,0	202 038 E	10
3,90	55,0	22,0	202 039 E	10
4,00	55,0	22,0	202 040 E	10
4,10	55,0	22,0	202 041 E	10
4,20	55,0	22,0	202 042 E	10
4,30	58,0	24,0	202 043 E	10
4,40	58,0	24,0	202 044 E	10
4,50	58,0	24,0	202 045 E	10
4,60	58,0	24,0	202 046 E	10
4,70	58,0	24,0	202 047 E	10
4,80	62,0	26,0	202 048 E	10
4,90	62,0	26,0	202 049 E	10
5,00	62,0	26,0	202 050 E	10
5,10	62,0	26,0	202 051 E	10
5,20	62,0	26,0	202 052 E	10
5,30	62,0	26,0	202 053 E	10
5,40	66,0	28,0	202 054 E	10
5,50	66,0	28,0	202 055 E	10
5,60	66,0	28,0	202 056 E	10
5,70	66,0	28,0	202 057 E	10
5,80	66,0	28,0	202 058 E	10

Ø mm	L1 mm	L2 mm	N			
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiAIN	Cont. pcs.
5,90	66,0	28,0	202 059 E	10	202 059 EF	10
6,00	66,0	28,0	202 060 E	10	202 060 EF	10
6,10	70,0	31,0	202 061 E	10	202 061 EF	10
6,20	70,0	31,0	202 062 E	10	202 062 EF	10
6,30	70,0	31,0	202 063 E	10	202 063 EF	10
6,40	70,0	31,0	202 064 E	10	202 064 EF	10
6,50	70,0	31,0	202 065 E	10	202 065 EF	10
6,60	70,0	31,0	202 066 E	10	202 066 EF	10
6,70	70,0	31,0	202 067 E	10	202 067 EF	10
6,80	74,0	34,0	202 068 E	10	202 068 EF	10
6,90	74,0	34,0	202 069 E	10	202 069 EF	10
7,00	74,0	34,0	202 070 E	10	202 070 EF	10
7,10	74,0	34,0	202 071 E	10	202 071 EF	10
7,20	74,0	34,0	202 072 E	10	202 072 EF	10
7,30	74,0	34,0	202 073 E	10	202 073 EF	10
7,40	74,0	34,0	202 074 E	10	202 074 EF	10
7,50	74,0	34,0	202 075 E	10	202 075 EF	10
7,60	79,0	37,0	202 076 E	10	202 076 EF	10
7,70	79,0	37,0	202 077 E	10	202 077 EF	10
7,80	79,0	37,0	202 078 E	10	202 078 EF	10
7,90	79,0	37,0	202 079 E	10	202 079 EF	10
8,00	79,0	37,0	202 080 E	10	202 080 EF	10
8,10	79,0	37,0	202 081 E	10	202 081 EF	10
8,20	79,0	37,0	202 082 E	10	202 082 EF	10
8,30	79,0	37,0	202 083 E	10	202 083 EF	10
8,40	79,0	37,0	202 084 E	10	202 084 EF	10
8,50	79,0	37,0	202 085 E	10	202 085 EF	10
8,60	84,0	40,0	202 086 E	10	202 086 EF	10
8,70	84,0	40,0	202 087 E	10	202 087 EF	10
8,80	84,0	40,0	202 088 E	10	202 088 EF	10
8,90	84,0	40,0	202 089 E	10	202 089 EF	10
9,00	84,0	40,0	202 090 E	10	202 090 EF	10
9,10	84,0	40,0	202 091 E	10	202 091 EF	10
9,20	84,0	40,0	202 092 E	10	202 092 EF	10
9,30	84,0	40,0	202 093 E	10	202 093 EF	10
9,40	84,0	40,0	202 094 E	10	202 094 EF	10
9,50	84,0	40,0	202 095 E	10	202 095 EF	10
9,60	89,0	43,0	202 096 E	10	202 096 EF	10
9,70	89,0	43,0	202 097 E	10	202 097 EF	10
9,80	89,0	43,0	202 098 E	10	202 098 EF	10
9,90	89,0	43,0	202 099 E	10	202 099 EF	10
10,00	89,0	43,0	202 100 E	10	202 100 EF	10
10,10	89,0	43,0	202 101 E	10	202 101 EF	10
10,20	89,0	43,0	202 102 E	10	202 102 EF	10
10,30	89,0	43,0	202 103 E	10	202 103 EF	10
10,40	89,0	43,0	202 104 E	10	202 104 EF	10
10,50	89,0	43,0	202 105 E	5	202 105 EF	5
10,60	89,0	43,0	202 106 E	5	202 106 EF	5
10,70	95,0	47,0	202 107 E	5	202 107 EF	5
10,80	95,0	47,0	202 108 E	5	202 108 EF	5
10,90	95,0	47,0	202 109 E	5	202 109 EF	5
11,00	95,0	47,0	202 110 E	5	202 110 EF	5
11,10	95,0	47,0	202 111 E	5	202 111 EF	5
11,20	95,0	47,0	202 112 E	5	202 112 EF	5
11,30	95,0	47,0	202 113 E	5	202 113 EF	5
11,40	95,0	47,0	202 114 E	5	202 114 EF	5
11,50	95,0	47,0	202 115 E	5	202 115 EF	5
11,60	95,0	47,0	202 116 E	5	202 116 EF	5
11,70	95,0	47,0	202 117 E	5	202 117 EF	5
11,80	95,0	47,0	202 118 E	5	202 118 EF	5
11,90	102,0	51,0	202 119 E	5	202 119 EF	5
12,00	102,0	51,0	202 120 E	5	202 120 EF	5
12,10	102,0	51,0	202 121 E	5	202 121 EF	5
12,20	102,0	51,0	202 122 E	5	202 122 EF	5
12,30	102,0	51,0	202 123 E	5	202 123 EF	5
12,40	102,0	51,0	202 124 E	5	202 124 EF	5
12,50	102,0	51,0	202 125 E	5	202 125 EF	5
12,60	102,0	51,0	202 126 E	5	202 126 EF	5
12,70	102,0	51,0	202 127 E	5	202 127 EF	5
12,80	102,0	51,0	202 128 E	5	202 128 EF	5
12,90	102,0	51,0	202 129 E	5	202 129 EF	5
13,00	102,0	51,0	202 130 E	5	202 130 EF	5



1.01



## **N** Twist drills DIN 1897 type N, HSS-G ground - short



Short and stable twist drill with distinctive heat resistance. Ideally suited for assembly work with thin-walled materials such as sheet steels, flat steels and profile steel in bodyshell construction. Use in hand-held drilling machines, with automatic machines and with turret lathes.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	

● Main application

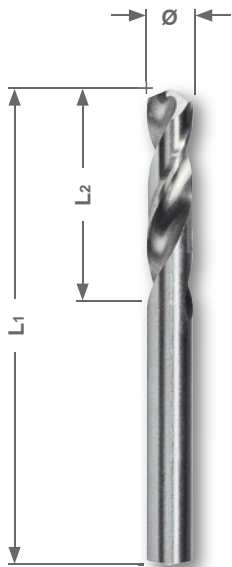
○ Other application

Ø mm	L1 mm	L2 mm	<b>N</b>			
			Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
2,00	38,0	12,0	202 020	10	202 020 T	10
2,10	38,0	12,0	202 021	10	202 021 T	10
2,20	40,0	13,0	202 022	10	202 022 T	10
2,30	40,0	13,0	202 023	10	202 023 T	10
2,40	43,0	14,0	202 024	10	202 024 T	10
2,50	43,0	14,0	202 025	10	202 025 T	10
2,60	43,0	14,0	202 026	10	202 026 T	10
2,70	46,0	16,0	202 027	10	202 027 T	10
2,80	46,0	16,0	202 028	10	202 028 T	10
2,90	46,0	16,0	202 029	10	202 029 T	10
3,00	46,0	16,0	202 030	10	202 030 T	10
3,10	49,0	18,0	202 031	10	202 031 T	10
3,20	49,0	18,0	202 032	10	202 032 T	10
3,30	49,0	18,0	202 033	10	202 033 T	10
3,40	52,0	20,0	202 034	10	202 034 T	10
3,50	52,0	20,0	202 035	10	202 035 T	10
3,60	52,0	20,0	202 036	10	202 036 T	10
3,70	52,0	20,0	202 037	10	202 037 T	10
3,80	55,0	22,0	202 038	10	202 038 T	10
3,90	55,0	22,0	202 039	10	202 039 T	10
4,00	55,0	22,0	202 040	10	202 040 T	10
4,10	55,0	22,0	202 041	10	202 041 T	10
4,20	55,0	22,0	202 042	10	202 042 T	10
4,30	58,0	24,0	202 043	10	202 043 T	10
4,40	58,0	24,0	202 044	10	202 044 T	10
4,50	58,0	24,0	202 045	10	202 045 T	10
4,60	58,0	24,0	202 046	10	202 046 T	10
4,70	58,0	24,0	202 047	10	202 047 T	10
4,80	62,0	26,0	202 048	10	202 048 T	10
4,90	62,0	26,0	202 049	10	202 049 T	10

N

Ø mm	L1 mm	L2 mm	Article no. HSS-G	Cont. pcs.	Article no. HSS-G TiN	Cont. pcs.
5,00	62,0	26,0	202 050	10	202 050 T	10
5,10	62,0	26,0	202 051	10	202 051 T	10
5,20	62,0	26,0	202 052	10	202 052 T	10
5,30	62,0	26,0	202 053	10	202 053 T	10
5,40	66,0	28,0	202 054	10	202 054 T	10
5,50	66,0	28,0	202 055	10	202 055 T	10
5,60	66,0	28,0	202 056	10	202 056 T	10
5,70	66,0	28,0	202 057	10	202 057 T	10
5,80	66,0	28,0	202 058	10	202 058 T	10
5,90	66,0	28,0	202 059	10	202 059 T	10
6,00	66,0	28,0	202 060	10	202 060 T	10
6,50	70,0	31,0	202 065	10	202 065 T	10
6,80	74,0	34,0	202 068	10	202 068 T	10
7,00	74,0	34,0	202 070	10	202 070 T	10
7,20	74,0	34,0	202 072	10	202 072 T	10
7,50	74,0	34,0	202 075	10	202 075 T	10
7,80	79,0	37,0	202 078	10	202 078 T	10
8,00	79,0	37,0	202 080	10	202 080 T	10
8,50	79,0	37,0	202 085	10	202 085 T	10
9,00	84,0	40,0	202 090	10	202 090 T	10
9,50	84,0	40,0	202 095	10	202 095 T	10
10,00	89,0	43,0	202 100	10	202 100 T	10
10,20	89,0	43,0	202 102	10	202 102 T	10
10,50	89,0	43,0	202 105	5	202 105 T	5
11,00	95,0	47,0	202 110	5	202 110 T	5
11,50	95,0	47,0	202 115	5	202 115 T	5
12,00	102,0	51,0	202 120	5	202 120 T	5
12,50	102,0	51,0	202 125	5	202 125 T	5
13,00	102,0	51,0	202 130	5	202 130 T	5
14,00	107,0	54,0	202 140	5	202 140 T	5
15,00	111,0	56,0	202 150	5	202 150 T	5
16,00	115,0	58,0	202 160	5	202 160 T	5





## Spot drills type N, HSS ground - extra short



Extra short and stable standard drill. Shorter than DIN 1897.

Ideally suitable for assembly work in thin-walled materials such as sheet steels, flat steels and profile steels.

Highly secure against fracture. For use in all hand-held drilling machines.

Advantages DIN 1412 C: good centring, little pressure required. Chip spreading improves chip removal.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	

● Main application

○ Other application

Ø mm	L1 mm	L2 mm	Article no.	Cont. pcs.
2,50	38,0	14,0	251 025	10
2,80	40,0	16,0	251 028	10
3,00	40,0	16,0	251 030	10
3,10	40,0	16,0	251 031	10
3,20	40,0	16,0	251 032	10
3,25	41,0	16,0	251 0325	10
3,30	41,0	16,0	251 033	10
3,40	42,0	16,0	251 034	10
3,50	42,0	16,0	251 035	10
4,00	42,0	16,0	251 040	10
4,10	44,0	18,0	251 041	10
4,20	44,0	18,0	251 042	10
4,30	44,0	18,0	251 043	10
4,50	48,0	20,0	251 045	10
4,70	48,0	20,0	251 047	10
4,80	48,0	20,0	251 048	10
4,90	50,0	22,0	251 049	10
5,00	52,0	24,0	251 050	10
5,10	52,0	24,0	251 051	10
5,20	52,0	24,0	251 052	10
5,50	52,0	24,0	251 055	10
6,00	55,0	26,0	251 060	10
6,50	60,0	26,0	251 065	10



## Double end drills type KV, HSS ground



Extra short and stable standard drill. Shorter than DIN 1897. Ideally suitable for assembly work in thin-walled materials such as sheet steels, flat steels and profile steels. High security against fracture. For use in hand-held drilling machines. Usable at both ends.

Advantages DIN 1412 C: good centring, little pressure required. Chip distribution improves chip removal.

Packing unit: in plastic box

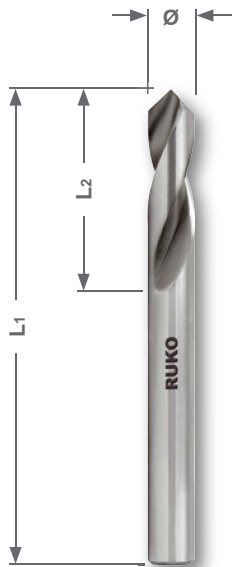
steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	○		○	○	○	○	○	○	

● Main application

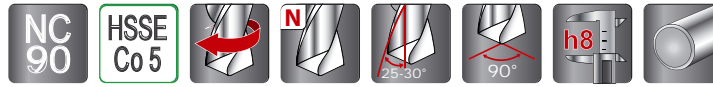
○ Other application

Ø mm	L1 mm	L2 mm	Article no.	Cont. pcs.
2,50	43,0	10,0	252 025	10
2,80	46,0	11,0	252 028	10
3,00	46,0	11,0	252 030	10
3,10	49,0	11,0	252 031	10
3,20	49,0	11,0	252 032	10
3,25	49,0	11,0	252 0325	10
3,30	49,0	11,0	252 033	10
3,40	52,0	14,0	252 034	10
3,50	52,0	14,0	252 035	10
4,00	55,0	14,0	252 040	10
4,10	55,0	14,0	252 041	10
4,20	55,0	14,0	252 042	10
4,30	58,0	17,0	252 043	10
4,50	58,0	17,0	252 045	10
4,80	62,0	17,0	252 048	10
4,90	62,0	17,0	252 049	10
5,00	62,0	17,0	252 050	10
5,10	62,0	17,0	252 051	10
5,20	62,0	17,0	252 052	10
5,50	66,0	20,0	252 055	10
6,00	66,0	20,0	252 060	10
6,50	70,0	20,0	252 065	10
7,00	74,0	22,0	252 070	10
8,00	79,0	24,0	252 080	10





## N NC-spot drills 90°, HSSE-Co 5 ground



Special drill for highly accurate drilling, chamfering and centring on NC machines, milling machines and drilling machines. Faster drilling than with a centre drill.

Packing unit: in plastic box

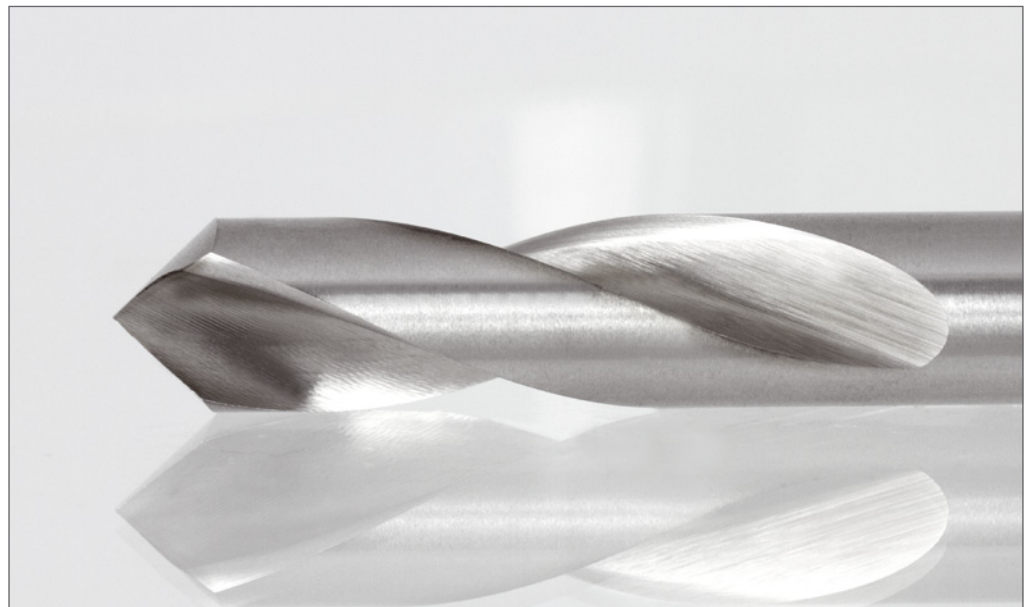


steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	●	○	○	○	○	○	●	○

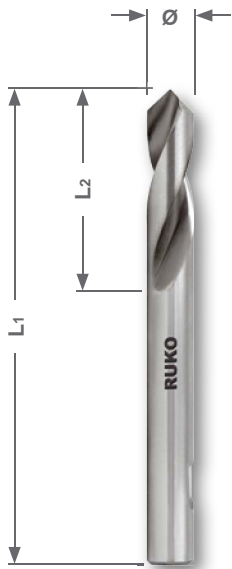
● Main application

○ Other application

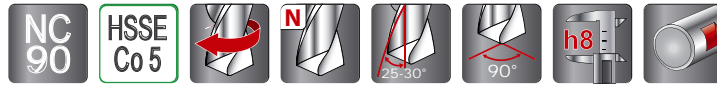
Ø mm	L1 mm	L2 mm	N		N		N	
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiN	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
3,0	46,0	12,0	286 030 E	10	286 030 ET	10	286 030 EF	10
4,0	55,0	12,0	286 040 E	10	286 040 ET	10	286 040 EF	10
5,0	62,0	14,0	286 050 E	10	286 050 ET	10	286 050 EF	10
6,0	66,0	16,0	286 060 E	10	286 060 ET	10	286 060 EF	10
8,0	79,0	21,0	286 080 E	10	286 080 ET	10	286 080 EF	10
10,0	89,0	25,0	286 100 E	10	286 100 ET	10	286 100 EF	10
12,0	102,0	30,0	286 120 E	10	286 120 ET	10	286 120 EF	10
14,0	107,0	34,0	286 140 E	10	286 140 ET	10	286 140 EF	10
16,0	115,0	38,0	286 160 E	10	286 160 ET	10	286 160 EF	10
20,0	131,0	45,0	286 200 E	10	286 200 ET	10	286 200 EF	10







**N** NC-spot drills 90°, HSSE-Co 5 ground with weldon shank



Special drill for highly accurate drilling, chamfering and centring on NC machines, milling machines and drilling machines. Faster drilling than with a centre drill.

Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	●	○	○	○	○	○	●	○

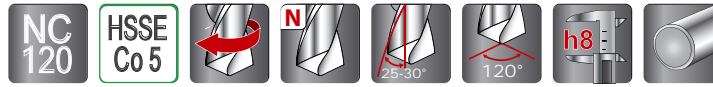
● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	<b>N</b>		<b>N</b>		<b>N</b>	
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiN	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
6,0	66,0	16,0	286 060 EW	10	286 060 EWT	10	286 060 EWF	10
8,0	79,0	21,0	286 080 EW	10	286 080 EWT	10	286 080 EWF	10
10,0	89,0	25,0	286 100 EW	10	286 100 EWT	10	286 100 EWF	10
12,0	102,0	30,0	286 120 EW	10	286 120 EWT	10	286 120 EWF	10
14,0	107,0	34,0	286 140 EW	10	286 140 EWT	10	286 140 EWF	10
16,0	115,0	38,0	286 160 EW	10	286 160 EWT	10	286 160 EWF	10
20,0	131,0	45,0	286 200 EW	10	286 200 EWT	10	286 200 EWF	10





## **N** NC-spot drills 120°, HSSE-Co 5 ground



Special drill for highly accurate drilling, chamfering and centring on NC machines, milling machines and drilling machines. Faster drilling than with a centre drill.

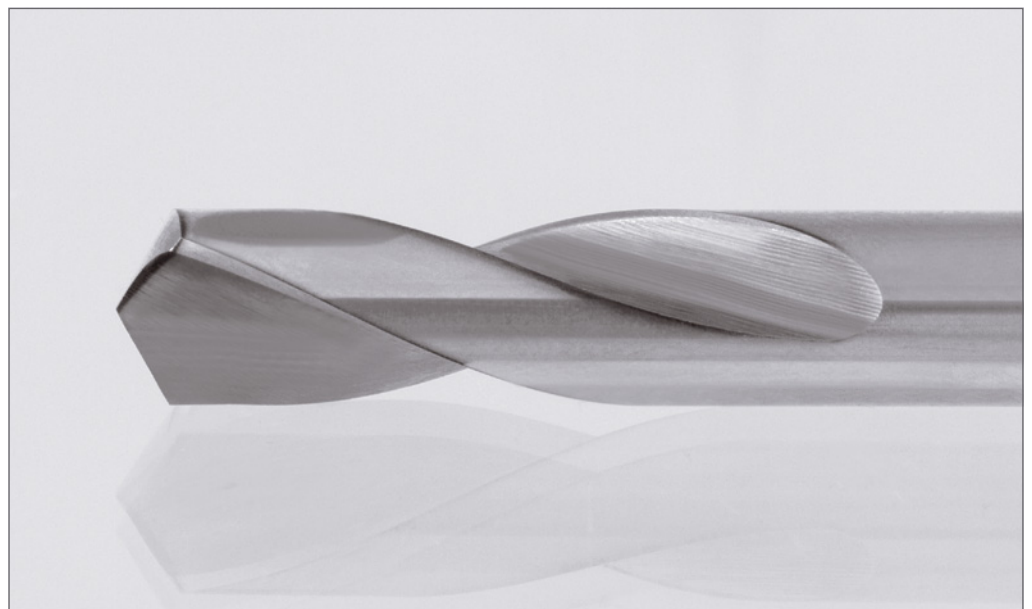
Packing unit: in plastic box



steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	●	○	○	○	○	○	●	○

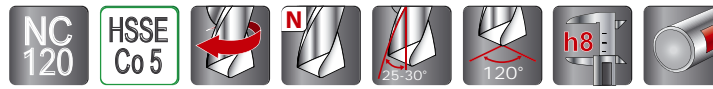
● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	<b>N</b>		<b>N</b>		<b>N</b>	
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiN	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
3,0	46,0	12,0	285 030 E	10	285 030 ET	10	285 030 EF	10
4,0	55,0	12,0	285 040 E	10	285 040 ET	10	285 040 EF	10
5,0	62,0	14,0	285 050 E	10	285 050 ET	10	285 050 EF	10
6,0	66,0	16,0	285 060 E	10	285 060 ET	10	285 060 EF	10
8,0	79,0	21,0	285 080 E	10	285 080 ET	10	285 080 EF	10
10,0	89,0	25,0	285 100 E	10	285 100 ET	10	285 100 EF	10
12,0	102,0	30,0	285 120 E	10	285 120 ET	10	285 120 EF	10
14,0	107,0	34,0	285 140 E	10	285 140 ET	10	285 140 EF	10
16,0	115,0	38,0	285 160 E	10	285 160 ET	10	285 160 EF	10
20,0	131,0	45,0	285 200 E	10	285 200 ET	10	285 200 EF	10





**N** NC-spot drills 120°, HSSE-Co 5 ground with weldon shank



Special drill for highly accurate drilling, chamfering and centring on NC machines, milling machines and drilling machines. Faster drilling than with a centre drill.

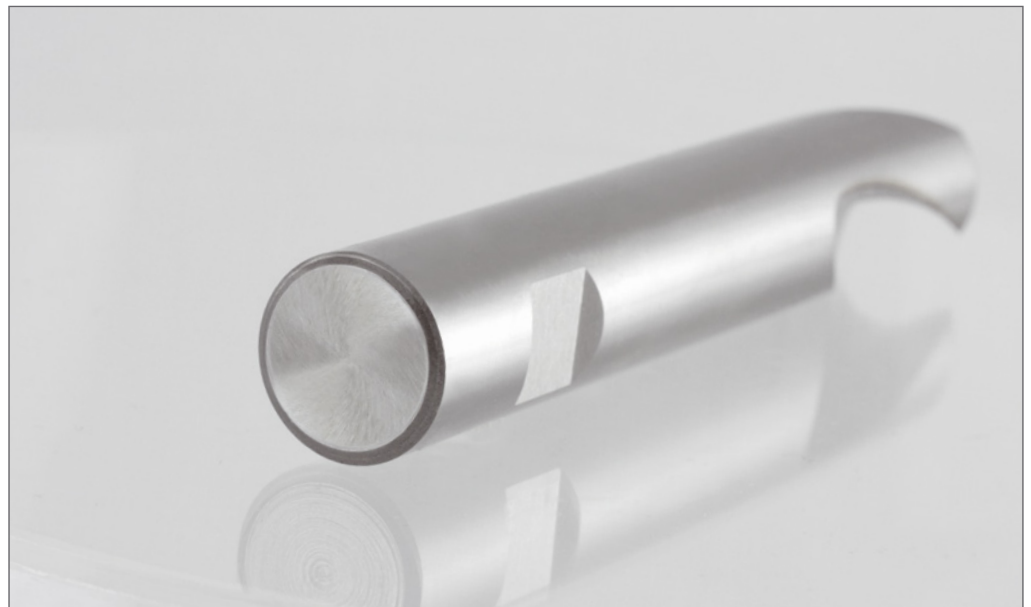
Packing unit: in plastic box

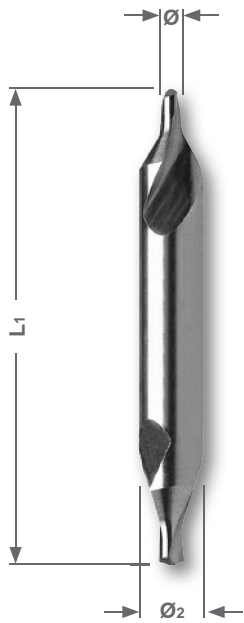


steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●	●	○	○	○	○	○	●	○

● Main application      ○ Other application

Ø mm	L1 mm	L2 mm	N		N		N	
			Article no. HSSE-Co 5	Cont. pcs.	Article no. HSSE-Co 5 TiN	Cont. pcs.	Article no. HSSE-Co 5 TiAlN	Cont. pcs.
6,0	66,0	16,0	285 060 EW	10	285 060 EWT	10	285 060 EWF	10
8,0	79,0	21,0	285 080 EW	10	285 080 EWT	10	285 080 EWF	10
10,0	89,0	25,0	285 100 EW	10	285 100 EWT	10	285 100 EWF	10
12,0	102,0	30,0	285 120 EW	10	285 120 EWT	10	285 120 EWF	10
14,0	107,0	34,0	285 140 EW	10	285 140 EWT	10	285 140 EWF	10
16,0	115,0	38,0	285 160 EW	10	285 160 EWT	10	285 160 EWF	10
20,0	131,0	45,0	285 200 EW	10	285 200 EWT	10	285 200 EWF	10





## Centre drills DIN 333, HSS ground



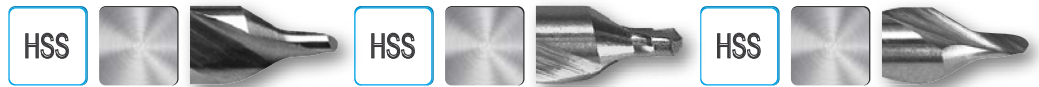
Centre drills for making centre holes according to shape A, shape A with reinforcing bead and shape R.

Packing unit: in plastic box

(1) shape A

(2) shape A  
with reinforcing bead

shape R

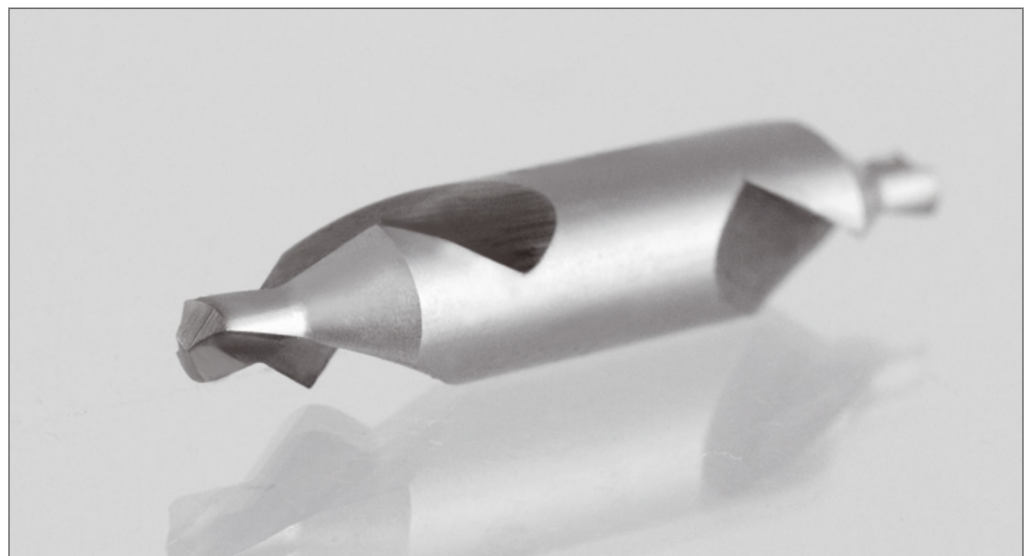


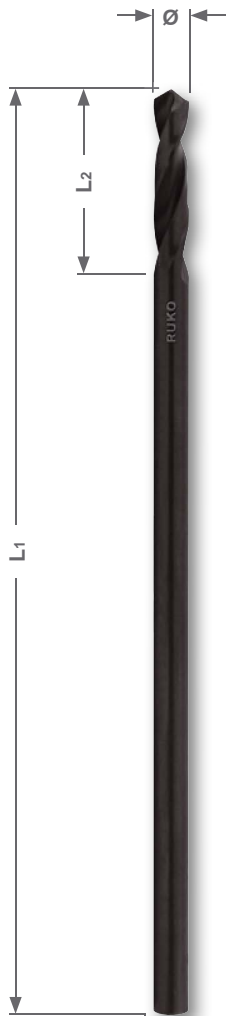
steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●	●			○	○	○	○	●	

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	Ø <sub>2</sub> mm	Article no. (1) shape A	Article no. (2) shape A	Article no. shape R	Cont. pcs.
0,80	20,0	3,15	217 008	—	217 2 008	1
1,00	31,5	3,15	217 010	217 1 010	217 2 010	1
1,60	35,5	4,00	217 016	217 1 016	217 2 016	1
2,00	40,0	5,00	217 020	217 1 020	217 2 020	1
2,50	45,0	6,30	217 025	217 1 025	217 2 025	1
3,15	50,0	8,00	217 315	217 1 315	217 2 315	1
4,00	56,0	10,00	217 040	217 1 040	217 2 040	1
5,00	63,0	12,50	217 050	217 1 050	217 2 050	1
6,30	71,0	16,00	217 063	217 1 063	217 2 063	1





## Hollow section twist drills type N, HSS ground



Due to the short spiral shape the drill is particularly suitable for the working and fitting of hollow sections. The reduction of the cross cutting edge guarantees an optimized centring and long tool life.

Packing unit: in plastic box

steel (N/mm <sup>2</sup> )			stainless steel	aluminium	brass	bronze	plastics	cast iron	titanium alloyed
< 900	< 1100	< 1300							
●				○			○		

● Main application

○ Other application

Ø mm	L <sub>1</sub> mm	L <sub>2</sub> mm	Article no.	Cont. pcs.
3,00	100,0	30,0	257 514	10
4,90	70,0	30,0	257 515	10
4,90	100,0	30,0	257 491	10
4,90	120,0	30,0	257 516	10
4,90	150,0	30,0	257 492	10
5,00	70,0	30,0	257 501	10
5,00	100,0	30,0	257 502	10
5,00	120,0	30,0	257 517	10
5,00	150,0	30,0	257 503	10
5,00	180,0	30,0	257 518	10
5,00	210,0	30,0	257 504	10
5,10	70,0	30,0	257 519	10
5,10	100,0	30,0	257 511	10
5,10	120,0	30,0	257520	10
5,10	150,0	30,0	257 512	10
5,10	180,0	30,0	257 518	10
5,10	210,0	30,0	257 513	10
5,30	70,0	30,0	257 522	10
5,30	100,0	30,0	257 531	10
5,30	120,0	30,0	257 523	10
5,30	150,0	30,0	257 532	10
5,30	180,0	30,0	257 524	10
5,30	210,0	30,0	257 533	10
5,50	70,0	30,0	257 525	10
5,50	100,0	30,0	257 551	10
5,50	120,0	30,0	257 526	10
5,50	150,0	30,0	257 552	10
5,50	180,0	30,0	257 527	10
5,50	210,0	30,0	257 553	10
5,70	70,0	30,0	257 571	10
5,70	100,0	30,0	257 572	10
5,70	120,0	30,0	257 528	10
5,70	150,0	30,0	257 573	10
5,70	180,0	30,0	257 529	10
5,70	210,0	30,0	257 574	10
5,80	70,0	30,0	257 530	10
5,80	100,0	30,0	257 581	10
5,80	120,0	30,0	257 534	10
5,80	150,0	30,0	257 582	10
5,80	180,0	30,0	257 535	10
5,80	210,0	30,0	257 583	10

## Application of drills and cutting conditions



1.01

Material	Recommended for use		Cooling	Cutting speed v [m/min]	Drill diameter d [mm]				
	Main suggestion	Other suggestion			2	4	6	9	12
					Feed rate f [mm/rotation]				
Free cutting steel 350-500 N/mm <sup>2</sup>	214 ...	258 ... / 202 ...	E	30-40	0,05	0,1	0,125	0,16	0,2
Free cutting steel 500-900 N/mm <sup>2</sup>	214 ...	228 ... / 202 ...	E	25-30	0,04	0,08	0,1	0,125	0,16
Structural steel up to 500 N/mm <sup>2</sup>	214 ...	258 ... / 202 ...	E	30-40	0,04	0,08	0,1	0,125	0,16
Structural steel 500-900 N/mm <sup>2</sup>	214 ...	228 ... / 202 ...	E	20-25	0,032	0,063	0,08	0,1	0,125
Plain carbon case hardening steel up to 600 N/mm <sup>2</sup>	214 ...	258 ... / 202 ...	E	25-35	0,05	0,1	0,125	0,16	0,2
Alloyed case hardening steel 500-900 N/mm <sup>2</sup>	214 ...	228 ... / 202 ...	E	20-25	0,4	0,08	0,1	0,125	0,16
Alloyed case hardening steel 900-1000 N/mm <sup>2</sup>	282 ... E	281 ... E / 202 ... E	E, O	10-15	0,025	0,05	0,063	0,08	0,1
Nitriding steel 700-900 N/mm <sup>2</sup>	282 ... E	228 ... / 202 ... E	E	15-20	0,032	0,063	0,08	0,1	0,125
Heat treated nitriding steel 800-1250 N/mm <sup>2</sup>	282 ... E	228 ...	E, O	8-12	0,025	0,05	0,063	0,08	0,1
Mild steel for heat treatment 500-750 N/mm <sup>2</sup>	214 ...	228 ... / 202 ...	E	25-35	0,04	0,08	0,1	0,125	0,16
Plain carbon steel for heat treatment 700-1000 N/mm <sup>2</sup>	282 ... E	228 ... / 284 ... E	E	15-20	0,04	0,08	0,1	0,125	0,16
Alloyed steel heat treatment 900-1250 N/mm <sup>2</sup>	282 ... E	228 ... / 284 ... E	E, O	10-15	0,032	0,063	0,08	0,1	0,125
Maganese steel with content over 10 % Mn	282 ... E	281 ... E / 202 ... E	E, O	3-6	0,2	0,04	0,063	0,08	0,1
Plain carbon tool steel 700-900 N/mm <sup>2</sup>	282 ... E	228 ... / 202 ... E	E	14-18	0,032	0,063	0,08	0,1	0,12
Alloyed tool steel 850-1250 N/mm <sup>2</sup>	282 ... E	228 ...	E, O	8-12	0,025	0,05	0,063	0,08	0,1
Heat resistant steel 450-600 N/mm <sup>2</sup>	281 ... E	281 ... EF	O	15-20	0,032	0,063	0,08	0,1	0,125
Stainless steel	215 ...	281 ... E	E, O	6-10	0,02	0,032	0,05	0,08	0,1
Alloys hastelloy, inconel, nimonic	281 ... E	281 ... EF	O	3-6	0,02	0,04	0,063	0,08	0,125
Grey cast iron HB 180-240	214 ...	228 ...	E, CA	30-40	0,05	0,1	0,125	0,16	0,2
Grey cast iron HB 240-300	214 ...	228 ...	E, CA	20-30	0,05	0,1	0,125	0,16	0,2
Malleable cast iron HB 180-240	214 ...	228 ...	CA	20-30	0,05	0,1	0,125	0,16	0,2
Aluminium	280 ...	258 ...	E	50-80	0,05	0,1	0,125	0,16	0,2
Aluminium alloys with content up to 10 % Si and 180 N/mm <sup>2</sup>	280 ...	258 ...	E	40-65	0,063	0,1255	0,16	0,2	0,25
Aluminium alloys with content up to 10 % Si and 150-250 N/mm <sup>2</sup>	214 ...	202 ...	E	30-50	0,063	0,1255	0,16	0,2	0,25
Copper 200-400 N/mm <sup>2</sup>	280 ...	228 ...	E, O	30-40	0,05	0,1	0,125	0,16	0,2
Fragile brass with short chip 350-550 N/mm <sup>2</sup>	281 ... E	281 ... EF	E, O	60-80	0,063	0,1255	0,16	0,2	0,25
Tough brass with long chip 250-550 N/mm <sup>2</sup>	280 ...	280 ...	E, O	30-50	0,063	0,1	0,125	0,16	0,2
Bronze 200-500 N/mm <sup>2</sup>	280 ...	280 ...	E, O	20-40	0,05	0,08	0,125	0,16	0,2
Bronze 500-800 N/mm <sup>2</sup>	214 ...	258 ...	E, O	15-30	0,05	0,08	0,125	0,16	0,2
Magnesium alloys-electron	281 ... E	281 ... EF	-	60-100	0,08	0,125	0,016	0,02	0,25
Zinc, zinc alloys	214 ...	258 ...	E	35-45	0,05	0,1	0,125	0,16	0,2
Titanium alloys up to 700 N/mm <sup>2</sup>	281 ... E	281 ... EF	O	3-6	0,03	0,05	0,063	0,08	0,1
Titanium alloys 700-1000 N/mm <sup>2</sup>	281 ... E	281 ... EF	O	3-6	0,02	0,04	0,05	0,063	0,08
Silver	214 ...	258 ...	E	30-40	0,05	0,08	0,1	0,125	0,16
Duroplastics	281 ... E	281 ... EF	CA	10-20	0,04	0,08	0,1	0,125	0,16
Thermoplastics	280 ...	280 ...	W, CA	20-40	0,05	0,1	0,125	0,16	0,2
Perspex	280 ...	280 ...	W	15-25	0,05	0,08	0,125	0,16	0,2
Laminated materials (paper, wood) across layer	280 ...	280 ...	CA	15-25	0,05	0,08	0,125	0,16	0,2

E = emulsion / O = cutting oil / CA = compressed air / W = water



Drills Ø mm	Cutting speed Vc = m/min															
	4	6	8	10	12	15	18	20	25	30	35	40	50	60	80	100
	r.p.m.															
1,0	1274	1911	2548	3185	3822	4777	5732	6369	7962	9554	11146	12739	15924	19108	25478	31847
1,5	849	1274	1699	2123	2548	3185	3822	4246	5308	6369	7431	8493	10616	12739	16985	21231
2,0	637	955	1274	1592	1911	2389	2866	3185	3981	4777	5573	6369	7962	9554	12739	15924
2,5	510	764	1019	1274	1529	1911	2293	2548	3185	3822	4459	5096	6369	7643	10191	12739
3,0	425	637	849	1062	1274	1592	1911	2123	2654	3185	3715	4246	5308	6369	8493	10616
3,5	364	546	728	910	1092	1365	1638	1820	2275	2730	3185	3640	4550	5460	7279	9099
4,0	318	478	637	796	955	1194	1433	1592	1990	2389	2787	3185	3981	4777	6369	7962
4,5	283	425	566	708	849	1062	1274	1415	1769	2123	2477	2831	3539	4246	5662	7077
5,0	255	382	510	637	764	955	1146	1274	1592	1911	2229	2548	3185	3822	5096	6369
5,5	232	347	463	579	695	869	1042	1158	1448	1737	2027	2316	2895	3474	4632	5790
6,0	212	318	425	531	637	796	955	1062	1327	1592	1858	2123	2654	3185	4246	5308
6,5	196	294	392	490	588	735	882	980	1225	1470	1715	1960	2450	2940	3920	4900
7,0	182	273	364	455	546	682	819	910	1137	1365	1592	1820	2275	2730	3640	4550
7,5	170	255	340	425	510	637	764	849	1062	1274	1486	1699	2123	2548	3397	4246
8,0	159	239	318	398	478	597	717	796	995	1194	1393	1592	1990	2389	3185	3981
8,5	150	225	300	375	450	562	674	749	937	1124	1311	1499	1873	2248	2997	3747
9,0	142	212	283	354	425	531	637	708	885	1062	1238	1415	1769	2123	2831	3539
9,5	134	201	268	335	402	503	603	670	838	1006	1173	1341	1676	2011	2682	3352
10,0	127	191	255	318	382	478	573	637	796	955	1115	1274	1592	1911	2548	3185
11,0	116	174	232	290	347	434	521	579	724	869	1013	1158	1448	1737	2316	2895
12,0	106	159	212	265	318	398	478	531	663	796	929	1062	1327	1592	2123	2654
13,0	98	147	196	245	294	367	441	490	612	735	857	980	1225	1470	1960	2450
14,0	91	136	182	227	273	341	409	455	569	682	796	910	1137	1365	1820	2275
15,0	85	127	170	212	255	318	382	425	531	637	743	849	1062	1274	1699	2123
16,0	80	119	159	199	239	299	358	398	498	597	697	796	995	1194	1592	1990
17,0	75	112	150	187	225	281	337	375	468	562	656	749	937	1124	1499	1873
18,0	71	106	142	177	212	265	318	354	442	531	619	708	885	1062	1415	1769
19,0	67	101	134	168	201	251	302	335	419	503	587	670	838	1006	1341	1676
20,0	64	96	127	159	191	239	287	318	398	478	557	637	796	955	1274	1592
21,0	61	91	121	152	182	227	273	303	379	455	531	607	758	910	1213	1517
22,0	58	87	116	145	174	217	261	290	362	434	507	579	724	869	1158	1448
23,0	55	83	111	138	166	208	249	277	346	415	485	554	692	831	1108	1385
24,0	53	80	106	133	159	199	239	265	332	398	464	531	663	796	1062	1327
25,0	51	76	102	127	153	191	229	255	318	382	446	510	637	764	1019	1274
26,0	49	73	98	122	147	184	220	245	306	367	429	490	612	735	980	1225
27,0	47	71	94	118	142	177	212	236	295	354	413	472	590	708	944	1180
28,0	45	68	91	114	136	171	205	227	284	341	398	455	569	682	910	1137
29,0	44	66	88	110	132	165	198	220	275	329	384	439	549	659	879	1098
30,0	42	64	85	106	127	159	191	212	265	318	372	425	531	637	849	1062
31,0	41	62	82	103	123	154	185	205	257	308	360	411	514	616	822	1027
32,0	40	60	80	100	119	149	179	199	249	299	348	398	498	597	796	995
33,0	39	58	77	97	116	145	174	193	241	290	338	386	483	579	772	965
34,0	37	56	75	94	112	141	169	187	234	281	328	375	468	562	749	937
35,0	36	55	73	91	109	136	164	182	227	273	318	364	455	546	728	910
36,0	35	53	71	88	106	133	159	177	221	265	310	354	442	531	708	885
37,0	34	52	69	86	103	129	155	172	215	258	301	344	430	516	689	861
38,0	34	50	67	84	101	126	151	168	210	251	293	335	419	503	670	838
39,0	33	49	65	82	98	122	147	163	204	245	286	327	408	490	653	817
40,0	32	48	64	80	96	119	143	159	199	239	279	318	398	478	637	796
41,0	31	47	62	78	93	117	140	155	194	233	272	311	388	466	621	777
42,0	30	45	61	76	91	114	136	152	190	227	265	303	379	455	607	758
43,0	30	44	59	74	89	111	133	148	185	222	259	296	370	444	593	741
44,0	29	43	58	72	87	109	130	145	181	217	253	290	362	434	579	724
45,0	28	42	57	71	85	106	127	142	177	212	248	283	354	425	566	708
46,0	28	42	55	69	83	104	125	138	173	208	242	277	346	415	554	692
47,0	27	41	54	68	81	102	122	136	169	203	237	271	339	407	542	678
48,0	27	40	53	66	80	100	119	133	166	199	232	265	332	398	531	663
49,0	26	39	52	65	78	97	117	130	162	195	227	260	325	390	520	650
50,0	25	38	51	64	76	96	115	127	159	191	223	255	318	382	510	637

Material	Cutting speed Vc m/min	Coolant
High carbon struc. steel < 700 N/mm <sup>2</sup>	30 - 35	cutting spray
High carbon struc. steel > 700 N/mm <sup>2</sup>	20 - 25	cutting spray
Alloyed steel < 1000 N/mm <sup>2</sup>	20 - 25	cutting spray
Cast iron < 250 N/mm <sup>2</sup>	15 - 25	compressed air
Cast iron > 250 N/mm <sup>2</sup>	10 - 20	compressed air
CuZn alloy brittle	60 - 100	compressed air

Material	Cutting speed Vc m/min	Coolant
CuZn alloy tough	35 - 60	compressed air
Al alloy 11% Si	30 - 50	cutting spray
Thermoplastics	20 - 40	water
Duroplastics with inorganic filling	15 - 25	compressed air
Duroplastics with organic filling	15 - 35	compressed air



1.01

Drills Ø inch	Cutting speed Vc = m/min															
	4	6	8	10	12	15	18	20	25	30	35	40	50	60	80	100
	r.p.m.															
1/16	800	1190	1590	1990	2390	2990	3580	3980	4980	5970	6970	7960	9950	11940	15920	19900
5/64	640	960	1270	1590	1910	2390	2870	3180	3980	4780	5570	6370	7960	9550	12740	15920
3/32	530	800	1060	1330	1590	1990	2390	2650	3320	3980	4640	5310	6630	7960	10620	13270
7/64	450	680	910	1140	1360	1710	2050	2270	2840	3410	3980	4550	5690	6820	9100	11370
1/8	400	600	800	1000	1190	1490	1790	1990	2490	2990	3480	3980	4980	5970	7960	9950
9/64	350	530	710	880	1060	1330	1590	1770	2210	2650	3100	3540	4420	5310	7080	8850
5/32	320	480	640	800	960	1190	1430	1590	1990	2390	2790	3180	3980	4780	6370	7960
11/64	290	430	580	720	870	1090	1300	1450	1810	2170	2530	2900	3620	4340	5790	7240
3/16	270	400	530	660	800	1000	1190	1330	1660	1990	2320	2650	3320	3980	5310	6630
13/64	240	370	490	610	730	920	1100	1220	1530	1840	2140	2450	3060	3670	4900	6120
7/32	230	340	450	570	680	850	1020	1140	1420	1710	1990	2270	2840	3410	4550	5690
15/64	210	320	420	530	640	800	960	1060	1330	1590	1860	2120	2650	3180	4250	5310
1/4	200	300	400	500	600	750	900	1000	1240	1490	1740	1990	2490	2990	3980	4980
17/64	190	290	380	480	570	710	860	950	1190	1430	1660	1900	2380	2850	3800	4750
9/32	180	270	360	450	540	670	810	900	1120	1350	1570	1790	2240	2690	3590	4490
19/64	170	250	340	420	510	640	760	850	1060	1270	1490	1700	2120	2550	3400	4250
5/16	160	240	320	400	480	600	730	810	1010	1210	1410	1610	2020	2420	3230	4030
21/64	150	230	310	380	460	580	690	770	960	1150	1340	1530	1920	2300	3070	3840
11/32	150	220	290	370	440	550	660	730	920	1100	1280	1460	1830	2200	2930	3660
23/64	140	210	280	350	420	520	630	700	870	1050	1220	1400	1750	2100	2800	3500
3/8	130	200	270	340	400	500	600	670	840	1010	1170	1340	1680	2010	2680	3350
25/64	130	190	260	320	390	480	580	640	800	970	1130	1290	1610	1930	2570	3220
13/32	120	190	250	310	370	460	560	620	770	930	1080	1240	1550	1860	2470	3090
27/64	120	180	240	300	360	450	540	600	740	890	1040	1190	1490	1790	2380	2980
7/16	110	170	230	290	340	430	520	570	720	860	1000	1150	1430	1720	2300	2870
29/64	110	170	220	280	330	420	500	550	690	830	970	1110	1380	1660	2220	2770
15/32	110	160	210	270	320	400	480	540	670	800	940	1070	1340	1610	2140	2680
31/64	110	160	210	260	310	390	470	520	650	780	910	1040	1290	1550	2070	2590
1/2	110	150	200	250	300	380	450	500	630	750	880	1000	1250	1500	2010	2510

Material	Cutting speed Vc m/min	Coolant	Material	Cutting speed Vc m/min	Coolant
High carbon struc. steel < 700 N/mm <sup>2</sup>	30 - 35	cutting spray	CuZn alloy tough	35 - 60	compressed air
High carbon struc. steel > 700 N/mm <sup>2</sup>	20 - 25	cutting spray	Al alloy 11% Si	30 - 50	cutting spray
Alloyed steel < 1000 N/mm <sup>2</sup>	20 - 25	cutting spray	Thermoplastics	20 - 40	water
Cast iron < 250 N/mm <sup>2</sup>	15 - 25	compressed air	Duroplastics with inorganic filling	15 - 25	compressed air
Cast iron > 250 N/mm <sup>2</sup>	10 - 20	compressed air	Duroplastics with organic filling	15 - 35	compressed air
CuZn alloy brittle	60 - 100	compressed air			



## **X-ON Electronics**

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [ruko](#) manufacturer:*

Other Similar products are found below :

[214214](#) [214043](#) [214017](#) [202040E](#) [208040](#) [214049](#) [214053](#) [214217](#) [101021](#) [101062](#) [232-040](#) [102146](#) [102303E](#) [101051](#) [242-207](#) [102411](#)  
[107015](#) [245001](#) [242-205](#) [116048](#) [102771](#) [102785](#) [244201](#) [244202](#) [A215214RO](#) [A215215RO](#) [217-020](#) [214057](#) [202033E](#) [202030E](#) [214020](#)  
[214044](#) [214096](#) [215030](#) [232025](#) [102302E](#) [237-030](#) [102114E](#) [A214215RO](#) [217-315](#) [214100](#) [214047](#) [208050](#) [214062](#) [214140](#) [214150](#)  
[230025](#) [241 001](#) [241-010](#) [241-100](#)