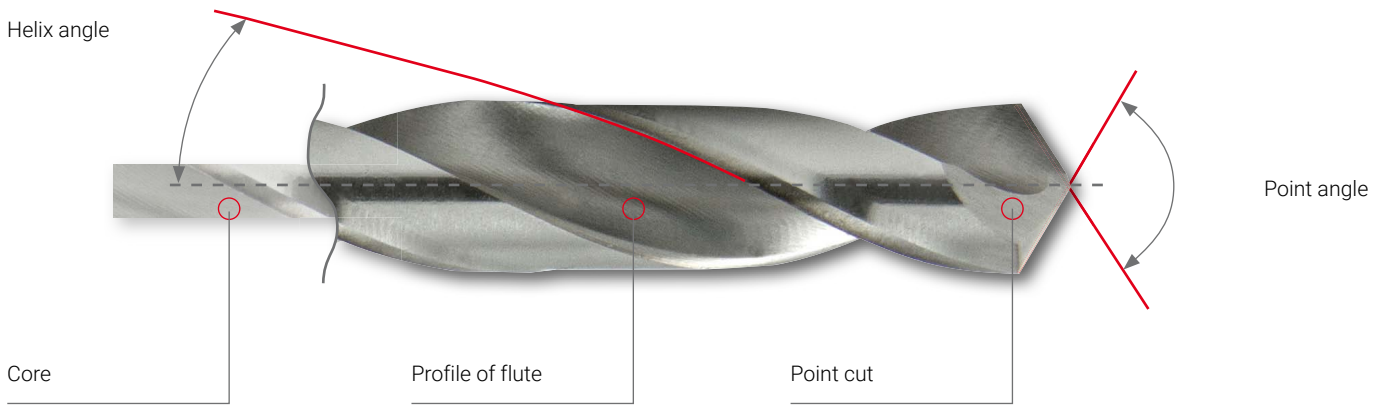


**TWIST DRILLS**

FASCINATION  PRECISION®

# Overview of symbols

<b>N</b>	Helix angle: 25-30° Profile of flute: normal Core: normal Point angle: 118°	<b>DIN 333</b>	Centre drills 60° - shape A and R
<b>TL 3000</b>	Helix angle: 40° Profile of flute: wide with rounded rear edges Core: thick Point angle: 130° Point cut: shape C	<b>DIN 345</b>	Twist drills with morse taper shank
<b>UTL 3000</b>	Helix angle: 40° Profile of flute: wide with rounded rear edges Core: very thick Point angle: 130° Point cut: shape U	<b>DIN 338</b>	Short twist drills with straight shank
<b>TURBO</b>	Helix angle: 36° Profile of flute: normal thickened Core: 130° Point cut: shape C	<b>DIN 1869</b>	Extra long twist drills with straight shank
<b>UNI</b>	Helix angle: 40° Profile of flute: wide, for better chip removal Core: normal Point angle: 135° Point cut: shape C	<b>DIN 340</b>	Long twist drills with straight shank
<b>VA</b>	Helix angle: 36° Profile of flute: normal thickened Core: 130° Point cut: shape C	<b>DIN 1897</b>	Extra short twist drills with straight shank
<b>KV</b>	Helix angle: 25-30° Profile of flute: normal Core: normal Point angle: 130° Point cut: shape C		



## 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.

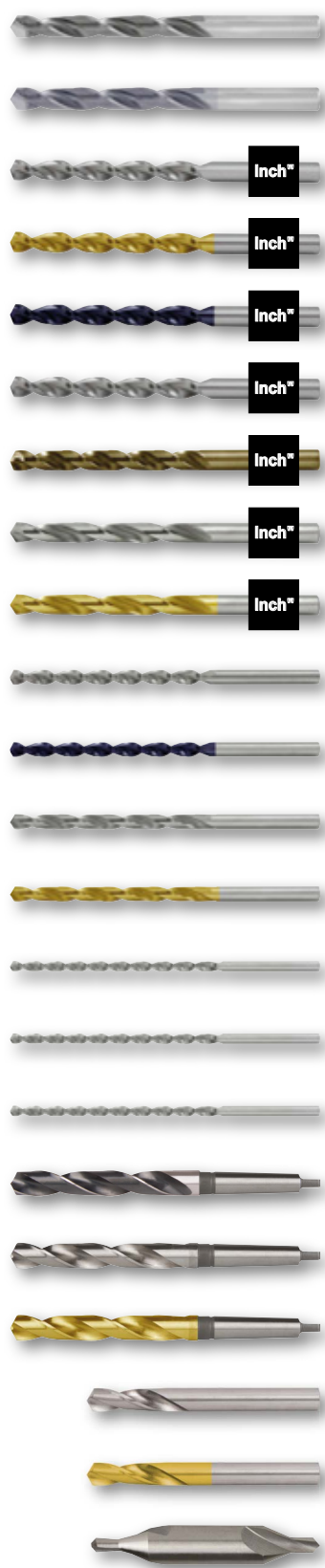
# Range and applications overview:













	Material	Surface	DIN	Shape	Point cuts	Point angle	Helix angle	Shank	Ø mm	Article no.	Page
	HSSE Co 8		DIN 338	VA					1,0 - 16,0	281 010 E - 281 160 E	22 - 25
	HSSE Co 8	TiAlN	DIN 338	VA					1,0 - 16,0	281 010 EF - 281 160 EF	22 - 25
	HSSE Co 5		DIN 338	UTL 3000					1,0 - 16,0	229 010 - 229 160	26 - 29
	HSSE Co 5	TiAlN	DIN 338	UTL 3000					1,0 - 16,0	229 010 F - 229 160 F	26 - 29
	HSSE Co 5		DIN 338	VA					1,0 - 20,0	215 010 - 215 210	30 - 31
	HSSE Co 5		DIN 338	VA					1,0 - 14,0	215 010 Z - 215 140 Z	32 - 33
	HSSE Co 5	TiAlN	DIN 338	VA					1,0 - 14,0	215 010 F - 215 140 F	32 - 33
	HSSE Co 5		DIN 338	UNI					1,0 - 13,0	228 010 - 228 130	34 - 35
	HSS-G		DIN 338	TL 3000					1,0 - 16,0	258 010 - 258 160	36 - 38
	HSS-G	TiN	DIN 338	TL 3000					1,0 - 16,0	258 010 T - 258 160 T	36 - 38
	HSS-G	TiAlN	DIN 338	TL 3000					1,0 - 16,0	258 010 F - 258 160 F	36 - 38
	HSS-G		DIN 338	TURBO					1,0 - 13,0	2146 010 - 2146 130	39 - 40
	HSS-G		DIN 338	N					0,3 - 20,0	214 003 - 214 201	41 - 44
	HSS-G		DIN 338	N					0,3 - 16,0	214 003 S - 214 160 S	41 - 44
	HSS-G	TiN	DIN 338	N					0,3 - 16,0	250 003 T - 250 160 T	41 - 44
	HSS-G		DIN 338	N					1,0 - 13,0	214 010 Li - 214 130 Li	45
	HSS-G		DIN 338	N					1,0 - 13,0	2501 010 T - 2501 130 T	46
	HSS-R		DIN 338	N					0,3 - 20,0	201 003 - 201 200	48 - 49
	HSS-R		DIN 338	N					10,5 - 25,0	200 105 - 200 250	50
	HSS-G		DIN 338	N					10,5 - 20,0	200 4 105 - 200 4 200	50
	HSSE Co 5		DIN 338	N					10,5 - 20,0	200 5 105 - 200 5 200	50
	TC	TiAlN	DIN 338	N					3,0 - 13,0	814 030 - 814 130	51

Steel (N/mm <sup>2</sup> ) < 900 	Steel (N/mm <sup>2</sup> ) < 1100 	Steel (N/mm <sup>2</sup> ) < 1300 	Stainless steel 	Aluminium 	Brass 	Bronze 	Plastics 	Cast iron 	Titanium alloyed 
□	■	■	■	■	■	□	■	■	■
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■				■	■	□	■	□	

# Range and applications overview:



	Material	Surface	DIN	Shape	Point cuts	Point angle	Helix angle	Shank	Ø mm	Article no.	Page
	TC		DIN 338	N		120°	25-30°		2,0 - 13,0	815 020 - 815 130	52 - 53
	TC	Tecrona	DIN 338	N		120°	25-30°		2,0 - 13,0	815 020 C - 815 130 C	52 - 53
	HSS-G		DIN 338	TL 3000		130°	40°		1/16 - 1/2	258 801 - 258 829	54
	HSS-G	TIN	DIN 338	TL 3000		130°	40°		1/16 - 1/2	258 801 T - 258 829 T	54
	HSS-G	TiAIN	DIN 338	TL 3000		130°	40°		1/16 - 1/2	258 801 F - 258 829 F	54
	HSSE Co 5		DIN 338	UTL 3000		130°	40°		1/16 - 1/2	229 801 - 229 829	55
	HSSE Co 5		DIN 338	VA		≥ Ø 2,0 mm 130°	36°		1/16 - 1/2	215 801 - 215 829	56
	HSS-G		DIN 338	N		≥ Ø 2,0 mm 118°	25-30°		1/16 - 1/2	214 801 - 214 829	57
	HSS-G	TIN	DIN 338	N		≥ Ø 2,0 mm 118°	25-30°		1/16 - 1/2	250 801 T - 250 829 T	57
	HSSE Co 5		DIN 340	TL 3000		130°	40°		2,5 - 13,0	253 025 - 253 130	58 - 59
	HSSE Co 5	TiAIN	DIN 340	TL 3000		130°	40°		2,5 - 13,0	253 025 F - 253 130 F	58 - 59
	HSS-G		DIN 340	N		118°	25-30°		2,5 - 13,0	203 025 - 203 130	60 - 61
	HSS-G	TIN	DIN 340	N		118°	25-30°		2,5 - 13,0	203 025 T - 203 130 T	60 - 61
	HSS-G		DIN 1869	TL 3000		130°	40°		2,0 - 13,0	254 020 - 254 130	62 - 63
	HSS-G		DIN 1869	TL 3000		130°	40°		3,0 - 13,0	255 030 - 255 130	62 - 63
	HSS-G		DIN 1869	TL 3000		130°	40°		3,5 - 13,0	256 035 - 256 130	62 - 63
	HSS		DIN 345	N		118°	20-30°		10,0 - 60,0	204 100 - 204 600	64 - 65
	HSSE Co 5		DIN 345	N		118°	20-30°		10,0 - 30,0	204 100 E - 204 300 E	64 - 65
	HSSE Co 5	TIN	DIN 345	N		118°	20-30°		10,0 - 30,0	204 100 T - 204 300 T	64 - 65
	HSS-G		DIN 1897	N		≥ Ø 2,5 mm 118°	25-30°		2,0 - 13,0	202 020 - 202 130	66 - 67
	HSS-G	TIN	DIN 1897	N		≥ Ø 2,5 mm 118°	25-30°		2,0 - 13,0	202 020 T - 202 130 T	66 - 67
	HSS		DIN 333	A		120°	60°		0,8 - 6,3	217 008 - 217 063	67











Steel (N/mm <sup>2</sup> ) < 900 	Steel (N/mm <sup>2</sup> ) < 1100 	Steel (N/mm <sup>2</sup> ) < 1300 	Stainless steel 	Aluminium für / for ALU 	Brass 	Bronze 	Plastics 	Cast iron 	Titanium alloyed 
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# Range and applications overview:



Material	Surface	DIN	Shape	Point cuts	Point angle	Helix angle	Shank	Ø mm	Article no.	Page
HSS		DIN 333	A+		120°	60°		0,8 - 6,3	217 1 008 - 217 1 063	67
HSS		DIN 333	R		120°	60°		0,8 - 6,3	217 2 008 - 217 2 063	67
HSSE Co 5		DIN 1897	N		130°	25-30°		2,0 - 13,0	202 020 E - 202 130 E	68
HSSE Co 5	TiAIN	DIN 1897	N		130°	25-30°		2,0 - 13,0	202 020 EF - 202 130 EF	68
HSS-G			N		≥ Ø 3,0 mm 118°	25-30°		4,9 - 5,8	257 515 - 257 583	69
HSS-G			N		≥ Ø 3,0 mm 130°	25-30°		2,5 - 6,5	251 025 - 251 065	70
HSS-G			KV		≥ Ø 3,0 mm 130°	25-30°		2,5 - 8,0	252 025 - 252 065	71

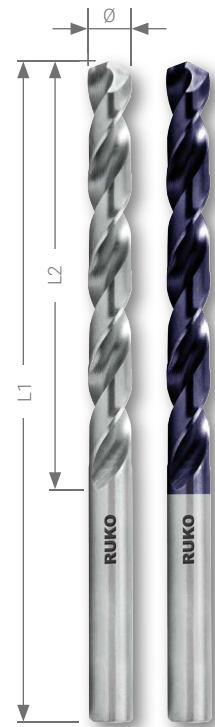


Steel (N/mm <sup>2</sup> ) < 900 	Steel (N/mm <sup>2</sup> ) < 1100 	Steel (N/mm <sup>2</sup> ) < 1300 	Stainless steel 	Aluminium für / for ALU 	Brass 	Bronze 	Plastics 	Cast iron 	Titanium alloyed 
■				■	■	□	■	□	
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■				■	■	□	■	□	



## 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/mm2) < 900	<input type="checkbox"/>	<input type="checkbox"/>	Brass	<input type="checkbox"/>	<input type="checkbox"/>
Steel (N/mm2) < 1100	<input type="checkbox"/>	<input type="checkbox"/>	Bronze	<input type="checkbox"/>	<input type="checkbox"/>
Steel (N/mm2) < 1300	<input type="checkbox"/>	<input type="checkbox"/>	Plastics	<input type="checkbox"/>	<input type="checkbox"/>
Rust-resistant steel	<input type="checkbox"/>	<input type="checkbox"/>	Cast iron	<input type="checkbox"/>	<input type="checkbox"/>
Aluminium	<input type="checkbox"/>	<input type="checkbox"/>	Titanium alloyed	<input type="checkbox"/>	<input type="checkbox"/>

Ø mm	L1 mm	L2 mm	HSSE Co 8			HSSE Co 8 TiAIN		
1,00	34,0	12,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,10	36,0	14,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,20	38,0	16,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,30	38,0	16,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,40	40,0	18,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,50	40,0	18,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,60	43,0	20,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,70	43,0	20,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,80	46,0	22,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
1,90	46,0	22,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
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2,20	53,0	27,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
2,30	53,0	27,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
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2,80	61,0	33,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
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3,20	65,0	36,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
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4,10	75,0	43,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,20	75,0	43,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,30	80,0	47,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
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4,50	80,0	47,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,60	80,0	47,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,70	80,0	47,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,80	86,0	52,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
4,90	86,0	52,0	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

∅ mm	L1 mm	L2 mm	 	
5,00	86,0	52,0	281 050 E	10
5,10	86,0	52,0	281 051 E	10
5,20	86,0	52,0	281 052 E	10
5,30	86,0	52,0	281 053 E	10
5,40	93,0	57,0	281 054 E	10
5,50	93,0	57,0	281 055 E	10
5,60	93,0	57,0	281 056 E	10
5,70	93,0	57,0	281 057 E	10
5,80	93,0	57,0	281 058 E	10
5,90	93,0	57,0	281 059 E	10
6,00	93,0	57,0	281 060 E	10
6,10	101,0	63,0	281 061 E	10
6,20	101,0	63,0	281 062 E	10
6,30	101,0	63,0	281 063 E	10
6,40	101,0	63,0	281 064 E	10
6,50	101,0	63,0	281 065 E	10
6,60	101,0	63,0	281 066 E	10
6,70	101,0	63,0	281 067 E	10
6,80	109,0	69,0	281 068 E	10
6,90	109,0	69,0	281 069 E	10
7,00	109,0	69,0	281 070 E	10
7,10	109,0	69,0	281 071 E	10
7,20	109,0	69,0	281 072 E	10
7,30	109,0	69,0	281 073 E	10
7,40	109,0	69,0	281 074 E	10
7,50	109,0	69,0	281 075 E	10
7,60	117,0	75,0	281 076 E	10
7,70	117,0	75,0	281 077 E	10
7,80	117,0	75,0	281 078 E	10
7,90	117,0	75,0	281 079 E	10
8,00	117,0	75,0	281 080 E	10
8,10	117,0	75,0	281 081 E	10
8,20	117,0	75,0	281 082 E	10
8,30	117,0	75,0	281 083 E	10
8,40	117,0	75,0	281 084 E	10
8,50	117,0	75,0	281 085 E	10
8,60	125,0	81,0	281 086 E	10
8,70	125,0	81,0	281 087 E	10
8,80	125,0	81,0	281 088 E	10
8,90	125,0	81,0	281 089 E	10
9,00	125,0	81,0	281 090 E	10
9,10	125,0	81,0	281 091 E	10
9,20	125,0	81,0	281 092 E	10
9,30	125,0	81,0	281 093 E	10
9,40	125,0	81,0	281 094 E	10
9,50	125,0	81,0	281 095 E	10
9,60	133,0	87,0	281 096 E	10
9,70	133,0	87,0	281 097 E	10
9,80	133,0	87,0	281 098 E	10
9,90	133,0	87,0	281 099 E	10
10,00	133,0	87,0	281 100 E	10
10,20	133,0	87,0	281 102 E	10
10,50	133,0	87,0	281 105 E	5
11,00	142,0	94,0	281 110 E	5
11,50	142,0	94,0	281 115 E	5
12,00	151,0	101,0	281 120 E	5
12,50	151,0	101,0	281 125 E	5
13,00	151,0	101,0	281 130 E	5
13,50	160,0	108,0	281 135 E	5
14,00	160,0	108,0	281 140 E	5
14,50	169,0	114,0	281 145 E	5
15,00	169,0	114,0	281 150 E	5
15,50	178,0	120,0	281 155 E	5
16,00	178,0	120,0	281 160 E	5

 	
281 050 EF	10
281 051 EF	10
281 052 EF	10
281 053 EF	10
281 054 EF	10
281 055 EF	10
281 056 EF	10
281 057 EF	10
281 058 EF	10
281 059 EF	10
281 060 EF	10
281 061 EF	10
281 062 EF	10
281 063 EF	10
281 064 EF	10
281 065 EF	10
281 066 EF	10
281 067 EF	10
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281 070 EF	10
281 071 EF	10
281 072 EF	10
281 073 EF	10
281 074 EF	10
281 075 EF	10
281 076 EF	10
281 077 EF	10
281 078 EF	10
281 079 EF	10
281 080 EF	10
281 081 EF	10
281 082 EF	10
281 083 EF	10
281 084 EF	10
281 085 EF	10
281 086 EF	10
281 087 EF	10
281 088 EF	10
281 089 EF	10
281 090 EF	10
281 091 EF	10
281 092 EF	10
281 093 EF	10
281 094 EF	10
281 095 EF	10
281 096 EF	10
281 097 EF	10
281 098 EF	10
281 099 EF	10
281 100 EF	10
281 102 EF	10
281 105 EF	5
281 110 EF	5
281 115 EF	5
281 120 EF	5
281 125 EF	5
281 130 EF	5
281 135 EF	5
281 140 EF	5
281 145 EF	5
281 150 EF	5
281 155 EF	5
281 160 EF	5



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

	HSSE Co 8	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



281 214 E



281 214 EF



281 214 ERO

### i

## Coolants and lubricants

RUKO high performance coolants and lubricants with outstanding cooling and anti-separation qualities. Increases tool life even with hard and brittle materials. High heat resistance ensures good lubrication and cooling, even at high temperatures. Good adhesion quality improves lubrication.

For all standard metal working processes, such as drilling, thread cutting, countersinking, deburring, sawing, turning, milling, grinding.

Perfectly matched for use with RUKO metal working tools.  
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DIN 338 · VA

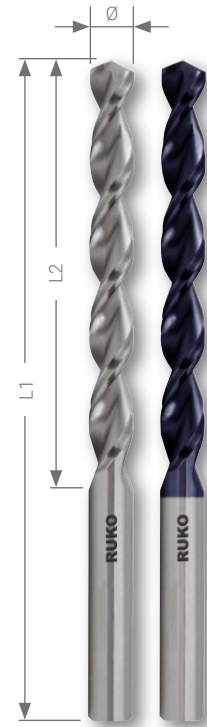




## Twist drills DIN 338 UTL 3000, HSSE-Co 5 ground

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.

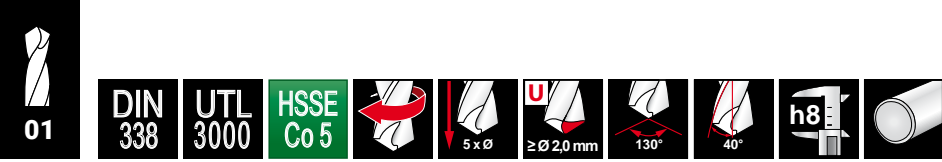


Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	Brass
Steel (N/mm <sup>2</sup> ) < 1100	■	■	Bronze
Steel (N/mm <sup>2</sup> ) < 1300		□	Plastics
Rust-resistant steel	■	■	Cast iron
Aluminium	■	■	Titanium alloyed

Ø mm	L1 mm	L2 mm	HSSE Co 5		HSSE Co 5	TITAN	
1,00	34,0	12,0	229 010	10	229 010 F		10
1,50	40,0	18,0	229 015	10	229 015 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
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

Ø mm	L1 mm	L2 mm	HSSE Co 5		TAIN	
						
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
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



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

Ø mm	L1 mm	L2 mm	HSSE Co 5	Icons	HSSE Co 5	TiAIN	Icons
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 UTL 3000, HSSE-Co 5 ground

	HSSE Co 5	HSSE Co 5 TiAIN
19-piece set of twist drills DIN 338 type UTL 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 UTL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in steel case	229 215	229 215 F



	HSSE Co 5	HSSE Co 5 TiAIN
19-piece set of twist drills DIN 338 type UTL 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 UTL 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







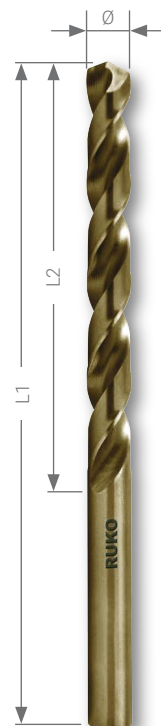
DIN 338 · UTL 3000





## 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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100	■	Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel	■	Cast iron	□
Aluminium	■	Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSSE Co 5		
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
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

Ø mm	L1 mm	L2 mm	HSSE Co 5		
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
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



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

Ø mm	L1 mm	L2 mm	HSSE Co 5		Ø mm	L1 mm	L2 mm	HSSE Co 5	
7,70	117,0	75,0	215 077	10	10,90	142,0	94,0	215 109	5
7,75	117,0	75,0	215 0775	10	11,00	142,0	94,0	215 110	5
7,80	117,0	75,0	215 078	10	11,10	142,0	94,0	215 111	5
7,90	117,0	75,0	215 079	10	11,20	142,0	94,0	215 112	5
8,00	117,0	75,0	215 080	10	11,30	142,0	94,0	215 113	5
8,10	117,0	75,0	215 081	10	11,40	142,0	94,0	215 114	5
8,20	117,0	75,0	215 082	10	11,50	142,0	94,0	215 115	5
8,25	117,0	75,0	215 0825	10	11,60	142,0	94,0	215 116	5
8,30	117,0	75,0	215 083	10	11,70	142,0	94,0	215 117	5
8,40	117,0	75,0	215 084	10	11,80	142,0	94,0	215 118	5
8,50	117,0	75,0	215 085	10	11,90	151,0	101,0	215 119	5
8,60	125,0	81,0	215 086	10	12,00	151,0	101,0	215 120	5
8,70	125,0	81,0	215 087	10	12,10	151,0	101,0	215 121	5
8,75	125,0	81,0	215 0875	10	12,20	151,0	101,0	215 122	5
8,80	125,0	81,0	215 088	10	12,30	151,0	101,0	215 123	5
8,90	125,0	81,0	215 089	10	12,40	151,0	101,0	215 124	5
9,00	125,0	81,0	215 090	10	12,50	151,0	101,0	215 125	5
9,10	125,0	81,0	215 091	10	12,60	151,0	101,0	215 126	5
9,20	125,0	81,0	215 092	10	12,70	151,0	101,0	215 127	5
9,25	125,0	81,0	215 0925	10	12,80	151,0	101,0	215 128	5
9,30	125,0	81,0	215 093	10	12,90	151,0	101,0	215 129	5
9,40	125,0	81,0	215 094	10	13,00	151,0	101,0	215 130	5
9,50	125,0	81,0	215 095	10	13,50	160,0	108,0	215 135	5
9,60	133,0	87,0	215 096	10	14,00	160,0	108,0	215 140	5
9,70	133,0	87,0	215 097	10	14,50	169,0	114,0	215 145	5
9,75	133,0	87,0	215 0975	10	15,00	169,0	114,0	215 150	5
9,80	133,0	87,0	215 098	10	15,50	178,0	120,0	215 155	5
9,90	133,0	87,0	215 099	10	16,00	178,0	120,0	215 160	5
10,00	133,0	87,0	215 100	10	16,50	184,0	125,0	215 165	1
10,10	133,0	87,0	215 101	10	17,00	184,0	125,0	215 170	1
10,20	133,0	87,0	215 102	10	17,50	191,0	130,0	215 175	1
10,30	133,0	87,0	215 103	10	18,00	191,0	130,0	215 180	1
10,40	133,0	87,0	215 104	10	18,50	198,0	135,0	215 185	1
10,50	133,0	87,0	215 105	5	19,00	198,0	135,0	215 190	1
10,60	133,0	87,0	215 106	5	19,50	205,0	140,0	215 195	1
10,70	142,0	94,0	215 107	5	20,00	205,0	140,0	215 210	1
10,80	142,0	94,0	215 108	5	—	—	—	—	—

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

	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



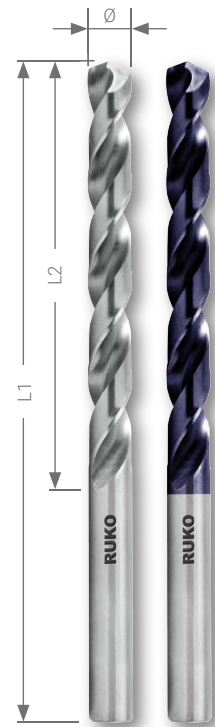


## Twist drills DIN 338 type VA, HSSE-Co 5 ground

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> ) < 900	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Brass	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Steel (N/mm <sup>2</sup> ) < 1100	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Bronze	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Steel (N/mm <sup>2</sup> ) < 1300	<input type="checkbox"/>	<input type="checkbox"/>	Plastics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rust-resistant steel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cast iron	<input type="checkbox"/>	<input type="checkbox"/>
Aluminium	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Titanium alloyed	<input type="checkbox"/>	<input type="checkbox"/>



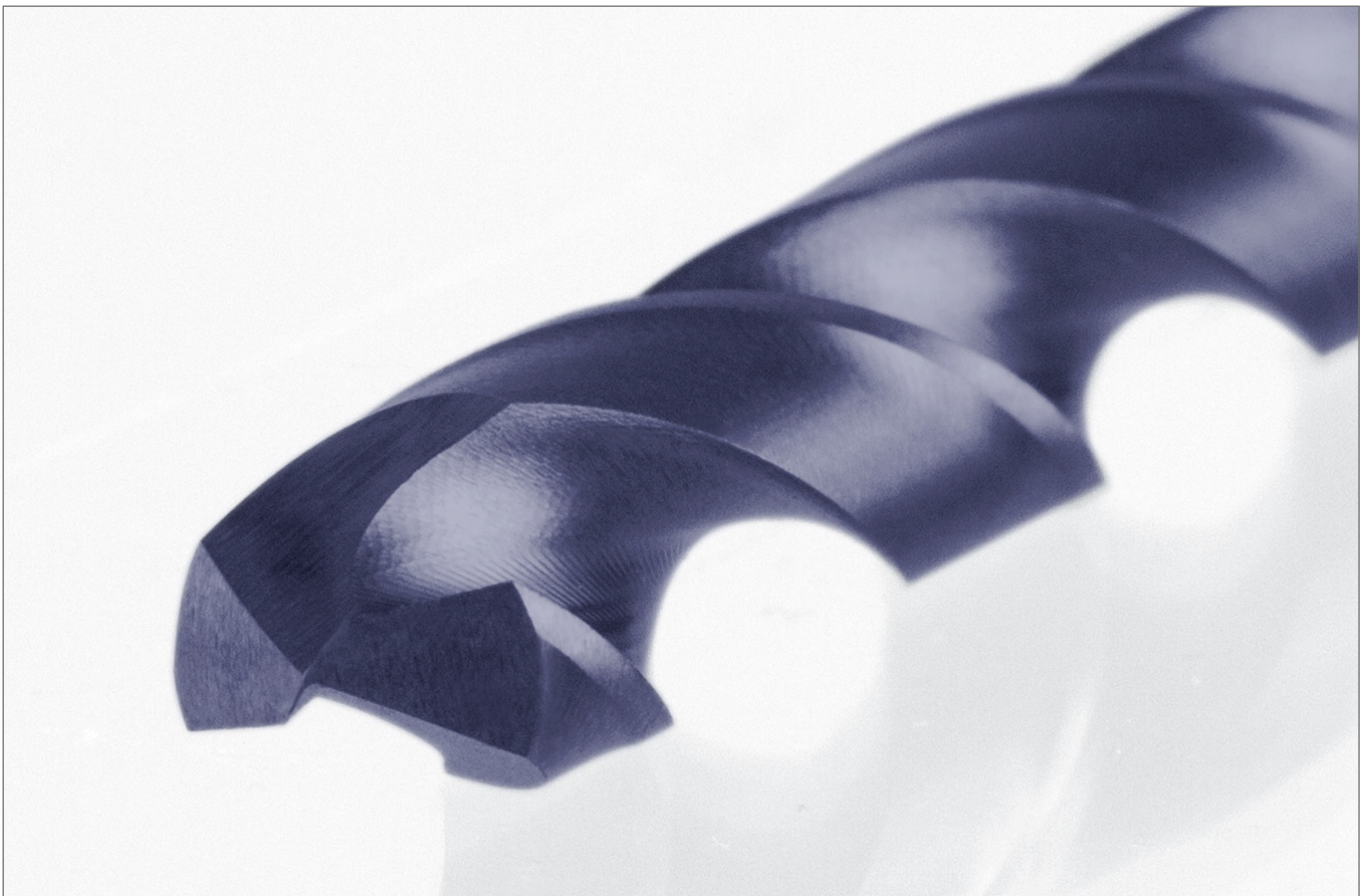
Ø mm	L1 mm	L2 mm		
1,00	34,0	12,0	215 010 Z	10
1,50	40,0	18,0	215 015 Z	10
1,90	46,0	22,0	215 019 Z	10
2,00	49,0	24,0	215 020 Z	10
2,30	53,0	27,0	215 023 Z	10
2,50	57,0	30,0	215 025 Z	10
2,60	57,0	30,0	215 026 Z	10
3,00	61,0	33,0	215 030 Z	10
3,20	65,0	36,0	215 032 Z	10
3,30	65,0	36,0	215 033 Z	10
3,40	70,0	39,0	215 034 Z	10
3,50	70,0	39,0	215 035 Z	10
4,00	75,0	43,0	215 040 Z	10
4,20	75,0	43,0	215 042 Z	10
4,30	80,0	47,0	215 043 Z	10
4,50	80,0	47,0	215 045 Z	10
5,00	86,0	52,0	215 050 Z	10
5,10	86,0	52,0	215 051 Z	10
5,20	86,0	52,0	215 052 Z	10
5,30	86,0	52,0	215 053 Z	10
5,50	93,0	57,0	215 055 Z	10
6,00	93,0	57,0	215 060 Z	10
6,10	101,0	63,0	215 061 Z	10
6,20	101,0	63,0	215 062 Z	10
6,40	101,0	63,0	215 064 Z	10
6,50	101,0	63,0	215 065 Z	10
6,80	109,0	69,0	215 068 Z	10
7,00	109,0	69,0	215 070 Z	10
7,50	109,0	69,0	215 075 Z	10
8,00	117,0	75,0	215 080 Z	10
8,50	117,0	75,0	215 085 Z	10
9,00	125,0	81,0	215 090 Z	10
9,50	125,0	81,0	215 095 Z	10
9,80	133,0	87,0	215 098 Z	10
10,00	133,0	87,0	215 100 Z	10
10,50	133,0	87,0	215 105 Z	5
11,00	142,0	94,0	215 110 Z	5
11,50	142,0	94,0	215 115 Z	5
12,00	151,0	101,0	215 120 Z	5
12,50	151,0	101,0	215 125 Z	5
13,00	151,0	101,0	215 130 Z	5
13,50	160,0	108,0	215 135 Z	5
14,00	160,0	108,0	215 140 Z	5

215 010 F		10
215 015 F		10
215 019 F		10
215 020 F		10
215 023 F		10
215 025 F		10
215 026 F		10
215 030 F		10
215 032 F		10
215 033 F		10
215 034 F		10
215 035 F		10
215 040 F		10
215 042 F		10
215 043 F		10
215 045 F		10
215 050 F		10
215 051 F		10
215 052 F		10
215 053 F		10
215 055 F		10
215 060 F		10
215 061 F		10
215 062 F		10
215 064 F		10
215 065 F		10
215 068 F		10
215 070 F		10
215 075 F		10
215 080 F		10
215 085 F		10
215 090 F		10
215 095 F		10
215 098 F		10
215 100 F		10
215 105 F		5
215 110 F		5
215 115 F		5
215 120 F		5
215 125 F		5
215 130 F		5
215 135 F		5
215 140 F		5



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

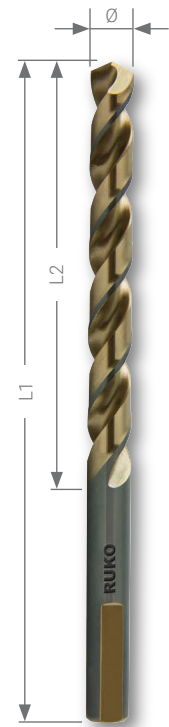
	HSSE Co 5	HSSE Co 5 TiAIN
19-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in plastic case	215 214 ZRO	215 214 FRO
25-piece set of twist drills DIN 338 type VA Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in plastic case	215 215 ZRO	215 215 FRO







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



- » 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.





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

			
Steel (N/mm2) < 900	■	Brass	■
Steel (N/mm2) < 1100	■	Bronze	□
Steel (N/mm2) < 1300		Plastics	■
Rust-resistant steel	■	Cast iron	□
Aluminium	■	Titanium alloyed	

Packing unit: in plastic box

Ø mm	L1 mm	L2 mm	HSSE Co 5		
1,00	34,0	12,0	228 010		10
1,50	40,0	18,0	228 015		10
2,00	49,0	24,0	228 020		10
2,50	57,0	30,0	228 025		10
3,00	61,0	33,0	228 030		10
3,30	65,0	36,0	228 033		10
3,50	70,0	39,0	228 035		10
4,00	75,0	43,0	228 040		10
4,20	75,0	43,0	228 042		10
4,50	80,0	47,0	228 045		10
5,00	86,0	52,0	228 050		10
5,50	93,0	57,0	228 055		10
6,00	93,0	57,0	228 060		10
6,50	101,0	63,0	228 065		10
6,80	109,0	69,0	228 068		10

Ø mm	L1 mm	L2 mm	HSSE Co 5		
7,00	109,0	69,0	228 070		10
7,50	109,0	69,0	228 075		10
8,00	117,0	75,0	228 080		10
8,50	117,0	75,0	228 085		10
9,00	125,0	81,0	228 090		10
9,50	125,0	81,0	228 095		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

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

	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





DIN 338 · UNI





## 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> ) < 900	■	■	■	Brass	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100		□	■	Bronze	□	□	■
Steel (N/mm <sup>2</sup> ) < 1300				Plastics	■	■	■
Rust-resistant steel		□	■	Cast iron	□	□	□
Aluminium	■		■	Titanium alloyed			

Ø mm	L1 mm	L2 mm	HSS-G		HSS-G TIN		HSS-G TITAN	
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
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



Ø mm	L1 mm	L2 mm	HSS-G		HSS-G TIN		HSS-G TiAIN	
								
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	10	258 103 T	10	258 103 F	10
10,40	133,0	87,0	258 104	10	258 104 T	10	258 104 F	10
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
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



### Twist drills DIN 338 TL 3000, HSS ground

Ø mm	L1 mm	L2 mm	HSS-G		HSS-G TIN		HSS-G TiAIN	
			Icon	Icon	Icon	Icon		
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

	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

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.



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




Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100		Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel		Cast iron	
Aluminium	■	Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G	
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

	HSS-G 
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



214 614



214 615



214 614 RO





## 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.

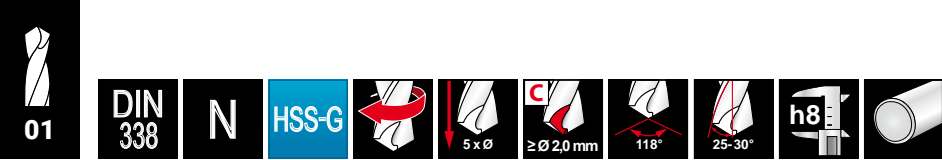


Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100			□
Steel (N/mm <sup>2</sup> ) < 1300			
Rust-resistant steel			□
Aluminium	■	■	

Brass	■	■	■
Bronze	□	□	□
Plastics	■	■	■
Cast iron	□	□	□
Titanium alloyed			

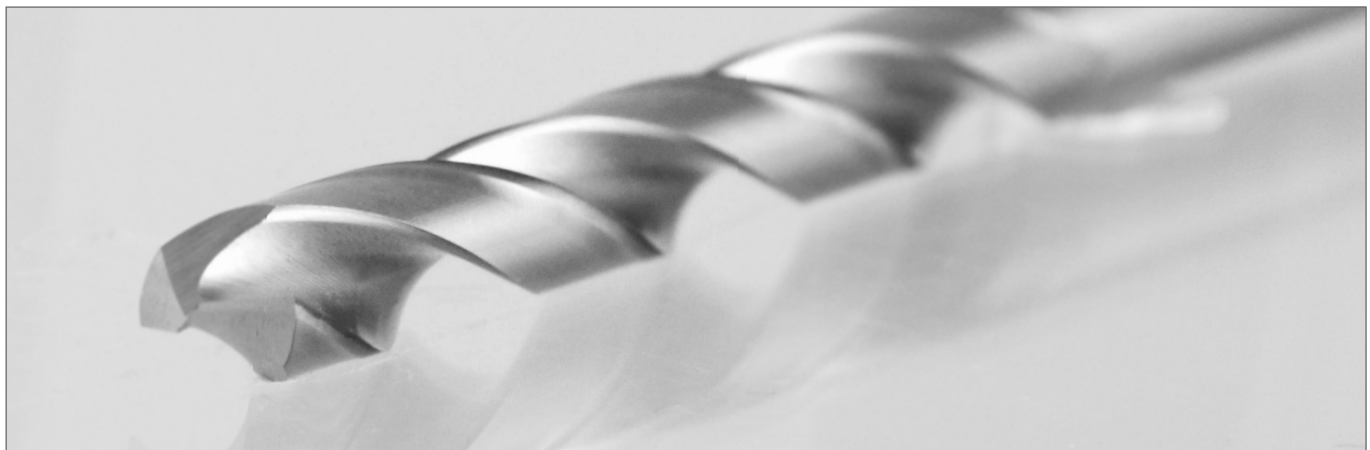
Ø mm	L1 mm	L2 mm	HSS-G		HSS-G		HSS-G	
			Code	Pack	Code	Pack	Code	Pack
0,30	19,0	3,0	214 003	10	214 003 S	10	250 003 T	10
0,40	20,0	5,0	214 004	10	214 004 S	10	250 004 T	10
0,50	22,0	6,0	214 005	10	214 005 S	10	250 005 T	10
0,60	24,0	7,0	214 006	10	214 006 S	10	250 006 T	10
0,70	28,0	9,0	214 007	10	214 007 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
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



## Twist drills DIN 338 type N, HSS ground




Ø mm	L1 mm	L2 mm	HSS-G		HSS-G		HSS-G	TIN	
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	
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	

Ø mm	L1 mm	L2 mm	HSS-G		HSS-G		HSS-G TiN	
			Icon 1	Icon 2	Icon 1	Icon 2	Icon 1	Icon 2
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	214 201	1	—	—	—	—








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

	HSS-G 	HSS-G 	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	–	–



	HSS-G 	HSS-G 	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 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







## 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> ) < 900		Brass	
Steel (N/mm <sup>2</sup> ) < 1100		Bronze	
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	
Rust-resistant steel		Cast iron	
Aluminium		Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G		
1,00	34,0	12,0	214 010 Li	10	
1,50	40,0	18,0	214 015 Li	10	
2,00	49,0	24,0	214 020 Li	10	
2,50	57,0	30,0	214 025 Li	10	
3,00	61,0	33,0	214 030 Li	10	
3,20	65,0	36,0	214 032 Li	10	
3,50	70,0	39,0	214 035 Li	10	
4,00	75,0	43,0	214 040 Li	10	
4,20	75,0	43,0	214 042 Li	10	
4,50	80,0	47,0	214 045 Li	10	
4,80	86,0	52,0	214 048 Li	10	
5,00	86,0	52,0	214 050 Li	10	
5,50	93,0	57,0	214 055 Li	10	
6,00	93,0	57,0	214 060 Li	10	

Ø mm	L1 mm	L2 mm	HSS-G		
6,50	101,0	63,0	214 065 Li	10	
7,00	109,0	69,0	214 070 Li	10	
7,50	109,0	69,0	214 075 Li	10	
8,00	117,0	75,0	214 080 Li	10	
8,50	117,0	75,0	214 085 Li	10	
9,00	125,0	81,0	214 090 Li	10	
9,50	125,0	81,0	214 095 Li	10	
10,00	133,0	87,0	214 100 Li	10	
10,50	133,0	87,0	214 105 Li	5	
11,00	142,0	94,0	214 110 Li	5	
11,50	142,0	94,0	214 115 Li	5	
12,00	151,0	101,0	214 120 Li	5	
12,50	151,0	101,0	214 125 Li	5	
13,00	151,0	101,0	214 130 Li	5	

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

	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	214 214 Li
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
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
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

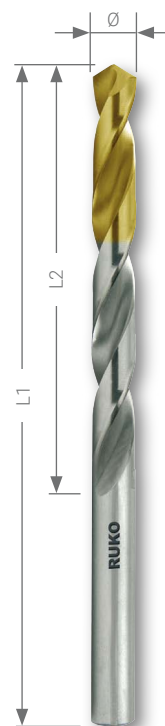




## Twist drill DIN 338 type N, HSS-G with TiN-coated tips

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.

The titanium nitride coating is a universally usable standard coating. It has a 300-400 % longer service life than non-coated materials. Cooling is recommended.



Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100	□	Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel	□	Cast iron	□
Aluminium		Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G	
1,00	34,0	12,0	2501 010 T	10
1,50	40,0	18,0	2501 015 T	10
1,60	43,0	20,0	2501 016 T	10
2,00	49,0	24,0	2501 020 T	10
2,10	49,0	24,0	2501 021 T	10
2,50	57,0	30,0	2501 025 T	10
3,00	61,0	33,0	2501 030 T	10
3,30	65,0	36,0	2501 033 T	10
3,50	70,0	39,0	2501 035 T	10
4,00	75,0	43,0	2501 040 T	10
4,20	75,0	43,0	2501 042 T	10
4,50	80,0	47,0	2501 045 T	10
5,00	86,0	52,0	2501 050 T	10
5,50	93,0	57,0	2501 055 T	10
6,00	93,0	57,0	2501 060 T	10
6,50	101,0	63,0	2501 065 T	10

Ø mm	L1 mm	L2 mm	HSS-G	
6,80	109,0	69,0	2501 068 T	10
7,00	109,0	69,0	2501 070 T	10
7,50	109,0	69,0	2501 075 T	10
8,00	117,0	75,0	2501 080 T	10
8,50	117,0	75,0	2501 085 T	10
9,00	125,0	81,0	2501 090 T	10
9,50	125,0	81,0	2501 095 T	10
10,00	133,0	87,0	2501 100 T	10
10,20	133,0	87,0	2501 102 T	10
10,50	133,0	87,0	2501 105 T	5
11,00	142,0	94,0	2501 110 T	5
11,50	142,0	94,0	2501 115 T	5
12,00	151,0	101,0	2501 120 T	5
12,50	151,0	101,0	2501 125 T	5
13,00	151,0	101,0	2501 130 T	5

## Twist drill sets DIN 338 type N, HSS-G with TiN-coated tips

	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	2501 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	2501 215 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	2501 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	2501 215 TRO





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

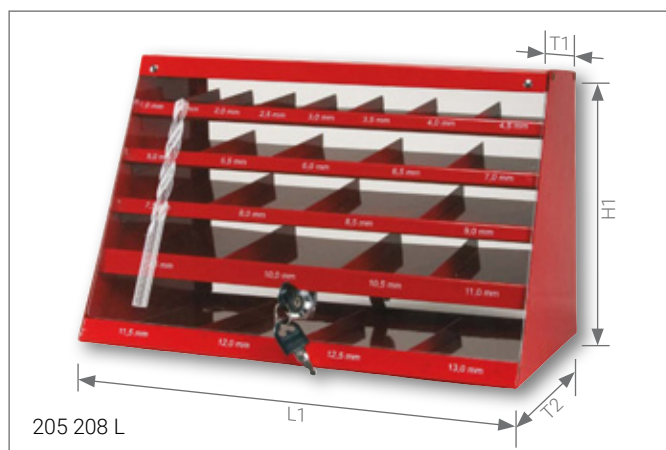
	HSS-R	HSS-G	HSSE Co 5
91-piece set of twist drills DIN 338 Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	205 223	214 223	215 223

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

	HSS-G	HSSE Co 5
Consisting of 170 twist drills DIN 338 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	215 200

## Twist drill cabinet, DIN 338 type N and type VA

	HSS-R	HSS-G	HSSE Co 5
Drill cabinet consisting of 570 twist drills DIN 338 50 pcs Ø 1,0 - 2,5 mm in increments of 0,5 mm 30 pcs Ø 3,0 - 5,5 mm in increments of 0,5 mm 20 pcs Ø 6,0 - 7,5 mm in increments of 0,5 mm 10 pcs Ø 8,0 - 13,0 mm in increments of 0,5 mm	205 208	214 208	215 208
Drill cabinet empty Measurements: H1: 46,5 cm, L1: 39,0 cm, T1: 9,5 cm, T2: 20,0 cm 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 Measurements: H1: 23,0 cm, L1: 37,0 cm, T1: 9,5 cm, T2: 20,0 cm Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm	205 208 L		





## 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/mm2) < 900		Brass	
Steel (N/mm2) < 1100		Bronze	
Steel (N/mm2) < 1300		Plastics	
Rust-resistant steel		Cast iron	
Aluminium		Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-R	
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
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

Ø mm	L1 mm	L2 mm	HSS-R	
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
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

Ø mm	L1 mm	L2 mm	HSS-R	
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
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

Ø mm	L1 mm	L2 mm	HSS-R	
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

	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



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

Ideal solution for larger diameter hole drilling in all commonly used drilling machines.



Steel (N/mm <sup>2</sup> ) < 900	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100			■
Steel (N/mm <sup>2</sup> ) < 1300			
Rust-resistant steel		□	■
Aluminium	□	■	■

Brass	□	■	■
Bronze	■	□	
Plastics		■	■
Cast iron	□	□	□
Titanium alloyed			

Ø1 mm	L1 mm	Ø2 mm	L2 mm			
10,50	133,0	10,0	30,0	200 105	1	
11,00	142,0	10,0	30,0	200 110	1	
11,50	142,0	10,0	30,0	200 115	1	
12,00	151,0	10,0	30,0	200 120	1	
12,50	151,0	10,0	30,0	200 125	1	
13,00	151,0	10,0	30,0	200 130	1	
13,50	160,0	10,0	30,0	200 135	1	
14,00	160,0	10,0	30,0	200 140	1	
14,50	169,0	10,0	30,0	200 145	1	
15,00	169,0	10,0	30,0	200 150	1	
15,50	178,0	10,0	30,0	200 155	1	
16,00	178,0	10,0	30,0	200 160	1	
16,50	184,0	13,0	35,0	200 165	1	
17,00	184,0	13,0	35,0	200 170	1	
17,50	191,0	13,0	35,0	200 175	1	
18,00	191,0	13,0	35,0	200 180	1	
18,50	198,0	13,0	35,0	200 185	1	
19,00	198,0	13,0	35,0	200 190	1	
19,50	205,0	13,0	35,0	200 195	1	
20,00	205,0	13,0	35,0	200 200	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	

200 4 105	1
200 4 110	1
200 4 115	1
200 4 120	1
200 4 125	1
200 4 130	1
200 4 135	1
200 4 140	1
200 4 145	1
200 4 150	1
200 4 155	1
200 4 160	1
200 4 165	1
200 4 170	1
200 4 175	1
200 4 180	1
200 4 185	1
200 4 190	1
200 4 195	1
200 4 200	1
—	—
—	—
—	—

200 5 105	1
200 5 110	1
200 5 115	1
200 5 120	1
200 5 125	1
200 5 130	1
200 5 135	1
200 5 140	1
200 5 145	1
200 5 150	1
200 5 155	1
200 5 160	1
200 5 165	1
200 5 170	1
200 5 175	1
200 5 180	1
200 5 185	1
200 5 190	1
200 5 195	1
200 5 200	1
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## 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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100	■	Bronze	■
Steel (N/mm <sup>2</sup> ) < 1300	■	Plastics	■
Rust-resistant steel	■	Cast iron	■
Aluminium	■	Titanium alloyed	■

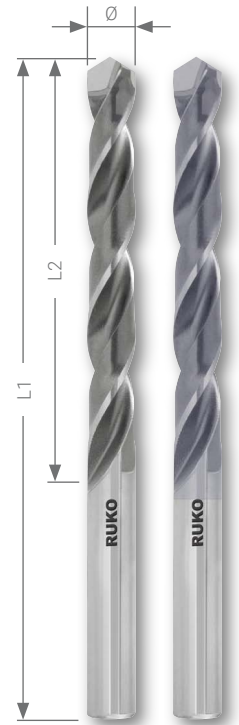
Ø mm	L1 mm	L2 mm	TC	TiAlN	
3,00	61,0	33,0	814 030		1
3,50	70,0	39,0	814 035		1
4,00	75,0	43,0	814 040		1
4,50	80,0	47,0	814 045		1
5,00	86,0	52,0	814 050		1
5,50	93,0	57,0	814 055		1
6,00	93,0	57,0	814 060		1
6,50	101,0	63,0	814 065		1
7,00	109,0	69,0	814 070		1
7,50	109,0	69,0	814 075		1
8,00	117,0	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 DIN 338 Type N, with brazed-on TC cutting inserts

High-performance 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. Highly recommended for machining cast iron.



Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	Brass	■	■
Steel (N/mm <sup>2</sup> ) < 1100	■	■	Bronze	□	■
Steel (N/mm <sup>2</sup> ) < 1300	□	□	Plastics	■	■
Rust-resistant steel	■	■	Cast iron	■	■
Aluminium	■	■	Titanium alloyed	□	■



Ø mm	L1 mm	L2 mm		
2,00	49,0	24,0	815 020	1
2,50	57,0	30,0	815 025	1
3,00	61,0	33,0	815 030	1
3,30	65,0	36,0	815 033	1
3,50	70,0	39,0	815 035	1
4,00	75,0	43,0	815 040	1
4,20	75,0	43,0	815 042	1
4,50	80,0	47,0	815 045	1
5,00	86,0	52,0	815 050	1
5,50	93,0	57,0	815 055	1
6,00	93,0	57,0	815 060	1
6,50	101,0	63,0	815 065	1
6,80	109,0	69,0	815 068	1
7,00	109,0	69,0	815 070	1
7,50	109,0	69,0	815 075	1
8,00	117,0	75,0	815 080	1
8,50	117,0	75,0	815 085	1
9,00	125,0	81,0	815 090	1
9,50	125,0	81,0	815 095	1
10,00	133,0	87,0	815 100	1
10,20	133,0	87,0	815 102	1
10,50	133,0	87,0	815 105	1
11,00	142,0	94,0	815 110	1
11,50	142,0	94,0	815 115	1
12,00	151,0	101,0	815 120	1
12,50	151,0	101,0	815 125	1
13,00	151,0	101,0	815 130	1

815 020 C		1
815 025 C		1
815 030 C		1
815 033 C		1
815 035 C		1
815 040 C		1
815 042 C		1
815 045 C		1
815 050 C		1
815 055 C		1
815 060 C		1
815 065 C		1
815 068 C		1
815 070 C		1
815 075 C		1
815 080 C		1
815 085 C		1
815 090 C		1
815 095 C		1
815 100 C		1
815 102 C		1
815 105 C		1
815 110 C		1
815 115 C		1
815 120 C		1
815 125 C		1
815 130 C		1





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

	 TC	 TC
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





## 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> ) < 900	■	■	■	Brass	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100		□	■	Bronze	□	□	■
Steel (N/mm <sup>2</sup> ) < 1300				Plastics	■	■	■
Rust-resistant steel		□	■	Cast iron	□	□	□
Aluminium	■		■	Titanium alloyed			

Ø inch	Ø mm	L1 inch	L2 inch	HSS-G		HSS-G	TiN		HSS-G	TiAlN	
1/16	1,59	1 7/8	7/8	258 801	10	258 801 T	10	258 801 F	10		
5/64	1,98	2	1	258 802	10	258 802 T	10	258 802 F	10		
3/32	2,38	2 1/4	1 1/4	258 803	10	258 803 T	10	258 803 F	10		
7/64	2,78	2 5/8	1 1/2	258 804	10	258 804 T	10	258 804 F	10		
1/8	3,18	2 3/4	1 5/8	258 805	10	258 805 T	10	258 805 F	10		
9/64	3,57	2 7/8	1 3/4	258 806	10	258 806 T	10	258 806 F	10		
5/32	3,97	3 1/8	2	258 807	10	258 807 T	10	258 807 F	10		
11/64	4,37	3 1/4	2 1/8	258 808	10	258 808 T	10	258 808 F	10		
3/16	4,76	3 1/2	2 5/16	258 809	10	258 809 T	10	258 809 F	10		
13/64	5,16	3 5/8	2 7/16	258 810	10	258 810 T	10	258 810 F	10		
7/32	5,56	3 3/4	2 1/2	258 811	10	258 811 T	10	258 811 F	10		
15/64	5,95	3 7/8	2 5/8	258 812	10	258 812 T	10	258 812 F	10		
1/4	6,35	4	2 3/4	258 813	10	258 813 T	10	258 813 F	10		
17/64	6,75	4 1/8	2 7/8	258 814	10	258 814 T	10	258 814 F	10		
9/32	7,14	4 1/4	2 15/16	258 815	10	258 815 T	10	258 815 F	10		
19/64	7,54	4 3/8	3 1/16	258 816	10	258 816 T	10	258 816 F	10		
5/16	7,94	4 1/2	3 3/16	258 817	10	258 817 T	10	258 817 F	10		
21/64	8,33	4 5/8	3 5/16	258 818	10	258 818 T	10	258 818 F	10		
11/32	8,73	4 3/4	3 7/16	258 819	10	258 819 T	10	258 819 F	10		
23/64	9,13	4 7/8	3 1/2	258 820	10	258 820 T	10	258 820 F	10		
3/8	9,53	5	3 5/8	258 821	10	258 821 T	10	258 821 F	10		
25/64	9,92	5 1/8	3 3/4	258 822	10	258 822 T	10	258 822 F	10		
13/32	10,32	5 1/4	3 7/8	258 823	10	258 823 T	10	258 823 F	10		
27/64	10,72	5 3/8	3 15/16	258 824	5	258 824 T	5	258 824 F	5		
7/16	11,11	5 1/2	4 1/16	258 825	5	258 825 T	5	258 825 F	5		
29/64	11,51	5 5/8	4 3/16	258 826	5	258 826 T	5	258 826 F	5		
15/32	11,91	5 3/4	4 5/16	258 827	5	258 827 T	5	258 827 F	5		
31/64	12,30	5 7/8	4 3/8	258 828	5	258 828 T	5	258 828 F	5		
1/2	12,70	6	4 1/2	258 829	5	258 829 T	5	258 829 F	5		

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

	HSS-G	HSS-G TiN	HSS-G TiAlN
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
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



## Twist drills DIN 338 UTL 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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100	■	Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel	■	Cast iron	□
Aluminium	■	Titanium alloyed	



Ø inch	Ø mm	L1 inch	L2 inch	HSSE Co 5	
1/16	1,59	1 7/8	7/8	229 801	10
5/64	1,98	2	1	229 802	10
3/32	2,38	2 1/4	1 1/4	229 803	10
7/64	2,78	2 5/8	1 1/2	229 804	10
1/8	3,18	2 3/4	1 5/8	229 805	10
9/64	3,57	2 7/8	1 3/4	229 806	10
5/32	3,97	3 1/8	2	229 807	10
11/64	4,37	3 1/4	2 1/8	229 808	10
3/16	4,76	3 1/2	2 5/16	229 809	10
13/64	5,16	3 5/8	2 7/16	229 810	10
7/32	5,56	3 3/4	2 1/2	229 811	10
15/64	5,95	3 7/8	2 5/8	229 812	10
1/4	6,35	4	2 3/4	229 813	10
17/64	6,75	4 1/8	2 7/8	229 814	10
9/32	7,14	4 1/4	2 15/16	229 815	10
19/64	7,54	4 3/8	3 1/16	229 816	10
5/16	7,94	4 1/2	3 3/16	229 817	10
21/64	8,33	4 5/8	3 5/16	229 818	10
11/32	8,73	4 3/4	3 7/16	229 819	10
23/64	9,13	4 7/8	3 1/2	229 820	10
3/8	9,53	5	3 5/8	229 821	10
25/64	9,92	5 1/8	3 3/4	229 822	10
13/32	10,32	5 1/4	3 7/8	229 823	10
27/64	10,72	5 3/8	3 15/16	229 824	5
7/16	11,11	5 1/2	4 1/16	229 825	5
29/64	11,51	5 5/8	4 3/16	229 826	5
15/32	11,91	5 3/4	4 5/16	229 827	5
31/64	12,30	5 7/8	4 3/8	229 828	5
1/2	12,70	6	4 1/2	229 829	5

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

	HSSE Co 5
21-piece set of twist drills DIN 338 UTL 3000, in fractional sizes Ø 1/16" up to 3/8" in increments of 1/64" in steel case	229 850
29-piece set of twist drills DIN 338 UTL 3000, in fractional sizes Ø 1/16" up to 1/2" in increments of 1/64" in steel case	229 851





## 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/mm2) < 900	■	Brass	■
Steel (N/mm2) < 1100	■	Bronze	□
Steel (N/mm2) < 1300		Plastics	■
Rust-resistant steel	■	Cast iron	□
Aluminium	■	Titanium alloyed	



Ø mm	L1 mm	L1 inch	L2 inch		
1/16	1,59	1 7/8	7/8	215 801	10
5/64	1,98	2	1	215 802	10
3/32	2,38	2 1/4	1 1/4	215 803	10
7/64	2,78	2 5/8	1 1/2	215 804	10
1/8	3,18	2 3/4	1 5/8	215 805	10
9/64	3,57	2 7/8	1 3/4	215 806	10
5/32	3,97	3 1/8	2	215 807	10
11/64	4,37	3 1/4	2 1/8	215 808	10
3/16	4,76	3 1/2	2 5/16	215 809	10
13/64	5,16	3 5/8	2 7/16	215 810	10
7/32	5,56	3 3/4	2 1/2	215 811	10
15/64	5,95	3 7/8	2 5/8	215 812	10
1/4	6,35	4	2 3/4	215 813	10
17/64	6,75	4 1/8	2 7/8	215 814	10
9/32	7,14	4 1/4	2 15/16	215 815	10
19/64	7,54	4 3/8	3 1/16	215 816	10
5/16	7,94	4 1/2	3 3/16	215 817	10
21/64	8,33	4 5/8	3 5/16	215 818	10
11/32	8,73	4 3/4	3 7/16	215 819	10
23/64	9,13	4 7/8	3 1/2	215 820	10
3/8	9,53	5	3 5/8	215 821	10
25/64	9,92	5 1/8	3 3/4	215 822	10
13/32	10,32	5 1/4	3 7/8	215 823	10
27/64	10,72	5 3/8	3 15/16	215 824	5
7/16	11,11	5 1/2	4 1/16	215 825	5
29/64	11,51	5 5/8	4 3/16	215 826	5
15/32	11,91	5 3/4	4 5/16	215 827	5
31/64	12,30	5 7/8	4 3/8	215 828	5
1/2	12,70	6	4 1/2	215 829	5

## Twist drill sets DIN 338 type VA, in fractional sizes

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
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





## 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/mm2) < 900	■	■		■	■
Steel (N/mm2) < 1100			□		
Steel (N/mm2) < 1300					
Rust-resistant steel			□		
Aluminium	■				
Brass	■	■		■	■
Bronze	□	□		□	□
Plastics	■	■		■	■
Cast iron	□	□		□	□
Titanium alloyed					



Ø mm	L1 mm	L1 inch	L2 inch	HSS-G	
1/16	1,59	1 7/8	7/8	214 801	10
5/64	1,98	2	1	214 802	10
3/32	2,38	2 1/4	1 1/4	214 803	10
7/64	2,78	2 5/8	1 1/2	214 804	10
1/8	3,18	2 3/4	1 5/8	214 805	10
9/64	3,57	2 7/8	1 3/4	214 806	10
5/32	3,97	3 1/8	2	214 807	10
11/64	4,37	3 1/4	2 1/8	214 808	10
3/16	4,76	3 1/2	2 5/16	214 809	10
13/64	5,16	3 5/8	2 7/16	214 810	10
7/32	5,56	3 3/4	2 1/2	214 811	10
15/64	5,95	3 7/8	2 5/8	214 812	10
1/4	6,35	4	2 3/4	214 813	10
17/64	6,75	4 1/8	2 7/8	214 814	10
9/32	7,14	4 1/4	2 15/16	214 815	10
19/64	7,54	4 3/8	3 1/16	214 816	10
5/16	7,94	4 1/2	3 3/16	214 817	10
21/64	8,33	4 5/8	3 5/16	214 818	10
11/32	8,73	4 3/4	3 7/16	214 819	10
23/64	9,13	4 7/8	3 1/2	214 820	10
3/8	9,53	5	3 5/8	214 821	10
25/64	9,92	5 1/8	3 3/4	214 822	10
13/32	10,32	5 1/4	3 7/8	214 823	10
27/64	10,72	5 3/8	3 15/16	214 824	5
7/16	11,11	5 1/2	4 1/16	214 825	5
29/64	11,51	5 5/8	4 3/16	214 826	5
15/32	11,91	5 3/4	4 5/16	214 827	5
31/64	12,30	5 7/8	4 3/8	214 828	5
1/2	12,70	6	4 1/2	214 829	5

HSS-G	TIN	
250 801 T	10	
250 802 T	10	
250 803 T	10	
250 804 T	10	
250 805 T	10	
250 806 T	10	
250 807 T	10	
250 808 T	10	
250 809 T	10	
250 810 T	10	
250 811 T	10	
250 812 T	10	
250 813 T	10	
250 814 T	10	
250 815 T	10	
250 816 T	10	
250 817 T	10	
250 818 T	10	
250 819 T	10	
250 820 T	10	
250 821 T	10	
250 822 T	10	
250 823 T	10	
250 824 T	5	
250 825 T	5	
250 826 T	5	
250 827 T	5	
250 828 T	5	
250 829 T	5	

## Twist drill sets DIN 338 type N, in fractional sizes

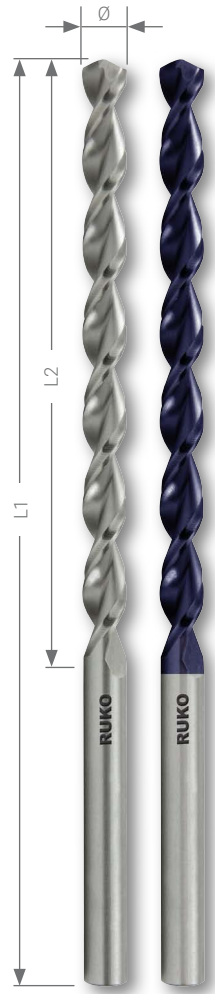
	HSS-G	HSS-G TIN
21-piece set of twist drills DIN 338 type N, in fractional sizes Ø 1/16" up to 3/8" in increments of 1/64" in steel case	214 850	250 850 T
29-piece set of twist drills DIN 338 type N, in fractional sizes Ø 1/16" up to 1/2" in increments of 1/64" in steel case	214 851	250 851 T





## Twist drills DIN 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/mm2) < 900	■	■	Brass	■	■
Steel (N/mm2) < 1100	□	■	Bronze	□	■
Steel (N/mm2) < 1300		□	Plastics	■	■
Rust-resistant steel	■	■	Cast iron	□	□
Aluminium	■	■	Titanium alloyed		

Ø mm	L1 mm	L2 mm	HSSE Co 5	
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

HSSE Co 5	TITAN	
253 025 F		10
253 030 F		10
253 031 F		10
253 032 F		10
253 033 F		10
253 034 F		10
253 035 F		10
253 036 F		10
253 037 F		10
253 038 F		10
253 039 F		10
253 040 F		10
253 041 F		10
253 042 F		10
253 043 F		10
253 044 F		10
253 045 F		10
253 046 F		10
253 047 F		10
253 048 F		10
253 049 F		10
253 050 F		10
253 051 F		10
253 052 F		10
253 053 F		10
253 054 F		10
253 055 F		10
253 056 F		10
253 057 F		10
253 058 F		10
253 059 F		10
253 060 F		10
253 061 F		10
253 062 F		10
253 063 F		10

Ø mm	L1 mm	L2 mm	HSSE Co 5		HSSE 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	5	253 105 F	5
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





## 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> ) < 900	■	■	Brass	■	■
Steel (N/mm <sup>2</sup> ) < 1100		□	Bronze	□	□
Steel (N/mm <sup>2</sup> ) < 1300			Plastics	■	■
Rust-resistant steel		□	Cast iron	□	□
Aluminium	■		Titanium alloyed		

Ø mm	L1 mm	L2 mm	HSS-G		HSS-G TIN	
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	HSS-G		HSS-G TiN	
			Icon	Quantity	Icon	Quantity
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/mm2) < 900	■
Steel (N/mm2) < 1100	
Steel (N/mm2) < 1300	
Rust-resistant steel	
Aluminium	■

Brass	■
Bronze	□
Plastics	■
Cast iron	□
Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G	
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

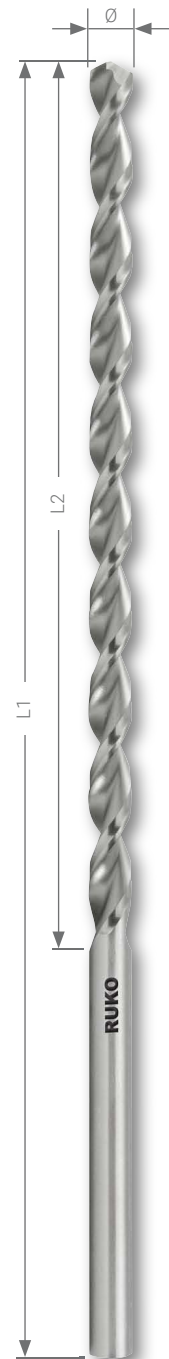
Ø mm	L1 mm	L2 mm	HSS-G	
7,00	225,0	155,0	254 070	1
7,50	225,0	155,0	254 075	1
8,00	240,0	165,0	254 080	1
8,50	240,0	165,0	254 085	1
9,00	250,0	175,0	254 090	1
9,50	250,0	175,0	254 095	1
10,00	265,0	185,0	254 100	1
10,50	265,0	185,0	254 105	1
11,00	280,0	195,0	254 110	1
11,50	280,0	195,0	254 115	1
12,00	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

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

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

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

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
—	—	—	—	—





DIN 1869 · TL 3000





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








Performance standard drills with a morse taper shank.  
Suitable for drilling steel, cast steel and cast iron – alloyed and unalloyed. Resistant to fracture.

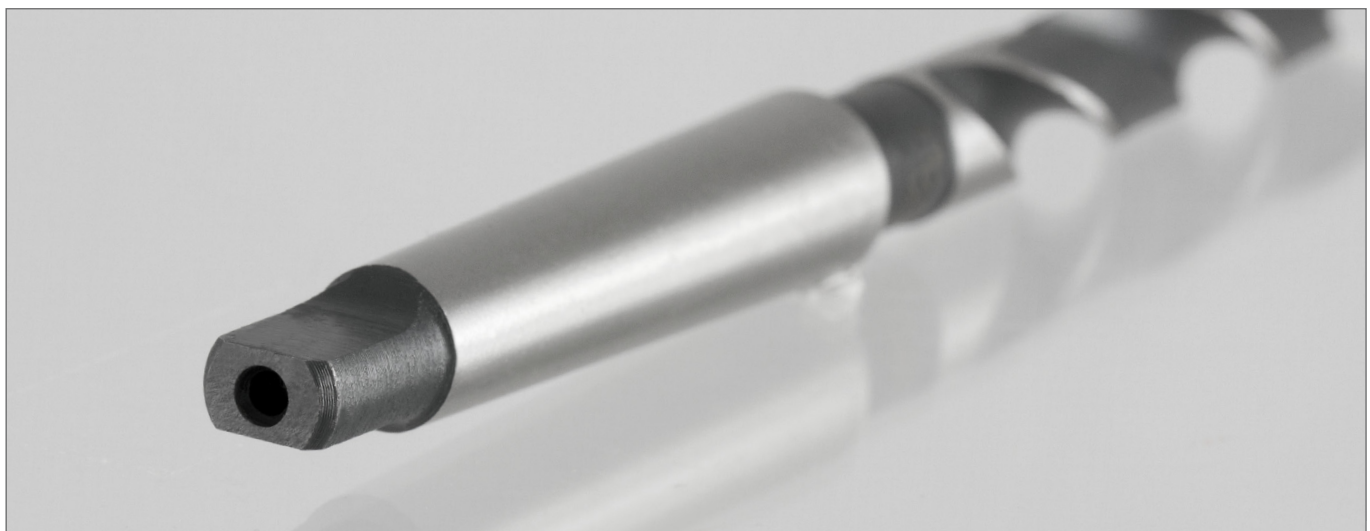


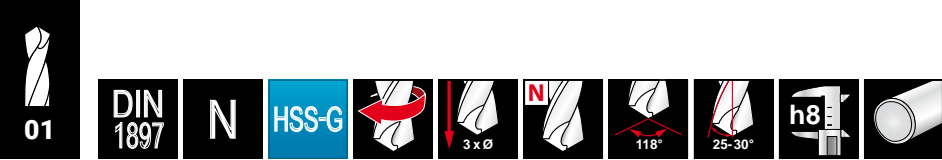
Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	■	Brass	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100		■	■	Bronze	□	□	□
Steel (N/mm <sup>2</sup> ) < 1300			□	Plastics	■	■	■
Rust-resistant steel		■	■	Cast iron	□	□	□
Aluminium	■	■		Titanium alloyed			□

Ø1 mm	L1 mm	L2 mm								
10,00	168,0	87,0	1	204 100	1	204 100 E	1	204 100 T	1	1
10,50	168,0	87,0	1	204 105	1	204 105 E	1	204 105 T	1	1
11,00	175,0	94,0	1	204 110	1	204 110 E	1	204 110 T	1	1
11,50	175,0	94,0	1	204 115	1	204 115 E	1	204 115 T	1	1
12,00	182,0	101,0	1	204 120	1	204 120 E	1	204 120 T	1	1
12,50	182,0	101,0	1	204 125	1	204 125 E	1	204 125 T	1	1
13,00	182,0	101,0	1	204 130	1	204 130 E	1	204 130 T	1	1
13,50	189,0	108,0	1	204 135	1	204 135 E	1	204 135 T	1	1
14,00	189,0	108,0	1	204 140	1	204 140 E	1	204 140 T	1	1
14,50	212,0	114,0	2	204 145	1	204 145 E	1	204 145 T	1	1
15,00	212,0	114,0	2	204 150	1	204 150 E	1	204 150 T	1	1
15,50	218,0	120,0	2	204 155	1	204 155 E	1	204 155 T	1	1
16,00	218,0	120,0	2	204 160	1	204 160 E	1	204 160 T	1	1
16,50	223,0	125,0	2	204 165	1	204 165 E	1	204 165 T	1	1
17,00	223,0	125,0	2	204 170	1	204 170 E	1	204 170 T	1	1
17,50	228,0	130,0	2	204 175	1	204 175 E	1	204 175 T	1	1
18,00	228,0	130,0	2	204 180	1	204 180 E	1	204 180 T	1	1
18,50	233,0	135,0	2	204 185	1	204 185 E	1	204 185 T	1	1
19,00	233,0	135,0	2	204 190	1	204 190 E	1	204 190 T	1	1
19,50	238,0	140,0	2	204 195	1	204 195 E	1	204 195 T	1	1
20,00	238,0	140,0	2	204 200	1	204 200 E	1	204 200 T	1	1
20,50	243,0	145,0	2	204 205	1	204 205 E	1	204 205 T	1	1
21,00	243,0	145,0	2	204 210	1	204 210 E	1	204 210 T	1	1
21,50	248,0	150,0	2	204 215	1	204 215 E	1	204 215 T	1	1
22,00	248,0	150,0	2	204 220	1	204 220 E	1	204 220 T	1	1
22,50	253,0	155,0	2	204 225	1	204 225 E	1	204 225 T	1	1
23,00	253,0	155,0	2	204 230	1	204 230 E	1	204 230 T	1	1
23,50	276,0	155,0	3	204 235	1	204 235 E	1	204 235 T	1	1
24,00	281,0	160,0	3	204 240	1	204 240 E	1	204 240 T	1	1
24,50	281,0	160,0	3	204 245	1	204 245 E	1	204 245 T	1	1
25,00	281,0	160,0	3	204 250	1	204 250 E	1	204 250 T	1	1
25,50	286,0	165,0	3	204 255	1	204 255 E	1	204 255 T	1	1
26,00	286,0	165,0	3	204 260	1	204 260 E	1	204 260 T	1	1
26,50	286,0	165,0	3	204 265	1	204 265 E	1	204 265 T	1	1
27,00	291,0	170,0	3	204 270	1	204 270 E	1	204 270 T	1	1
27,50	291,0	170,0	3	204 275	1	204 275 E	1	204 275 T	1	1
28,00	291,0	170,0	3	204 280	1	204 280 E	1	204 280 T	1	1
28,50	296,0	175,0	3	204 285	1	204 285 E	1	204 285 T	1	1
29,00	296,0	175,0	3	204 290	1	204 290 E	1	204 290 T	1	1
29,50	296,0	175,0	3	204 295	1	204 295 E	1	204 295 T	1	1

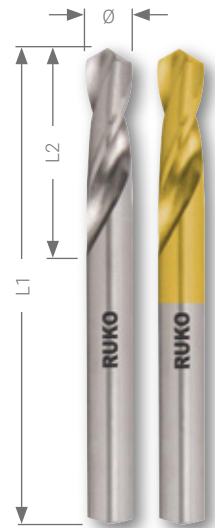
Ø1 mm	L1 mm	L2 mm	HSS			HSSE Co 5		HSSE Co 5 TIN	
									
30,00	296,0	175,0	3	204 300	1	204 300 E	1	204 300 T	1
30,50	301,0	180,0	3	204 305	1	—	—	—	—
31,00	301,0	180,0	3	204 310	1	—	—	—	—
31,50	301,0	180,0	3	204 315	1	—	—	—	—
32,00	334,0	185,0	4	204 320	1	—	—	—	—
32,50	334,0	185,0	4	204 325	1	—	—	—	—
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	—	—	—	—





## 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 bodysell construction. Use in hand-held drilling machines, with automatic machines and with turret lathes.

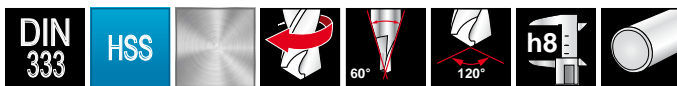


Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	Brass	■	■
Steel (N/mm <sup>2</sup> ) < 1100		□	Bronze	□	□
Steel (N/mm <sup>2</sup> ) < 1300			Plastics	■	■
Rust-resistant steel		□	Cast iron	□	□
Aluminium	■		Titanium alloyed		

Ø mm	L1 mm	L2 mm				
			HSS-G		HSS-G TIN	
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
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

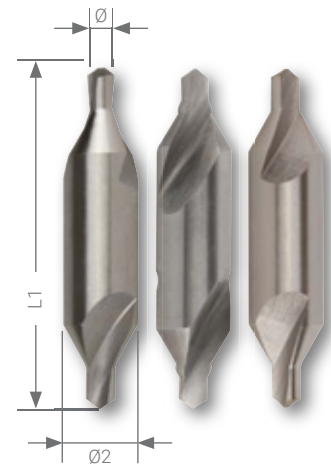
Ø mm	L1 mm	L2 mm	HSS-G		HSS-G TiN	
			Icon	Quantity	Icon	Quantity
6,00	66,0	28,0	202 060	10	202 060 T	10
6,50	70,0	31,0	202 065	10	202 065 T	10
6,80	74,0	34,0	202 068	10	202 068 T	10
7,00	74,0	34,0	202 070	10	202 070 T	10
7,20	74,0	34,0	202 072	10	202 072 T	10
7,50	74,0	34,0	202 075	10	202 075 T	10
7,80	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



### Centre drills DIN 333, HSS ground

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

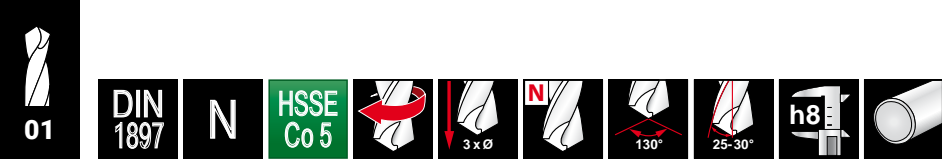
- A** shape A
- A<sub>+</sub>** shape A with reinforcing bead
- R** shape R



Packing unit: in plastic box

	A	A <sub>+</sub>	R		A	A <sub>+</sub>	R
Steel (N/mm2) < 900	■	■	■	Brass	■	■	■
Steel (N/mm2) < 1100				Bronze	□	□	□
Steel (N/mm2) < 1300				Plastics	■	■	■
Rust-resistant steel				Cast iron	□	□	□
Aluminium	■	■	■	Titanium alloyed			

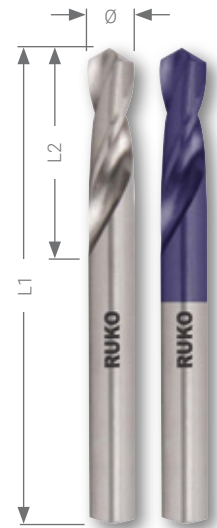
Ø1 mm	L1 mm	Ø2 mm	HSS A		HSS A <sub>+</sub>		HSS R	
			Icon	Quantity	Icon	Quantity	Icon	Quantity
0,80	20,0	3,15	217 008	1	—	1	217 2 008	1
1,00	31,5	3,15	217 010	1	217 1 010	1	217 2 010	1
1,60	35,5	4,00	217 016	1	217 1 016	1	217 2 016	1
2,00	40,0	5,00	217 020	1	217 1 020	1	217 2 020	1
2,50	45,0	6,30	217 025	1	217 1 025	1	217 2 025	1
3,15	50,0	8,00	217 315	1	217 1 315	1	217 2 315	1
4,00	56,0	10,00	217 040	1	217 1 040	1	217 2 040	1
5,00	63,0	12,50	217 050	1	217 1 050	1	217 2 050	1
6,30	71,0	16,00	217 063	1	217 1 063	1	217 2 063	1



## 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 bodysell construction. Use in hand-held drilling machines, with automatic machines and with turret lathes.

Special sizes available on request.



Packing unit: in plastic box

Steel (N/mm <sup>2</sup> ) < 900	■	■	■
Steel (N/mm <sup>2</sup> ) < 1100	■	■	■
Steel (N/mm <sup>2</sup> ) < 1300		□	
Rust-resistant steel	■	■	■
Aluminium	■	■	■
Brass	■	■	■
Bronze	□	■	■
Plastics	■	■	■
Cast iron	□	□	□
Titanium alloyed			□

Ø mm	L1 mm	L2 mm	HSSE Co 5		HSSE Co 5 TITAN	
2,00	38,0	12,0	202 020 E	10	202 020 EF	10
2,50	43,0	14,0	202 025 E	10	202 025 EF	10
3,00	46,0	16,0	202 030 E	10	202 030 EF	10
3,10	49,0	18,0	202 031 E	10	202 031 EF	10
3,20	49,0	18,0	202 032 E	10	202 032 EF	10
3,25	49,0	18,0	202 0325 E	10	202 0325 EF	10
3,30	49,0	18,0	202 033 E	10	202 033 EF	10
3,50	52,0	20,0	202 035 E	10	202 035 EF	10
3,60	52,0	20,0	202 036 E	10	202 036 EF	10
4,00	55,0	22,0	202 040 E	10	202 040 EF	10
4,10	55,0	22,0	202 041 E	10	202 041 EF	10
4,20	55,0	22,0	202 042 E	10	202 042 EF	10
4,50	58,0	24,0	202 045 E	10	202 045 EF	10
4,80	62,0	26,0	202 048 E	10	202 048 EF	10
4,90	62,0	26,0	202 049 E	10	202 049 EF	10
5,00	62,0	26,0	202 050 E	10	202 050 EF	10
5,10	62,0	26,0	202 051 E	10	202 051 EF	10
5,20	62,0	26,0	202 052 E	10	202 052 EF	10
5,50	66,0	28,0	202 055 E	10	202 055 EF	10
5,70	66,0	28,0	202 057 E	10	202 057 EF	10
5,80	66,0	28,0	202 058 E	10	202 058 EF	10
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
6,30	70,0	31,0	202 063 E	10	202 063 EF	10
6,50	70,0	31,0	202 065 E	10	202 065 EF	10
6,80	74,0	34,0	202 068 E	10	202 068 EF	10
7,00	74,0	34,0	202 070 E	10	202 070 EF	10
7,50	74,0	34,0	202 075 E	10	202 075 EF	10
8,00	79,0	37,0	202 080 E	10	202 080 EF	10
8,50	79,0	37,0	202 085 E	10	202 085 EF	10
9,00	84,0	40,0	202 090 E	10	202 090 EF	10
9,50	84,0	40,0	202 095 E	10	202 095 EF	10
10,00	89,0	43,0	202 100 E	10	202 100 EF	10
10,50	89,0	43,0	202 105 E	5	202 105 EF	5
11,00	95,0	47,0	202 110 E	5	202 110 EF	5
11,50	95,0	47,0	202 115 E	5	202 115 EF	5
12,00	102,0	51,0	202 120 E	5	202 120 EF	5
12,50	102,0	51,0	202 125 E	5	202 125 EF	5
13,00	102,0	51,0	202 130 E	5	202 130 EF	5





## 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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100		Bronze	
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel		Cast iron	
Aluminium	■	Titanium alloyed	



Ø mm	L1 mm	L2 mm	HSS-G	
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	257 520	10
5,10	150,0	30,0	257 512	10
5,10	180,0	30,0	257 521	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	100,0	30,0	257 551	10
5,50	150,0	30,0	257 552	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	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



## 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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100		Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel		Cast iron	□
Aluminium	■	Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G	
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> ) < 900	■	Brass	■
Steel (N/mm <sup>2</sup> ) < 1100		Bronze	□
Steel (N/mm <sup>2</sup> ) < 1300		Plastics	■
Rust-resistant steel		Cast iron	□
Aluminium	■	Titanium alloyed	

Ø mm	L1 mm	L2 mm	HSS-G	
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

# Table of cutting speeds for twist drills

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	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			

# Table of cutting speeds for twist drills

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			

# Application of drills and cutting conditions

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/mm2	214 ...	258 ... / 202 ...	E	30-40	0,05	0,1	0,125	0,16	0,2
Free cutting steel 500-900 N/mm2	214 ...	228 ... / 202 ...	E	25-30	0,04	0,08	0,1	0,125	0,16
Structural steel up to 500 N/mm2	214 ...	258 ... / 202 ...	E	30-40	0,04	0,08	0,1	0,125	0,16
Structural steel 500-900 N/mm2	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/mm2	214 ...	258 ... / 202 ...	E	25-35	0,05	0,1	0,125	0,16	0,2
Alloyed case hardening steel 500-900 N/mm2	214 ...	228 ... / 202 ...	E	20-25	0,4	0,08	0,1	0,125	0,16
Alloyed case hardening steel 900-1000 N/mm2	281 ... E	202 ... E	E, O	10-15	0,025	0,05	0,063	0,08	0,1
Nitriding steel 700-900 N/mm2	281 ... E	228 ... / 202 ... E	E	15-20	0,032	0,063	0,08	0,1	0,125
Heat treated nitriding steel 800-1250 N/mm2	281 ... E	228 ...	E, O	8-12	0,025	0,05	0,063	0,08	0,1
Mild steel for heat treatment 500-750 N/mm2	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/mm2	281 ... E	228 ...	E	15-20	0,04	0,08	0,1	0,125	0,16
Alloyed steel heat treatment 900-1250 N/mm2	281 ... E	228 ...	E, O	10-15	0,032	0,063	0,08	0,1	0,125
Maganese steel with content over 10 % Mn	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/mm2	281 ... E	228 ... / 202 ... E	E	14-18	0,032	0,063	0,08	0,1	0,12
Alloyed tool steel 850-1250 N/mm2	281 ... E	228 ...	E, O	8-12	0,025	0,05	0,063	0,08	0,1
Heat resistant steel 450-600 N/mm2	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	258 ... F	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/mm2	258 ... F	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/mm2	214 ...	202 ...	E	30-50	0,063	0,1255	0,16	0,2	0,25
Copper 200-400 N/mm2	258 ... F	228 ...	E, O	30-40	0,05	0,1	0,125	0,16	0,2
Fragile brass with short chip 350-550 N/mm2	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/mm2	258 ... F	258 ... F	E, O	30-50	0,063	0,1	0,125	0,16	0,2
Bronze 200-500 N/mm2	258 ... F	258 ... F	E, O	20-40	0,05	0,08	0,125	0,16	0,2
Bronze 500-800 N/mm2	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/mm2	281 ... E	281 ... EF	O	3-6	0,03	0,05	0,063	0,08	0,1
Titanium alloys 700-1000 N/mm2	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	258 ... F	258 ... F	W, CA	20-40	0,05	0,1	0,125	0,16	0,2
Laminated materials (paper, wood) across layer	258 ... F	258 ... F	CA	15-25	0,05	0,08	0,125	0,16	0,2

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