

Twist drill bit HSS DIN 338 SMART STEP

The manually operated high-performance drill with unique **SMART STEP** technology (from dia. 2.5 mm) for high-precision circular drill holes in steel up to 1000 N/mm², aluminium, plastic, non-ferrous metals, hard and soft wood.

The original **SMART STEP**: First twist drill bit with stepped drill bit tip geometry (from dia. 2.5 mm)

Precise circular holes

Extremely convenient drilling

- Saves pre-drilling, precise spot drilling without running off centre
- Tilted drilling possible
- Simple drilling or enlarging of an existing drill hole

Significantly quicker than conventional ground twist drill bits

Perfect for drilling out rivets and stud bolts

The first twist drill bit to enable precise hand-guided drilling up to dia. 20 mm without pre-drilling, and when used on a drill press even allows precise drilling up to dia. 26.5 mm without pre-drilling

From drill diameter > 13.0 mm, shank reduced to dia. 12.7 mm for use in all common 3-jaw drill chucks

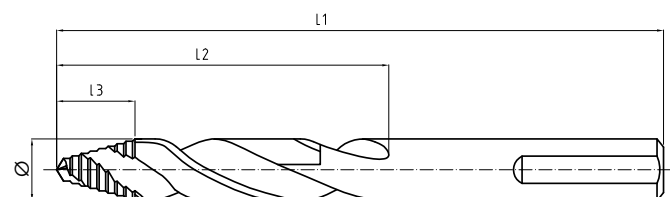
3-face shank (from dia. 4 mm)

- No twisting in the drill chuck: faster, more comfortable working
- Optimum transmission of forces
- Protection of the drill chuck from damage
- Little effort required to open and close the drill chuck

Sustainable product packaging made of 100% PCR (recycled plastic from household waste), 100% recyclable and Cradle to Cradle Certified® Bronze



Suitable for machine type	Drill, Cordless screwdrivers, Pedestal drilling machine
Material to be processed	Steel, Cast iron, Non-ferrous metal, Wood, Hardwood
Quality	ZEBRA-Premium
Standard/drilling depth	DIN 338/5xD
Surface	Multiple refined
Cutting material	HSS
Type	SMART STEP
Service life	●●●○



Drilling speed (point system)	●●●●
Bore hole quality (point system)	●●●●
Versatility	●●●○
Drilling behaviour (point system)	●●●●
Self-centring	Yes
Suitable for tensile strength up to	1000 N/mm ²
Color Coding System	■ Non-ferrous metal ■ Steel ■ Wood ■ Hardwood

Diameter (Ø)	Length (l1)	Chip flute length (l2)	Drill tip length (l3)	Shank style	Art. no.	P. Qty.
1 mm	34 mm	12 mm		Cylindrical	0624 930 100	10
1.5 mm	40 mm	18 mm		Cylindrical	0624 930 150	10
1.8 mm	46 mm	22 mm		Cylindrical	0624 930 180	10
2 mm	49 mm	24 mm		Cylindrical	0624 930 200	10
2.2 mm	53 mm	27 mm		Cylindrical	0624 930 220	10
2.3 mm	53 mm	27 mm		Cylindrical	0624 930 230	10
2.5 mm	57 mm	30 mm	1.6 mm	Cylindrical	0624 930 250	10
2.7 mm	61 mm	33 mm	1.8 mm	Cylindrical	0624 930 270	10
2.8 mm	61 mm	33 mm	1.8 mm	Cylindrical	0624 930 280	10
3 mm	61 mm	33 mm	1.9 mm	Cylindrical	0624 930 300	10
3.1 mm	65 mm	36 mm	2 mm	Cylindrical	0624 930 310	10
3.2 mm	65 mm	36 mm	2.1 mm	Cylindrical	0624 930 320	10
3.3 mm	65 mm	36 mm	2.2 mm	Cylindrical	0624 930 330	10
3.4 mm	70 mm	39 mm	2.1 mm	Cylindrical	0624 930 340	10
3.5 mm	70 mm	39 mm	2.1 mm	Cylindrical	0624 930 350	10
3.6 mm	70 mm	39 mm	2.2 mm	Cylindrical	0624 930 360	10
3.7 mm	70 mm	39 mm	2.3 mm	Cylindrical	0624 930 370	10
4 mm	75 mm	43 mm	2.9 mm	3-face shank	0624 930 400	10
4.1 mm	75 mm	43 mm	3 mm	3-face shank	0624 930 410	10
4.2 mm	75 mm	43 mm	3 mm	3-face shank	0624 930 420	10
4.3 mm	80 mm	47 mm	3.2 mm	3-face shank	0624 930 430	10
4.5 mm	80 mm	47 mm	3.3 mm	3-face shank	0624 930 450	10
4.6 mm	80 mm	47 mm	3.4 mm	3-face shank	0624 930 460	10
4.8 mm	86 mm	52 mm	3.6 mm	3-face shank	0624 930 480	10
4.9 mm	86 mm	52 mm	3.8 mm	3-face shank	0624 930 490	10
5 mm	86 mm	52 mm	3.9 mm	3-face shank	0624 930 500	10
5.1 mm	86 mm	52 mm	4 mm	3-face shank	0624 930 510	5
5.2 mm	86 mm	52 mm	4.2 mm	3-face shank	0624 930 520	5
5.4 mm	93 mm	57 mm	4.6 mm	3-face shank	0624 930 540	5
5.5 mm	93 mm	57 mm	4.6 mm	3-face shank	0624 930 550	5
5.6 mm	93 mm	57 mm	4.7 mm	3-face shank	0624 930 560	5
5.7 mm	93 mm	57 mm	4.8 mm	3-face shank	0624 930 570	5
5.8 mm	93 mm	57 mm	5.2 mm	3-face shank	0624 930 580	5
6 mm	93 mm	57 mm	5.3 mm	3-face shank	0624 930 600	5
6.1 mm	101 mm	63 mm	5.4 mm	3-face shank	0624 930 610	5
6.2 mm	101 mm	63 mm	5.5 mm	3-face shank	0624 930 620	5
6.4 mm	101 mm	63 mm	5.7 mm	3-face shank	0624 930 640	5
6.5 mm	101 mm	63 mm	5.8 mm	3-face shank	0624 930 650	5
6.8 mm	109 mm	69 mm	5.9 mm	3-face shank	0624 930 680	5
7 mm	109 mm	69 mm	6.4 mm	3-face shank	0624 930 700	5
7.1 mm	109 mm	69 mm	6.6 mm	3-face shank	0624 930 710	5

Diameter (Ø)	Length (l1)	Chip flute length (l2)	Drill tip length (l3)	Shank style	Art. no.	P. Qty.
7.3 mm	109 mm	69 mm	6.8 mm	3-face shank	0624 930 730	5
7.4 mm	109 mm	69 mm	6.9 mm	3-face shank	0624 930 740	5
7.5 mm	109 mm	69 mm	6.9 mm	3-face shank	0624 930 750	5
8 mm	117 mm	75 mm	7.6 mm	3-face shank	0624 930 800	5
8.1 mm	117 mm	75 mm	7.7 mm	3-face shank	0624 930 810	1
8.3 mm	117 mm	75 mm	8 mm	3-face shank	0624 930 830	1
8.5 mm	117 mm	75 mm	8.2 mm	3-face shank	0624 930 850	1
9 mm	125 mm	81 mm	8.8 mm	3-face shank	0624 930 900	1
9.1 mm	125 mm	81 mm	8.9 mm	3-face shank	0624 930 910	1
9.2 mm	125 mm	81 mm	9 mm	3-face shank	0624 930 920	1
9.3 mm	125 mm	81 mm	9.1 mm	3-face shank	0624 930 930	1
9.4 mm	125 mm	81 mm	9.2 mm	3-face shank	0624 930 940	1
9.5 mm	125 mm	81 mm	9.3 mm	3-face shank	0624 930 950	1
9.9 mm	133 mm	87 mm	10 mm	3-face shank	0624 930 990	1
10 mm	133 mm	87 mm	10 mm	3-face shank	0624 931 000	1
10.1 mm	133 mm	87 mm	10.2 mm	3-face shank	0624 931 010	1
10.2 mm	133 mm	87 mm	9.9 mm	3-face shank	0624 931 020	1
10.5 mm	133 mm	87 mm	10.7 mm	3-face shank	0624 931 050	1
11 mm	142 mm	94 mm	11.3 mm	3-face shank	0624 931 100	1
11.1 mm	142 mm	94 mm	11.4 mm	3-face shank	0624 931 110	1
11.2 mm	142 mm	94 mm	11.5 mm	3-face shank	0624 931 120	1
11.5 mm	142 mm	94 mm	12 mm	3-face shank	0624 931 150	1
12 mm	151 mm	101 mm	12.6 mm	3-face shank	0624 931 200	1
12.5 mm	151 mm	101 mm	13.8 mm	3-face shank	0624 931 250	1
13 mm	151 mm	101 mm	14.7 mm	3-face shank	0624 931 300	1
13.1 mm	151 mm	101 mm	14.7 mm	3-face shank	0624 931 310	1
13.5 mm	160 mm	108 mm	14.8 mm	3-face shank	0624 931 350	1
14 mm	160 mm	108 mm	14.8 mm	3-face shank	0624 931 400	1
14.2 mm	169 mm	114 mm	15.1 mm	3-face shank	0624 931 420	1
14.5 mm	169 mm	114 mm	15.4 mm	3-face shank	0624 931 450	1
15 mm	169 mm	114 mm	15.4 mm	3-face shank	0624 931 500	1
15.5 mm	178 mm	120 mm	15.9 mm	3-face shank	0624 931 550	1
16 mm	178 mm	120 mm	16.4 mm	3-face shank	0624 931 600	1
16.2 mm	184 mm	125 mm	16.4 mm	3-face shank	0624 931 620	1
16.5 mm	184 mm	125 mm	16.9 mm	3-face shank	0624 931 650	1
17 mm	184 mm	125 mm	17.4 mm	3-face shank	0624 931 700	1
17.5 mm	191 mm	130 mm	17.5 mm	3-face shank	0624 931 750	1
18 mm	191 mm	130 mm	17.6 mm	3-face shank	0624 931 800	1
18.5 mm	198 mm	135 mm	19.4 mm	3-face shank	0624 931 850	1
19 mm	198 mm	135 mm	20.4 mm	3-face shank	0624 931 900	1
19.5 mm	205 mm	140 mm	20.9 mm	3-face shank	0624 931 950	1
20 mm	205 mm	140 mm	21.5 mm	3-face shank	0624 932 000	1
21 mm	213 mm	145 mm	22.5 mm	3-face shank	0624 932 100	1
22 mm	221 mm	150 mm	23.6 mm	3-face shank	0624 932 200	1
24 mm	236 mm	160 mm	25.7 mm	3-face shank	0624 932 400	1
25 mm	236 mm	160 mm	25.7 mm	3-face shank	0624 932 500	1
26 mm	253 mm	165 mm	27.9 mm	3-face shank	0624 932 600	1
26.5 mm	253 mm	165 mm	28.4 mm	3-face shank	0624 932 650	1

Cutting values

For dia. 1.0-2.5												
Material designation	Tensile strength			From dia. 1.0			From dia. 2.0			From dia. 2.5		
		v _c		n		f	n		f	n		f
		from	to	from	to		from	to		from	to	
Steels												
General structural steels	≤ 850 N/mm ²	25	37	7,958	9,549	0,016	3,979	4,775	0,050	3,183	3,820	0,063
Unalloyed heat-treated steels	≤ 850 N/mm ²	25	37	7,958	9,549	0,016	3,979	4,775	0,050	3,183	3,820	0,063
Low-alloy heat-treated steels	≤ 850 N/mm ²	25	37	7,958	9,549	0,016	3,979	4,775	0,050	3,183	3,820	0,063
Unalloyed heat-treated steels	≤ 1,000 N/mm ²	22	31	7,003	7,958	0,014	3,501	3,979	0,040	2,801	3,183	0,050
Low-alloy heat-treated steels	≤ 1,000 N/mm ²	22	31	7,003	7,958	0,014	3,501	3,979	0,040	2,801	3,183	0,050
Alloyed heat-treated steels	≤ 1,000 N/mm ²	10	20	3,183	5,093	0,012	1,592	2,546	0,032	1,273	2,037	0,040
Nitriding steels	≤ 1,000 N/mm ²	10	20	3,183	5,093	0,012	1,592	2,546	0,032	1,273	2,037	0,040
Tool steels	≤ 1,000 N/mm ²	10	20	3,183	5,093	0,012	1,592	2,546	0,032	1,273	2,037	0,040
High-speed steels	≤ 1,000 N/mm ²	10	20	3,183	5,093	0,012	1,592	2,546	0,032	1,273	2,037	0,040
Cast metals												
Cast iron	≤ 350 HB	22	31	8,913	10,186	0,018	4,456	5,093	0,063	3,565	4,074	0,080
Spheroidal graphite and malleable iron	≤ 350 HB	22	31	7,003	7,958	0,018	3,501	3,979	0,063	2,801	3,183	0,080
Non-ferrous metal												
Aluminium	≤ 600 N/mm ²	40	60	12,732	19,099	0,018	6,366	9,549	0,063	5,093	7,639	0,080
Plastics												
Plastics, thermosetting		20	37	6,366	9,549	0,016	3,183	4,775	0,050	2,546	3,820	0,063
Plastics, thermoplastic		20	37	4,777	9,549	0,016	3,183	4,775	0,050	2,546	3,820	0,063
Wood												
Softwood		25	37	7,958	9,549	0,016	3,979	4,775	0,050	3,183	3,820	0,063
Hardwood												
Hardwood		22	31	7,003	7,958	0,014	3,501	3,979	0,040	2,801	3,183	0,050

Cutting values

For dia. 3.15-5.0												
Material designation	Tensile strength			From dia. 3.15			From dia. 4.0			From dia. 5.0		
		v _c		n		f	n		f	n		f
		from	to	from	to		from	to		from	to	
Steels												
General structural steels	≤ 850 N/mm ²	25	37	2,526	3,032	0,080	1,989	2,387	0,100	1,831	2,197	0,115
Unalloyed heat-treated steels	≤ 850 N/mm ²	25	37	2,526	3,032	0,080	1,989	2,387	0,100	1,831	2,197	0,115
Low-alloy heat-treated steels	≤ 850 N/mm ²	25	37	2,526	3,032	0,080	1,989	2,387	0,100	1,831	2,197	0,115
Unalloyed heat-treated steels	≤ 1,000 N/mm ²	22	31	2,223	2,526	0,063	1,751	1,989	0,080	1,611	1,831	0,092
Low-alloy heat-treated steels	≤ 1,000 N/mm ²	22	31	2,223	2,526	0,063	1,751	1,989	0,080	1,611	1,831	0,092
Alloyed heat-treated steels	≤ 1,000 N/mm ²	10	20	1,011	1,617	0,050	796	1,273	0,063	733	1,172	0,072
Nitriding steels	≤ 1,000 N/mm ²	10	20	1,011	1,617	0,050	796	1,273	0,063	733	1,172	0,072
Tool steels	≤ 1,000 N/mm ²	10	20	1,011	1,617	0,050	796	1,273	0,063	733	1,172	0,072
High-speed steels	≤ 1,000 N/mm ²	10	20	1,011	1,617	0,050	796	1,273	0,063	733	1,172	0,072
Cast metals												
Cast iron	≤ 350 HB	22	31	2,829	3,234	0,100	2,228	2,546	0,125	2,050	2,343	0,144
Spheroidal graphite and malleable iron	≤ 350 HB	22	31	2,223	2,526	0,100	1,751	1,989	0,125	1,611	1,831	0,144
Non-ferrous metal												
Aluminium	≤ 600 N/mm ²	40	60	4,042	6,063	0,100	3,183	4,775	0,125	2,546	3,820	0,125
Plastics												
Plastics, thermosetting		20	37	2,021	3,032	0,080	1,592	2,387	0,100	1,464	2,197	0,115
Plastics, thermoplastic		20	37	2,021	3,032	0,080	1,592	2,387	0,100	1,464	2,197	0,115
Wood												
Softwood		25	37	2,526	3,032	0,080	1,989	2,387	0,100	1,831	2,197	0,115

Cutting values

For dia. 3.15-5.0												
Material designation	Tensile strength			From dia. 3.15			From dia. 4.0			From dia. 5.0		
		v _c		n		f	n		f	n		f
		from	to	from	to		from	to		from	to	
Hardwood												
Hardwood		22	31	2,223	2,526	0,063	1,751	1,989	0,080	1,611	1,831	0,092

Cutting values

For dia. 6.3-10.0												
Material designation	Tensile strength			From dia. 6.3			From dia. 8.0			From dia. 10.0		
		v _c		n		f	n		f	n		f
		from	to	from	to		from	to		from	to	
Steels												
General structural steels	≤ 850 N/mm ²	25	37	1,642	1,971	0,163	1,294	1,552	0,208	1,035	1,242	0,260
Unalloyed heat-treated steels	≤ 850 N/mm ²	25	37	1,642	1,971	0,163	1,294	1,552	0,208	1,035	1,242	0,260
Low-alloy heat-treated steels	≤ 850 N/mm ²	25	37	1,642	1,971	0,163	1,294	1,552	0,208	1,035	1,242	0,260
Unalloyed heat-treated steels	≤ 1,000 N/mm ²	22	31	1,446	1,642	0,130	1,138	1,294	0,163	910	1,035	0,208
Low-alloy heat-treated steels	≤ 1,000 N/mm ²	22	31	1,446	1,642	0,130	1,138	1,294	0,163	910	1,035	0,208
Alloyed heat-treated steels	≤ 1,000 N/mm ²	10	20	657	1,050	0,104	517	828	0,130	413	662	0,163
Nitriding steels	≤ 1,000 N/mm ²	10	20	657	1,050	0,104	517	828	0,130	413	662	0,163
Tool steels	≤ 1,000 N/mm ²	10	20	657	1,050	0,104	517	828	0,130	413	662	0,163
High-speed steels	≤ 1,000 N/mm ²	10	20	657	1,050	0,104	517	828	0,130	413	662	0,163
Cast metals												
Cast iron	≤ 350 HB	22	31	1,840	2,102	0,208	1,448	1,655	0,260	1,158	1,325	0,325
Spheroidal graphite and malleable iron	≤ 350 HB	22	31	1,446	1,642	0,208	1,138	1,294	0,260	910	1,035	0,325
Non-ferrous metal												
Aluminium	≤ 600 N/mm ²	40	60	2,021	3,032	0,160	1,592	2,387	0,200	1,273	1,910	0,250
Plastics												
Plastics, thermosetting		20	37	1,314	1,971	0,163	1,035	1,552	0,208	828	1,242	0,260
Plastics, thermoplastic		20	37	1,314	1,971	0,163	1,035	1,552	0,208	828	1,242	0,260
Wood												
Softwood		25	37	1,642	1,971	0,163	1,294	1,552	0,208	1,035	1,242	0,260
Hardwood												
Hardwood		22	31	1,446	1,642	0,130	1,138	1,294	0,163	910	1,035	0,208

Cutting values

For dia. 12.5						
Material designation	Tensile strength			From dia. 12.5		
		v _c		n		f
		from	to	from	to	
Steels						
General structural steels	≤ 850 N/mm ²	25	37	796	955	0,250
Unalloyed heat-treated steels	≤ 850 N/mm ²	25	37	796	955	0,250
Low-alloy heat-treated steels	≤ 850 N/mm ²	25	37	796	955	0,250
Unalloyed heat-treated steels	≤ 1,000 N/mm ²	22	31	700	796	0,200
Low-alloy heat-treated steels	≤ 1,000 N/mm ²	22	31	700	796	0,200
Alloyed heat-treated steels	≤ 1,000 N/mm ²	10	20	319	509	0,156
Nitriding steels	≤ 1,000 N/mm ²	10	20	319	509	0,156
Tool steels	≤ 1,000 N/mm ²	10	20	319	509	0,156
High-speed steels	≤ 1,000 N/mm ²	10	20	319	509	0,156
Cast metals						

Cutting values

For dia. 12.5						
Material designation	Tensile strength	From dia. 12.5				
		v_c		n		f
		from	to	from	to	
Cast iron	≤ 350 HB	22	31	891	1,019	0,313
Spheroidal graphite and malleable iron	≤ 350 HB	22	31	700	796	0,313
Non-ferrous metal						
Aluminium	≤ 600 N/mm ²	40	60	1,019	1,528	0,250
Plastics						
Plastics, thermosetting		20	37	636	955	0,250
Plastics, thermoplastic		20	37	636	955	0,250
Wood						
Softwood		25	37	796	955	0,250
Hardwood						
Hardwood		22	31	700	796	0,200

Legend
v_c = cutting speed [m/min]
f = feed (mm/r)
n = rotation speed [rpm]
The suggested cutting values are reference values and must be adapted to the respective conditions.

Details/Application

- Perfect for rivet holes, drilling out stud bolts, for drilling sheet metal and thin-walled profile materials (e.g. aluminium/window profiles).
- High quality of drill holes and significantly longer service life compared to conventional twist wood drill bits for drilling holes in wood.
- Ideal for high-precision, comfortable and quick work in solid materials (e.g. in steel with strength of up to 1000 N/mm², aluminium and plastics).



Notice

For blind bores, please note the extended drill tip (see dimension l3)!

Related products	Art. no.
CUT+COOL drilling and cutting oil	0893 050 004
Cordless drill driver ABS 18 COMPACT M-CUBE	5701 800 2
Drilling and cutting foam CUT+COOL	0893 050 007
CUT+COOL Perfect drilling and cutting oil	0893 050 008
Cut and Cool Perfect drilling/cutting paste	0893 050 010