RUKO

TWIST DRILLS

Twist drills DIN 338 TL 3000 with split point

Multirange drill especially suitable for drilling deep holes.
Covers types N, H and W for a wide range of applications.

Point cut:	helical point
	from Ø 3,0 mm **with split point** DIN 1412 C
Point angle:	130°
Helix angle:	40°
Ø tolerance:	h8
right hand cutting	

Packing unit: in plastic box

HSS ground

Surface: bright

Multirange drill consisting of heavy-duty high speed steel with reinforced drill core and parabolic flute to give improved chip removal. Ideal for drilling medium and long chipping materials. Suitable for drilling depths < 3 x diameter.

Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 900 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

HSS-TiN ground

Surface: TiN coating

Like HSS-G plus titanium nitride coating. The TiN wear-resistant coating increases the surface hardness to approx. 2,300 HV and the heat resistance to 600 °C.

Application areas: for unalloyed and alloyed steel (up to a strength of 1200 N/mm²), high chrome alloyed steel such as stainless and acidresistant steel, steel resistant to rust and acid, titanium, titanium alloys, cast iron, aluminium, aluminium alloys, copper, brass and bronze.

HSS Co 5 ground

Surface: golden brown

Like HSS-G plus cobalt alloyed.
The cobalt content ensures increased heat resistance.

Application areas: for unalloyed and alloyed steel (up to a strength of 1200 N/mm²), steel resistant to rust and acid, cast iron, aluminium, aluminium alloys, copper, brass and bronze.

HSS-TiAlN ground

Surface: TiAlN coating

Like HSS-G plus titanium aluminium nitride coating.
The TiAlN wear-resistant coating increases the surface hardness to approx. 3,000 HV and the heat resistance to 900 °C.

Application areas: for unalloyed and alloyed steel (up to a strength of 1200 N/mm²), high chrome alloyed steel such as stainless and acidresistant steel, steel resistant to rust and acid, titanium, titanium alloys, cast iron, aluminium, aluminium alloys, copper, brass and bronze.

Twist drills DIN 338 TL 3000 HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point

Ø mm	Total length mm	Flute length mm	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.	Article no. **HSS-G TiAlN**	Cont. pcs.
2,00	49,0	24,0	258 020	10	229 020	10	258 020 T	10	258 020 F	10
2,10	49,0	24,0	258 021	10	229 021	10	258 021 T	10	258 021 F	10
2,20	53,0	27,0	258 022	10	229 022	10	258 022 T	10	258 022 F	10
2,30	53,0	27,0	258 023	10	229 023	10	258 023 T	10	258 023 F	10
2,40	57,0	30,0	258 024	10	229 024	10	258 024 T	10	258 024 F	10
2,50	57,0	30,0	258 025	10	229 025	10	258 025 T	10	258 025 F	10
2,60	57,0	30,0	258 026	10	229 026	10	258 026 T	10	258 026 F	10
2,70	61,0	33,0	258 027	10	229 027	10	258 027 T	10	258 027 F	10
2,80	61,0	33,0	258 028	10	229 028	10	258 028 T	10	258 028 F	10
2,90	61,0	33,0	258 029	10	229 029	10	258 029 T	10	258 029 F	10
3,00	61,0	33,0	258 030	10	229 030	10	258 030 T	10	258 030 F	10
3,10	65,0	36,0	258 031	10	229 031	10	258 031 T	10	258 031 F	10
3,20	65,0	36,0	258 032	10	229 032	10	258 032 T	10	258 032 F	10
3,30	65,0	36,0	258 033	10	229 033	10	258 033 T	10	258 033 F	10
3,40	70,0	39,0	258 034	10	229 034	10	258 034 T	10	258 034 F	10
3,50	70,0	39,0	258 035	10	229 035	10	258 035 T	10	258 035 F	10
3,60	70,0	39,0	258 036	10	229 036	10	258 036 T	10	258 036 F	10
3,70	70,0	39,0	258 037	10	229 037	10	258 037 T	10	258 037 F	10
3,80	75,0	43,0	258 038	10	229 038	10	258 038 T	10	258 038 F	10
3,90	75,0	43,0	258 039	10	229 039	10	258 039 T	10	258 039 F	10
4,00	75,0	43,0	258 040	10	229 040	10	258 040 T	10	258 040 F	10
4,10	75,0	43,0	258 041	10	229 041	10	258 041 T	10	258 041 F	10
4,20	75,0	43,0	258 042	10	229 042	10	258 042 T	10	258 042 F	10
4,30	80,0	47,0	258 043	10	229 043	10	258 043 T	10	258 043 F	10
4,40	80,0	47,0	258 044	10	229 044	10	258 044 T	10	258 044 F	10
4,50	80,0	47,0	258 045	10	229 045	10	258 045 T	10	258 045 F	10
4,60	80,0	47,0	258 046	10	229 046	10	258 046 T	10	258 046 F	10
4,70	80,0	47,0	258 047	10	229 047	10	258 047 T	10	258 047 F	10
4,80	86,0	52,0	258 048	10	229 048	10	258 048 T	10	258 048 F	10
4,90	86,0	52,0	258 049	10	229 049	10	258 049 T	10	258 049 F	10
5,00	86,0	52,0	258 050	10	229 050	10	258 050 T	10	258 050 F	10
5,10	86,0	52,0	258 051	10	229 051	10	258 051 T	10	258 051 F	10
5,20	86,0	52,0	258 052	10	229 052	10	258 052 T	10	258 052 F	10
5,30	86,0	52,0	258 053	10	229 053	10	258 053 T	10	258 053 F	10
5,40	93,0	57,0	258 054	10	229 054	10	258 054 T	10	258 054 F	10
5,50	93,0	57,0	258 055	10	229 055	10	258 055 T	10	258 055 F	10
5,60	93,0	57,0	258 056	10	229 056	10	258 056 T	10	258 056 F	10
5,70	93,0	57,0	258 057	10	229 057	10	258 057 T	10	258 057 F	10
5,80	93,0	57,0	258 058	10	229 058	10	258 058 T	10	258 058 F	10
5,90	93,0	57,0	258 059	10	229 059	10	258 059 T	10	258 059 F	10
6,00	93,0	57,0	258 060	10	229 060	10	258 060 T	10	258 060 F	10
6,10	101,0	63,0	258 061	10	229 061	10	258 061 T	10	258 061 F	10
6,20	101,0	63,0	258 062	10	229 062	10	258 062 T	10	258 062 F	10
6,30	101,0	63,0	258 063	10	229 063	10	258 063 T	10	258 063 F	10
6,40	101,0	63,0	258 064	10	229 064	10	258 064 T	10	258 064 F	10
6,50	101,0	63,0	258 065	10	229 065	10	258 065 T	10	258 065 F	10
6,60	101,0	63,0	258 066	10	229 066	10	258 066 T	10	258 066 F	10
6,70	101,0	63,0	258 067	10	229 067	10	258 067 T	10	258 067 F	10
6,80	109,0	69,0	258 068	10	229 068	10	258 068 T	10	258 068 F	10
6,90	109,0	69,0	258 069	10	229 069	10	258 069 T	10	258 069 F	10
7,00	109,0	69,0	258 070	10	229 070	10	258 070 T	10	258 070 F	10
7,10	109,0	69,0	258 071	10	229 071	10	258 071 T	10	258 071 F	10
7,20	109,0	69,0	258 072	10	229 072	10	258 072 T	10	258 072 F	10
7,30	109,0	69,0	258 073	10	229 073	10	258 073 T	10	258 073 F	10
7,40	109,0	69,0	258 074	10	229 074	10	258 074 T	10	258 074 F	10
7,50	109,0	69,0	258 075	10	229 075	10	258 075 T	10	258 075 F	10
7,60	117,0	75,0	258 076	10	229 076	10	258 076 T	10	258 076 F	10
7,70	117,0	75,0	258 077	10	229 077	10	258 077 T	10	258 077 F	10
7,80	117,0	75,0	258 078	10	229 078	10	258 078 T	10	258 078 F	10
7,90	117,0	75,0	258 079	10	229 079	10	258 079 T	10	258 079 F	10
8,00	117,0	75,0	258 080	10	229 080	10	258 080 T	10	258 080 F	10
8,10	117,0	75,0	258 081	10	229 081	10	258 081 T	10	258 081 F	10
8,20	117,0	75,0	258 082	10	229 082	10	258 082 T	10	258 082 F	10
8,30	117,0	75,0	258 083	10	229 083	10	258 083 T	10	258 083 F	10

Twist drills DIN 338 TL 3000 HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point

Ø mm	Total length mm	Flute length mm	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.	Article no. **HSS-G TiAlN**	Cont. pcs.
8,40	117,0	75,0	258 084	10	229 084	10	258 084 T	10	258 084 F	10
8,50	117,0	75,0	258 085	10	229 085	10	258 085 T	10	258 085 F	10
8,60	125,0	81,0	258 086	10	229 086	10	258 086 T	10	258 086 F	10
8,70	125,0	81,0	258 087	10	229 087	10	258 087 T	10	258 087 F	10
8,80	125,0	81,0	258 088	10	229 088	10	258 088 T	10	258 088 F	10
8,90	125,0	81,0	258 089	10	229 089	10	258 089 T	10	258 089 F	10
9,00	125,0	81,0	258 090	10	229 090	10	258 090 T	10	258 090 F	10
9,10	125,0	81,0	258 091	10	229 091	10	258 091 T	10	258 091 F	10
9,20	125,0	81,0	258 092	10	229 092	10	258 092 T	10	258 092 F	10
9,30	125,0	81,0	258 093	10	229 093	10	258 093 T	10	258 093 F	10
9,40	125,0	81,0	258 094	10	229 094	10	258 094 T	10	258 094 F	10
9,50	125,0	81,0	258 095	10	229 095	10	258 095 T	10	258 095 F	10
9,60	133,0	87,0	258 096	10	229 096	10	258 096 T	10	258 096 F	10
9,70	133,0	87,0	258 097	10	229 097	10	258 097 T	10	258 097 F	10
9,80	133,0	87,0	258 098	10	229 098	10	258 098 T	10	258 098 F	10
9,90	133,0	87,0	258 099	10	229 099	10	258 099 T	10	258 099 F	10
10,00	133,0	87,0	258 100	10	229 100	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	229 102	10	258 102 T	10	258 102 F	10
10,30	133,0	87,0	258 103	5	—	—	258 103 T	5	258 103 F	5
10,40	133,0	87,0	258 104	5	—	—	258 104 T	5	258 104 F	5
10,50	133,0	87,0	258 105	5	229 105	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	229 110	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	229 115	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	229 120	5	258 120 T	5	258 120 F	5
12,10	151,0	101,0	258 121	5	—	—	258 121 T	5	258 121 F	5
12,20	151,0	101,0	258 122	5	—	—	258 122 T	5	258 122 F	5
12,30	151,0	101,0	258 123	5	—	—	258 123 T	5	258 123 F	5
12,40	151,0	101,0	258 124	5	—	—	258 124 T	5	258 124 F	5
12,50	151,0	101,0	258 125	5	229 125	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	229 130	5	258 130 T	5	258 130 F	5
13,50	160,0	108,0	258 135	5	229 135	5	258 135 T	5	258 135 F	5
14,00	160,0	108,0	258 140	5	229 140	5	258 140 T	5	258 140 F	5
14,50	169,0	114,0	258 145	5	229 145	5	258 145 T	5	258 145 F	5
15,00	169,0	114,0	258 150	5	229 150	5	258 150 T	5	258 150 F	5
15,50	178,0	120,0	258 155	5	229 155	5	258 155 T	5	258 155 F	5
16,00	178,0	120,0	258 160	5	229 160	5	258 160 T	5	258 160 F	5

Twist drills DIN 338 TL 3000 HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point in steel case

No. 258 214

No. 229 214

No. 258 214 T

No. 258 214 F

Description	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**	Article no. **HSS-G TiAlN**
19-piece set of twist drills DIN 338 TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm	258 214	229 214	258 214 T	258 214 F
25-piece set of twist drills DIN 338 TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm	258 215	229 215	258 215 T	258 215 F

Twist drills DIN 338 TL 3000 HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point in polystyrene case

No. 258 214

No. 229 214

No. 258 214 T

No. 258 214 F

Description	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**	Article no. **HSS-G TiAlN**
19-piece set of twist drills DIN 338 TL 3000 Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm	258 214 RO	229 214 RO	258 214 TRO	258 214 FRO
25-piece set of twist drills DIN 338 TL 3000 Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm	258 215 RO	229 215 RO	258 215 TRO	258 215 FRO

Jobber length DIN 338 TL 3000 in fractional sizes
HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point

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

Jobber length sets DIN 338 TL 3000 with fractional sizes
HSS, HSS Co 5, HSS-TiN and HSS-TiAlN ground with split point in steel case

No. 258 850

No. 229 850

No. 258 850 T

No. 258 850 F

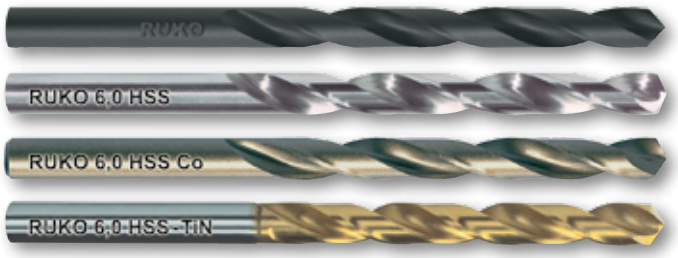
Description	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**	Article no. **HSS-G TiAlN**
21-piece set of jobber length DIN 338 TL 3000 Ø 1/16" up to 3/8" in increments of 1/64"	258 850	229 850	258 850 T	258 850 F
29-piece set of jobber length DIN 338 TL 3000 Ø 1/16" up to 1/2" in increments of 1/64"	258 851	229 851	258 851 T	258 851 F

Twist drills DIN 338 type N

High performance twist drill suitable for all normal drilling in conventional materials.

Point cut: helical point
Helix angle: 20-30°
Ø tolerance: h8
right hand cutting

Packing unit: in plastic box



HSS rolled

Point cut: helical point
Point angle: 118°
Surface: black, steam tempered

High performance rolled twist drill consisting of heavy-duty high speed steel. The material is strengthened by the rolled production process and is more resistant to fracture.

Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 900 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

HSS ground

Point cut: from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 118°
Surface: bright

High performance ground twist drill consisting of heavy-duty high speed steel. The fully ground twist drill has a more precise concentricity.

Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 900 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

HSS Co 5 ground

Point cut: from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 130°
Surface: golden brown

Like HSS-G plus cobalt alloyed. The cobalt content ensures increased heat resistance.

Application areas: for unalloyed and alloyed steel (up to a strength of 1100 N/mm²), hot and cold-working steel, reinforced and case-hardened steel and also steel resistant to rust and acid.

HSS-TiN ground

Point cut: from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 118°
Surface: TiN coating

Like HSS-G plus titanium nitride coating. The TiN wear resistant coating increases the surface hardness to approx. 2,300 HV and the heat resistance to 600 °C. Achieves longer tool life with increased cutting values.
Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 1100 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

Twist drills DIN 338 type N
HSS rolled, HSS ground, HSS Co 5 ground and HSS-TiN ground

Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.
0,30	19,0	3,0	201 003	10	214 003	10	—	—	250 003 T	10
0,40	20,0	5,0	201 004	10	214 004	10	—	—	250 004 T	10
0,50	22,0	6,0	201 005	10	214 005	10	—	—	250 005 T	10
0,60	24,0	7,0	201 006	10	214 006	10	—	—	250 006 T	10
0,70	28,0	9,0	201 007	10	214 007	10	—	—	250 007 T	10
0,80	30,0	10,0	201 008	10	214 008	10	—	—	250 008 T	10
0,90	32,0	11,0	201 009	10	214 009	10	—	—	250 009 T	10
1,00	34,0	12,0	201 010	10	214 010	10	215 010	10	250 010 T	10
1,10	36,0	14,0	201 011	10	214 011	10	215 011	10	250 011 T	10
1,20	38,0	16,0	201 012	10	214 012	10	215 012	10	250 012 T	10
1,25	38,0	16,0	201 0125	10	214 0125	10	215 0125	10	250 0125 T	10
1,30	38,0	16,0	201 013	10	214 013	10	215 013	10	250 013 T	10
1,40	40,0	18,0	201 014	10	214 014	10	215 014	10	250 014 T	10
1,50	40,0	18,0	201 015	10	214 015	10	215 015	10	250 015 T	10
1,60	43,0	20,0	201 016	10	214 016	10	215 016	10	250 016 T	10
1,70	43,0	20,0	201 017	10	214 017	10	215 017	10	250 017 T	10
1,75	46,0	22,0	201 0175	10	214 0175	10	215 0175	10	250 0175 T	10
1,80	46,0	22,0	201 018	10	214 018	10	215 018	10	250 018 T	10
1,90	46,0	22,0	201 019	10	214 019	10	215 019	10	250 019 T	10
2,00	49,0	24,0	201 020	10	214 020	10	215 020	10	250 020 T	10
2,10	49,0	24,0	201 021	10	214 021	10	215 021	10	250 021 T	10
2,20	53,0	27,0	201 022	10	214 022	10	215 022	10	250 022 T	10
2,25	53,0	27,0	201 0225	10	214 0225	10	215 0225	10	250 0225 T	10
2,30	53,0	27,0	201 023	10	214 023	10	215 023	10	250 023 T	10
2,40	57,0	30,0	201 024	10	214 024	10	215 024	10	250 024 T	10
2,50	57,0	30,0	201 025	10	214 025	10	215 025	10	250 025 T	10
2,60	57,0	30,0	201 026	10	214 026	10	215 026	10	250 026 T	10
2,70	61,0	33,0	201 027	10	214 027	10	215 027	10	250 027 T	10
2,75	61,0	33,0	201 0275	10	214 0275	10	215 0275	10	250 0275 T	10
2,80	61,0	33,0	201 028	10	214 028	10	215 028	10	250 028 T	10
2,90	61,0	33,0	201 029	10	214 029	10	215 029	10	250 029 T	10
3,00	61,0	33,0	201 030	10	214 030	10	215 030	10	250 030 T	10
3,10	65,0	36,0	201 031	10	214 031	10	215 031	10	250 031 T	10
3,20	65,0	36,0	201 032	10	214 032	10	215 032	10	250 032 T	10
3,25	65,0	36,0	201 0325	10	214 0325	10	215 0325	10	250 0325 T	10
3,30	65,0	36,0	201 033	10	214 033	10	215 033	10	250 033 T	10
3,40	70,0	39,0	201 034	10	214 034	10	215 034	10	250 034 T	10
3,50	70,0	39,0	201 035	10	214 035	10	215 035	10	250 035 T	10
3,60	70,0	39,0	201 036	10	214 036	10	215 036	10	250 036 T	10
3,70	70,0	39,0	201 037	10	214 037	10	215 037	10	250 037 T	10
3,75	70,0	39,0	201 0375	10	214 0375	10	215 0375	10	250 0375 T	10
3,80	75,0	43,0	201 038	10	214 038	10	215 038	10	250 038 T	10
3,90	75,0	43,0	201 039	10	214 039	10	215 039	10	250 039 T	10
4,00	75,0	43,0	201 040	10	214 040	10	215 040	10	250 040 T	10
4,10	75,0	43,0	201 041	10	214 041	10	215 041	10	250 041 T	10
4,20	75,0	43,0	201 042	10	214 042	10	215 042	10	250 042 T	10
4,25	75,0	43,0	201 0425	10	214 0425	10	215 0425	10	250 0425 T	10
4,30	80,0	47,0	201 043	10	214 043	10	215 043	10	250 043 T	10
4,40	80,0	47,0	201 044	10	214 044	10	215 044	10	250 044 T	10
4,50	80,0	47,0	201 045	10	214 045	10	215 045	10	250 045 T	10
4,60	80,0	47,0	201 046	10	214 046	10	215 046	10	250 046 T	10
4,70	80,0	47,0	201 047	10	214 047	10	215 047	10	250 047 T	10
4,75	80,0	47,0	201 0475	10	214 0475	10	215 0475	10	250 0475 T	10
4,80	86,0	52,0	201 048	10	214 048	10	215 048	10	250 048 T	10
4,90	86,0	52,0	201 049	10	214 049	10	215 049	10	250 049 T	10
5,00	86,0	52,0	201 050	10	214 050	10	215 050	10	250 050 T	10
5,10	86,0	52,0	201 051	10	214 051	10	215 051	10	250 051 T	10
5,20	86,0	52,0	201 052	10	214 052	10	215 052	10	250 052 T	10
5,25	86,0	52,0	201 0525	10	214 0525	10	215 0525	10	250 0525 T	10
5,30	86,0	52,0	201 053	10	214 053	10	215 053	10	250 053 T	10
5,40	93,0	57,0	201 054	10	214 054	10	215 054	10	250 054 T	10
5,50	93,0	57,0	201 055	10	214 055	10	215 055	10	250 055 T	10
5,60	93,0	57,0	201 056	10	214 056	10	215 056	10	250 056 T	10
5,70	93,0	57,0	201 057	10	214 057	10	215 057	10	250 057 T	10

Twist drills DIN 338 type N
HSS rolled, HSS ground, HSS Co 5 ground and HSS-TiN ground

Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.
5,70	93,0	57,0	201 057	10	214 057	10	215 057	10	250 057 T	10
5,75	93,0	57,0	201 0575	10	214 0575	10	215 0575	10	250 0575 T	10
5,80	93,0	57,0	201 058	10	214 058	10	215 058	10	250 058 T	10
5,90	93,0	57,0	201 059	10	214 059	10	215 059	10	250 059 T	10
6,00	93,0	57,0	201 060	10	214 060	10	215 060	10	250 060 T	10
6,10	101,0	63,0	201 061	10	214 061	10	215 061	10	250 061 T	10
6,20	101,0	63,0	201 062	10	214 062	10	215 062	10	250 062 T	10
6,25	101,0	63,0	201 0625	10	214 0625	10	215 0625	10	250 0625 T	10
6,30	101,0	63,0	201 063	10	214 063	10	215 063	10	250 063 T	10
6,40	101,0	63,0	201 064	10	214 064	10	215 064	10	250 064 T	10
6,50	101,0	63,0	201 065	10	214 065	10	215 065	10	250 065 T	10
6,60	101,0	63,0	201 066	10	214 066	10	215 066	10	250 066 T	10
6,70	101,0	63,0	201 067	10	214 067	10	215 067	10	250 067 T	10
6,75	101,0	63,0	201 0675	10	214 0675	10	215 0675	10	250 0675 T	10
6,80	109,0	69,0	201 068	10	214 068	10	215 068	10	250 068 T	10
6,90	109,0	69,0	201 069	10	214 069	10	215 069	10	250 069 T	10
7,00	109,0	69,0	201 070	10	214 070	10	215 070	10	250 070 T	10
7,10	109,0	69,0	201 071	10	214 071	10	215 071	10	250 071 T	10
7,20	109,0	69,0	201 072	10	214 072	10	215 072	10	250 072 T	10
7,25	109,0	69,0	201 0725	10	214 0725	10	215 0725	10	250 0725 T	10
7,30	109,0	69,0	201 073	10	214 073	10	215 073	10	250 073 T	10
7,40	109,0	69,0	201 074	10	214 074	10	215 074	10	250 074 T	10
7,50	109,0	69,0	201 075	10	214 075	10	215 075	10	250 075 T	10
7,60	117,0	75,0	201 076	10	214 076	10	215 076	10	250 076 T	10
7,70	117,0	75,0	201 077	10	214 077	10	215 077	10	250 077 T	10
7,75	117,0	75,0	201 0775	10	214 0775	10	215 0775	10	250 0775 T	10
7,80	117,0	75,0	201 078	10	214 078	10	215 078	10	250 078 T	10
7,90	117,0	75,0	201 079	10	214 079	10	215 079	10	250 079 T	10
8,00	117,0	75,0	201 080	10	214 080	10	215 080	10	250 080 T	10
8,10	117,0	75,0	201 081	10	214 081	10	215 081	10	250 081 T	10
8,20	117,0	75,0	201 082	10	214 082	10	215 082	10	250 082 T	10
8,25	117,0	75,0	201 0825	10	214 0825	10	215 0825	10	250 0825 T	10
8,30	117,0	75,0	201 083	10	214 083	10	215 083	10	250 083 T	10
8,40	117,0	75,0	201 084	10	214 084	10	215 084	10	250 084 T	10
8,50	117,0	75,0	201 085	10	214 085	10	215 085	10	250 085 T	10
8,60	125,0	81,0	201 086	10	214 086	10	215 086	10	250 086 T	10
8,70	125,0	81,0	201 087	10	214 087	10	215 087	10	250 087 T	10
8,75	125,0	81,0	201 0875	10	214 0875	10	215 0875	10	250 0875 T	10
8,80	125,0	81,0	201 088	10	214 088	10	215 088	10	250 088 T	10
8,90	125,0	81,0	201 089	10	214 089	10	215 089	10	250 089 T	10
9,00	125,0	81,0	201 090	10	214 090	10	215 090	10	250 090 T	10
9,10	125,0	81,0	201 091	10	214 091	10	215 091	10	250 091 T	10
9,20	125,0	81,0	201 092	10	214 092	10	215 092	10	250 092 T	10
9,25	125,0	81,0	201 0925	10	214 0925	10	215 0925	10	250 0925 T	10
9,30	125,0	81,0	201 093	10	214 093	10	215 093	10	250 093 T	10
9,40	125,0	81,0	201 094	10	214 094	10	215 094	10	250 094 T	10
9,50	125,0	81,0	201 095	10	214 095	10	215 095	10	250 095 T	10
9,60	133,0	87,0	201 096	10	214 096	10	215 096	10	250 096 T	10
9,70	133,0	87,0	201 097	10	214 097	10	215 097	10	250 097 T	10
9,75	133,0	87,0	201 0975	10	214 0975	10	215 0975	10	250 0975 T	10
9,80	133,0	87,0	201 098	10	214 098	10	215 098	10	250 098 T	10
9,90	133,0	87,0	201 099	10	214 099	10	215 099	10	250 099 T	10
10,00	133,0	87,0	201 100	10	214 100	10	215 100	10	250 100 T	10
10,10	133,0	87,0	201 101	10	214 101	10	—	—	250 101 T	10
10,20	133,0	87,0	201 102	10	214 102	10	215 102	10	250 102 T	10
10,30	133,0	87,0	201 103	10	214 103	10	—	—	250 103 T	10
10,40	133,0	87,0	201 104	10	214 104	10	—	—	250 104 T	10
10,50	133,0	87,0	201 105	5	214 105	5	215 105	5	250 105 T	5
10,60	133,0	87,0	201 106	5	214 106	5	—	—	250 106 T	5
10,70	142,0	94,0	201 107	5	214 107	5	—	—	250 107 T	5
10,80	142,0	94,0	201 108	5	214 108	5	—	—	250 108 T	5
10,90	142,0	94,0	201 109	5	214 109	5	—	—	250 109 T	5
11,00	142,0	94,0	201 110	5	214 110	5	215 110	5	250 110 T	5
11,10	142,0	94,0	201 111	5	214 111	5	—	—	250 111 T	5

Twist drills DIN 338 type N
HSS rolled, HSS ground, HSS Co 5 ground and HSS-TiN ground

Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.
11,20	142,0	94,0	201 112	5	214 112	5	—	—	250 112 T	5
11,30	142,0	94,0	201 113	5	214 113	5	—	—	250 113 T	5
11,40	142,0	94,0	201 114	5	214 114	5	—	—	250 114 T	5
11,50	142,0	94,0	201 115	5	214 115	5	215 115	5	250 115 T	5
11,60	142,0	94,0	201 116	5	214 116	5	—	—	250 116 T	5
11,70	142,0	94,0	201 117	5	214 117	5	—	—	250 117 T	5
11,80	142,0	94,0	201 118	5	214 118	5	—	—	250 118 T	5
11,90	151,0	101,0	201 119	5	214 119	5	—	—	250 119 T	5
12,00	151,0	101,0	201 120	5	214 120	5	215 120	5	250 120 T	5
12,10	151,0	101,0	201 121	5	214 121	5	—	—	250 121 T	5
12,20	151,0	101,0	201 122	5	214 122	5	—	—	250 122 T	5
12,30	151,0	101,0	201 123	5	214 123	5	—	—	250 123 T	5
12,40	151,0	101,0	201 124	5	214 124	5	—	—	250 124 T	5
12,50	151,0	101,0	201 125	5	214 125	5	215 125	5	250 125 T	5
12,60	151,0	101,0	201 126	5	214 126	5	—	—	250 126 T	5
12,70	151,0	101,0	201 127	5	214 127	5	—	—	250 127 T	5
12,80	151,0	101,0	201 128	5	214 128	5	—	—	250 128 T	5
12,90	151,0	101,0	201 129	5	214 129	5	—	—	250 129 T	5
13,00	151,0	101,0	201 130	5	214 130	5	215 130	5	250 130 T	5
13,50	160,0	108,0	201 135	5	214 135	5	215 135	5	250 135 T	5
14,00	160,0	108,0	201 140	5	214 140	5	215 140	5	250 140 T	5
14,50	169,0	114,0	201 145	5	214 145	5	215 145	5	250 145 T	5
15,00	169,0	114,0	201 150	5	214 150	5	215 150	5	250 150 T	5
15,50	178,0	120,0	201 155	5	214 155	5	215 155	5	250 155 T	5
16,00	178,0	120,0	201 160	5	214 160	5	215 160	5	250 160 T	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 and HSS Co 5 ground with split point in magazine

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

No. 214 200

Twist drill sets DIN 338 type N HSS rolled, HSS ground, HSS Co 5 ground and HSS-TiN ground in steel case

No. 205 212

No. 214 214

No. 215 214

No. 250 214 T

Description	Article no. **HSS-R**	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm	205 212	214 214	215 214	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	205 213	214 215	215 215	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	205 218	214 218	215 218	—
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	205 217	214 217	215 217	—

Twist drill sets DIN 338 type N HSS rolled, HSS ground, HSS Co 5 ground and HSS-TiN ground in polystyrene case

No. 205 212 RO

No. 214 214 RO

No. 215 214 RO

No. 250 214 TRO

Description	Article no. **HSS-R**	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**
19-piece set of twist drills DIN 338 type N Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm	205 212 RO	214 214 RO	215 214 RO	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	205 213 RO	214 215 RO	215 215 RO	250 215 TRO

Twist drill sets DIN 338 type N HSS rolled in steel case

Description	Article no.
13-piece set of twist drills DIN 338 type N Ø 1,5 mm up to 6,5 mm in increments of 0,5 mm + Ø 3,3 and 4,2 mm	205 207

Twist drill sets DIN 338 type N HSS rolled, HSS ground and HSS Co 5 ground in bench stand

Description	Article no.
91-piece set of twist drills DIN 338 type N HSS rolled Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	205 223
91-piece set of twist drills DIN 338 type N HSS ground Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	214 223
91-piece set of twist drills DIN 338 type N HSS Co 5 ground Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm	215 223

No. 205 223

Drill cabinet

Description	Article no.
Drill cabinet empty Ø 1,0 mm up to 10,0 mm in increments of 0,1 mm + Ø 10,5 mm up to 13,0 mm in increments of 0,5 mm	205 2081 L
Drill cabinet empty Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm	205 208 L
Drill cabinet consisting of 570 twist drills DIN 338 type N HSS rolled contents list see below	205 208
Drill cabinet consisting of 570 twist drills DIN 338 type N HSS ground contents list see below	214 208
Drill cabinet consisting of 570 twist drills DIN 338 type N HSS Co 5 ground contents list see below	215 208

No. 205 208 L

No. 205 2081 L

Contents list:

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

Jobber length DIN 338 type N in fractional sizes
HSS, HSS Co 5 and HSS-TiN ground with split point

Ø in inch	Ø in mm	Total length in inch	Flute length in inch	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G TiN**	Cont. pcs.
1/16	1,59	1 7/8	7/8	214 801	10	215 801	10	250 801 T	10
5/64	1,98	2	1	214 802	10	215 802	10	250 802 T	10
3/32	2,38	2 1/4	1 1/4	214 803	10	215 803	10	250 803 T	10
7/64	2,78	2 5/8	1 1/2	214 804	10	215 804	10	250 804 T	10
1/8	3,18	2 3/4	1 5/8	214 805	10	215 805	10	250 805 T	10
9/64	3,57	2 7/8	1 3/4	214 806	10	215 806	10	250 806 T	10
5/32	3,97	3 1/8	2	214 807	10	215 807	10	250 807 T	10
11/64	4,37	3 1/4	2 1/8	214 808	10	215 808	10	250 808 T	10
3/16	4,76	3 1/2	2 5/16	214 809	10	215 809	10	250 809 T	10
13/64	5,16	3 5/8	2 7/16	214 810	10	215 810	10	250 810 T	10
7/32	5,56	3 3/4	2 1/2	214 811	10	215 811	10	250 811 T	10
15/64	5,95	3 7/8	2 5/8	214 812	10	215 812	10	250 812 T	10
1/4	6,35	4	2 3/4	214 813	10	215 813	10	250 813 T	10
17/64	6,75	4 1/8	2 7/8	214 814	10	215 814	10	250 814 T	10
9/32	7,14	4 1/4	2 15/16	214 815	10	215 815	10	250 815 T	10
19/64	7,54	4 3/8	3 1/16	214 816	10	215 816	10	250 816 T	10
5/16	7,94	4 1/2	3 3/16	214 817	10	215 817	10	250 817 T	10
21/64	8,33	4 5/8	3 5/16	214 818	10	215 818	10	250 818 T	10
11/32	8,73	4 3/4	3 7/16	214 819	10	215 819	10	250 819 T	10
23/64	9,13	4 7/8	3 1/2	214 820	10	215 820	10	250 820 T	10
3/8	9,53	5	3 5/8	214 821	10	215 821	10	250 821 T	10
25/64	9,92	5 1/8	3 3/4	214 822	10	215 822	10	250 822 T	10
13/32	10,32	5 1/4	3 7/8	214 823	10	215 823	10	250 823 T	10
27/64	10,72	5 3/8	3 15/16	214 824	5	215 824	5	250 824 T	5
7/16	11,11	5 1/2	4 1/16	214 825	5	215 825	5	250 825 T	5
29/64	11,51	5 5/8	4 3/16	214 826	5	215 826	5	250 826 T	5
15/32	11,91	5 3/4	4 5/16	214 827	5	215 827	5	250 827 T	5
31/64	12,30	5 7/8	4 3/8	214 828	5	215 828	5	250 828 T	5
1/2	12,70	6	4 1/2	214 829	5	215 829	5	250 829 T	5

Jobber length sets DIN 338 type N with fractional sizes
HSS, HSS Co 5 and HSS-TiN ground with split point in steel case

No. 214 850

No. 215 850

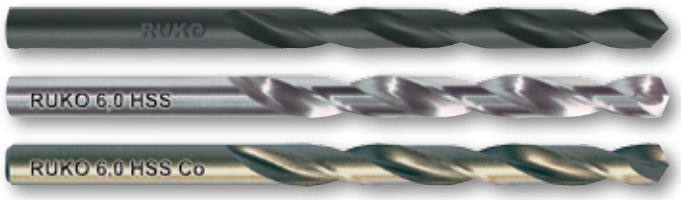
No. 250 850 T

Description	Article no. **HSS-G**	Article no. **HSS-G Co 5**	Article no. **HSS-G TiN**
21-piece set of jobber length DIN 338 type N Ø 1/16" up to 3/8" in increments of 1/64"	214 850	215 850	250 850 T
29-piece set of jobber length DIN 338 type N Ø 1/16" up to 1/2" in increments of 1/64"	214 851	215 851	250 851 T

Twist drills DIN 338 type N
HSS rolled, HSS ground and HSS Co 5 ground in plastic bags

Point cut: helical point
Helix angle: 20-30°
Ø tolerance: h8
right hand cutting

Packing unit: in plastic bags



Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.
1,00	34,0	12,0	206 010	3	2144 010	2	2155 010	1
1,50	40,0	18,0	206 015	3	2144 015	2	2155 015	1
2,00	49,0	24,0	206 020	3	2144 020	2	2155 020	1
2,50	57,0	30,0	206 025	2	2144 025	2	2155 025	1
2,90	61,0	33,0	206 029	2	2144 029	2	2155 029	1
3,00	61,0	33,0	206 030	2	2144 030	2	2155 030	1
3,20	65,0	36,0	206 032	2	2144 032	2	2155 032	1
3,30	65,0	36,0	206 033	2	2144 033	2	2155 033	1
3,50	70,0	39,0	206 035	2	2144 035	2	2155 035	1
3,70	70,0	39,0	206 037	2	2144 037	1	2155 037	1
4,00	75,0	43,0	206 040	2	2144 040	1	2155 040	1
4,20	75,0	43,0	206 042	2	2144 042	1	2155 042	1
4,50	80,0	47,0	206 045	2	2144 045	1	2155 045	1
4,80	86,0	52,0	206 048	2	2144 048	1	2155 048	1
5,00	86,0	52,0	206 050	2	2144 050	1	2155 050	1
5,50	93,0	57,0	206 055	2	2144 055	1	2155 055	1
6,00	93,0	57,0	206 060	2	2144 060	1	2155 060	1
6,50	101,0	63,0	206 065	1	2144 065	1	2155 065	1
6,80	109,0	69,0	206 068	1	2144 068	1	2155 068	1
7,00	109,0	69,0	206 070	1	2144 070	1	2155 070	1
7,50	109,0	69,0	206 075	1	2144 075	1	2155 075	1
8,00	117,0	75,0	206 080	1	2144 080	1	2155 080	1
8,50	117,0	75,0	206 085	1	2144 085	1	2155 085	1
9,00	125,0	81,0	206 090	1	2144 090	1	2155 090	1
9,50	125,0	81,0	206 095	1	2144 095	1	2155 095	1
10,00	133,0	87,0	206 100	1	2144 100	1	2155 100	1
10,20	133,0	87,0	206 102	1	2144 102	1	2155 102	1
10,50	133,0	87,0	206 105	1	2144 105	1	2155 105	1
11,00	142,0	94,0	206 110	1	2144 110	1	2155 110	1
11,50	142,0	94,0	206 115	1	2144 115	1	2155 115	1
12,00	151,0	101,0	206 120	1	2144 120	1	2155 120	1
12,50	151,0	101,0	206 125	1	2144 125	1	2155 125	1
13,00	151,0	101,0	206 130	1	2144 130	1	2155 130	1
13,50	160,0	108,0	206 135	1	—	—	—	—
14,00	160,0	108,0	206 140	1	—	—	—	—
14,50	169,0	114,0	206 145	1	—	—	—	—
15,00	169,0	114,0	206 150	1	—	—	—	—
15,50	178,0	120,0	206 155	1	—	—	—	—
16,00	178,0	120,0	206 160	1	—	—	—	—

Twist drills DIN 345 type N

Highly efficient standard drill with Morse taper. High security against fracture.

Point cut: cut chisel edge in accordance with DIN 1412 A
Point angle: 118°
Helix angle: 20-30°
Ø tolerance: h8
right hand cutting

Packing unit: in plastic box

HSS

Surface: bright / ground

Highly efficient standard drill consisting of heavy-duty high speed steel usable for all drilling work in normal materials.

Applications: for steel and cast-steel alloyed and unalloyed up to approx. 900 N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-silver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

HSS Co 5 ground

Surface: bright

Highly efficient standard drill consisting of cobalt alloyed heavy duty high-speed steel with higher heat-resistance. Ideally suitable for drilling of materials that are difficult to drill and for highest loading.

Applications: for steel and cast-steel alloyed and unalloyed over 900 N/mm² strength, grey cast, malleable cast, high-alloyed chromium steel such as stainless and acid resistant steel.

HSS Co 5 TiN ground

Surface: TiN coating

Like HSS Co 5 ground plus titanium nitride coating. The TiN wear-resistant coating increases the surface hardness to approx. 2,300 HV and the heat resistance to 600 °C. Ideally suitable for drilling of materials that are difficult to drill and for highest loading.

Applications: for steel and cast-steel alloyed and unalloyed up to approx. 1.200 N/mm² strength, grey cast, malleable cast, high-alloyed chromium steel such as stainless and acid resistant steel.

Twist drills DIN 345 type N
HSS, HSS-G Co 5 and HSS-G Co 5 TiN

Ø mm	Total length mm	Flute length mm	Morse taper no.	Article no. **HSS**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.	Article no. **HSS-G Co 5 TiN**	Cont. pcs.
10,00	168,0	87,0	1	204 100	1	204 100 E	1	204 100 T	1
10,50	168,0	87,0	1	204 105	1	204 105 E	1	204 105 T	1
11,00	175,0	94,0	1	204 110	1	204 110 E	1	204 110 T	1
11,50	175,0	94,0	1	204 115	1	204 115 E	1	204 115 T	1
12,00	182,0	101,0	1	204 120	1	204 120 E	1	204 120 T	1
12,50	182,0	101,0	1	204 125	1	204 125 E	1	204 125 T	1
13,00	182,0	101,0	1	204 130	1	204 130 E	1	204 130 T	1
13,50	189,0	108,0	1	204 135	1	204 135 E	1	204 135 T	1
14,00	189,0	108,0	1	204 140	1	204 140 E	1	204 140 T	1
14,50	212,0	114,0	2	204 145	1	204 145 E	1	204 145 T	1
15,00	212,0	114,0	2	204 150	1	204 150 E	1	204 150 T	1
15,50	218,0	120,0	2	204 155	1	204 155 E	1	204 155 T	1
16,00	218,0	120,0	2	204 160	1	204 160 E	1	204 160 T	1
16,50	223,0	125,0	2	204 165	1	204 165 E	1	204 165 T	1
17,00	223,0	125,0	2	204 170	1	204 170 E	1	204 170 T	1
17,50	228,0	130,0	2	204 175	1	204 175 E	1	204 175 T	1
18,00	228,0	130,0	2	204 180	1	204 180 E	1	204 180 T	1
18,50	233,0	135,0	2	204 185	1	204 185 E	1	204 185 T	1
19,00	233,0	135,0	2	204 190	1	204 190 E	1	204 190 T	1
19,50	238,0	140,0	2	204 195	1	204 195 E	1	204 195 T	1
20,00	238,0	140,0	2	204 200	1	204 200 E	1	204 200 T	1
20,50	243,0	145,0	2	204 205	1	204 205 E	1	204 205 T	1
21,00	243,0	145,0	2	204 210	1	204 210 E	1	204 210 T	1
21,50	248,0	150,0	2	204 215	1	204 215 E	1	204 215 T	1
22,00	248,0	150,0	2	204 220	1	204 220 E	1	204 220 T	1
22,50	253,0	155,0	2	204 225	1	204 225 E	1	204 225 T	1
23,00	253,0	155,0	2	204 230	1	204 230 E	1	204 230 T	1

Twist drills DIN 345 type N
HSS, HSS-G Co 5 and HSS-G Co 5 TiN

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

Twist drills DIN 340 TL 3000 HSS Co 5 ground with split point

Point cut: helical point
from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 130°
Helix angle: 40°
Ø tolerance: h8
Surface: golden brown
right hand cutting

Packing unit:
Ø 2,5 mm up to 10,0 mm in plastic box of 10
Ø 10,5 mm up to 13,0 mm in plastic box of 5

Multirange drill consisting of cobalt alloyed heavy-duty high-speed steel with higher heat-resistance.
Ideally suitable for drilling of materials that are middle, long-chipping and hard to work. Especially suitable for drilling deep holes.
Covers in many areas type N, H and W.

Applications:
for steel alloyed and unalloyed up to approx. 1200 N/mm² strength, acid resistant steel, titanium, titanium alloy, cast iron, aluminium, aluminium alloy, copper, brass, bronze and further materials.

Ø mm	Total length mm	Flute length mm	Article no.
2,50	95,0	62,0	253 025
3,00	100,0	66,0	253 030
3,10	106,0	69,0	253 031
3,20	106,0	69,0	253 032
3,30	106,0	69,0	253 033
3,40	112,0	73,0	253 034
3,50	112,0	73,0	253 035
3,60	112,0	73,0	253 036
3,70	112,0	73,0	253 037
3,80	119,0	78,0	253 038
3,90	119,0	78,0	253 039
4,00	119,0	78,0	253 040
4,10	119,0	78,0	253 041
4,20	119,0	78,0	253 042
4,30	126,0	82,0	253 043
4,40	126,0	82,0	253 044
4,50	126,0	82,0	253 045
4,60	126,0	82,0	253 046
4,70	126,0	82,0	253 047
4,80	132,0	87,0	253 048
4,90	132,0	87,0	253 049
5,00	132,0	87,0	253 050
5,10	132,0	87,0	253 051
5,20	132,0	87,0	253 052
5,30	132,0	87,0	253 053
5,40	139,0	91,0	253 054
5,50	139,0	91,0	253 055
5,60	139,0	91,0	253 056
5,70	139,0	91,0	253 057
5,80	139,0	91,0	253 058
5,90	139,0	91,0	253 059
6,00	139,0	91,0	253 060
6,10	148,0	97,0	253 061
6,20	148,0	97,0	253 062
6,30	148,0	97,0	253 063
6,40	148,0	97,0	253 064
6,50	148,0	97,0	253 065
6,60	148,0	97,0	253 066
6,70	148,0	97,0	253 067

Ø mm	Total length mm	Flute length mm	Article no.
6,80	156,0	102,0	253 068
6,90	156,0	102,0	253 069
7,00	156,0	102,0	253 070
7,10	156,0	102,0	253 071
7,20	156,0	102,0	253 072
7,30	156,0	102,0	253 073
7,40	156,0	102,0	253 074
7,50	156,0	102,0	253 075
7,60	165,0	109,0	253 076
7,70	165,0	109,0	253 077
7,80	165,0	109,0	253 078
7,90	165,0	109,0	253 079
8,00	165,0	109,0	253 080
8,10	165,0	109,0	253 081
8,20	165,0	109,0	253 082
8,30	165,0	109,0	253 083
8,40	165,0	109,0	253 084
8,50	165,0	109,0	253 085
8,60	175,0	115,0	253 086
8,70	175,0	115,0	253 087
8,80	175,0	115,0	253 088
8,90	175,0	115,0	253 089
9,00	175,0	115,0	253 090
9,10	175,0	115,0	253 091
9,20	175,0	115,0	253 092
9,30	175,0	115,0	253 093
9,40	175,0	115,0	253 094
9,50	175,0	115,0	253 095
9,60	184,0	121,0	253 096
9,70	184,0	121,0	253 097
9,80	184,0	121,0	253 098
9,90	184,0	121,0	253 099
10,00	184,0	121,0	253 100
10,50	184,0	121,0	253 105
11,00	195,0	128,0	253 110
11,50	195,0	128,0	253 115
12,00	205,0	134,0	253 120
12,50	205,0	134,0	253 125
13,00	205,0	134,0	253 130

Twist drills DIN 340 type N HSS ground

Point cut: helical point
Point angle: 118°
Helix angle: 20-30°
Ø tolerance: h8
Surface: bright

right hand cutting

Packing unit:
Ø 2,5 mm up to 10,0 mm in plastic box of 10
Ø 10,5 mm up to 13,0 mm in plastic box of 5

Highly efficient standard drill in long version. Suitable for deep hole drillings in all normal materials.
High security against fracture.
For deep hole drillings small forward feeds and frequent chip removal are necessary.

Applications:
for steel and cast-steel alloyed and unalloyed up to approx. 900 N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-sliver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

Ø mm	Total length mm	Flute length mm	Article no.
2,50	95,0	62,0	203 025
3,00	100,0	66,0	203 030
3,10	106,0	69,0	203 031
3,20	106,0	69,0	203 032
3,30	106,0	69,0	203 033
3,40	112,0	73,0	203 034
3,50	112,0	73,0	203 035
3,60	112,0	73,0	203 036
3,70	112,0	73,0	203 037
3,80	119,0	78,0	203 038
3,90	119,0	78,0	203 039
4,00	119,0	78,0	203 040
4,10	119,0	78,0	203 041
4,20	119,0	78,0	203 042
4,30	126,0	82,0	203 043
4,40	126,0	82,0	203 044
4,50	126,0	82,0	203 045
4,60	126,0	82,0	203 046
4,70	126,0	82,0	203 047
4,80	132,0	87,0	203 048
4,90	132,0	87,0	203 049
5,00	132,0	87,0	203 050
5,10	132,0	87,0	203 051
5,20	132,0	87,0	203 052
5,30	132,0	87,0	203 053
5,40	139,0	91,0	203 054
5,50	139,0	91,0	203 055
5,60	139,0	91,0	203 056
5,70	139,0	91,0	203 057
5,80	139,0	91,0	203 058
5,90	139,0	91,0	203 059
6,00	139,0	91,0	203 060
6,10	148,0	97,0	203 061
6,20	148,0	97,0	203 062
6,30	148,0	97,0	203 063
6,40	148,0	97,0	203 064
6,50	148,0	97,0	203 065
6,60	148,0	97,0	203 066
6,70	148,0	97,0	203 067

Ø mm	Total length mm	Flute length mm	Article no.
6,80	156,0	102,0	203 068
6,90	156,0	102,0	203 069
7,00	156,0	102,0	203 070
7,10	156,0	102,0	203 071
7,20	156,0	102,0	203 072
7,30	156,0	102,0	203 073
7,40	156,0	102,0	203 074
7,50	156,0	102,0	203 075
7,60	165,0	109,0	203 076
7,70	165,0	109,0	203 077
7,80	165,0	109,0	203 078
7,90	165,0	109,0	203 079
8,00	165,0	109,0	203 080
8,10	165,0	109,0	203 081
8,20	165,0	109,0	203 082
8,30	165,0	109,0	203 083
8,40	165,0	109,0	203 084
8,50	165,0	109,0	203 085
8,60	175,0	115,0	203 086
8,70	175,0	115,0	203 087
8,80	175,0	115,0	203 088
8,90	175,0	115,0	203 089
9,00	175,0	115,0	203 090
9,10	175,0	115,0	203 091
9,20	175,0	115,0	203 092
9,30	175,0	115,0	203 093
9,40	175,0	115,0	203 094
9,50	175,0	115,0	203 095
9,60	184,0	121,0	203 096
9,70	184,0	121,0	203 097
9,80	184,0	121,0	203 098
9,90	184,0	121,0	203 099
10,00	184,0	121,0	203 100
10,50	184,0	121,0	203 105
11,00	195,0	128,0	203 110
11,50	195,0	128,0	203 115
12,00	205,0	134,0	203 120
12,50	205,0	134,0	203 125
13,00	205,0	134,0	203 130

Solid TC twist drills DIN 338 type N TiAlN coated with split point

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

Point cut: helical point
from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 118°
Helix angle: 20-30°
Ø-tolerance: h8
Surface: TiAlN coating
right hand cutting

Packing unit: in plastic box

Solid tungsten carbide K 20 twist drill with titanium aluminium nitride coating.
The TiAlN wear-resistant coating increases the surface hardness to approx. 3,000 HV and the heat resistance to 900 °C.
This helps to increase service lives and cutting rates by 50%.

Application areas:
for high strength steels up to 1200 N/mm², cast steel, grey iron, chilled cast iron, annealed cast iron, CrNi steels, titanium alloys, bronze, brass, copper, aluminium with high silicon content and abrasive plastics.

Ø mm	Total length mm	Flute length mm	Article no.	Cont. pcs.
3,00	61,0	33,0	814 030	1
3,10	61,0	36,0	814 031	1
3,20	61,0	36,0	814 032	1
3,30	61,0	36,0	814 033	1
3,40	61,0	39,0	814 034	1
3,50	70,0	39,0	814 035	1
3,60	70,0	39,0	814 036	1
3,70	70,0	39,0	814 037	1
3,80	75,0	43,0	814 038	1
3,90	75,0	43,0	814 039	1
4,00	75,0	43,0	814 040	1
4,10	75,0	43,0	814 041	1
4,20	75,0	43,0	814 042	1
4,30	80,0	47,0	814 043	1
4,40	80,0	47,0	814 044	1
4,50	80,0	47,0	814 045	1
4,60	80,0	47,0	814 046	1
4,70	80,0	47,0	814 047	1
4,80	86,0	52,0	814 048	1
4,90	86,0	52,0	814 049	1

Ø mm	Total length mm	Flute length mm	Article no.	Cont. pcs.
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
6,80	109,0	69,0	814 068	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
10,20	133,0	87,0	814 102	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 drills DIN 338 HSS ground "TURBO"

High-performance twist drill, particularly suited to freehand drilling of thin-walled materials.

Point cut: helical point
Center angle: 130°
Helix angle: 56°
Ø tolerance: h8
Surface: golden brown
right hand cutting

Packing unit: in plastic box

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 shaft (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/mm²), for drilling thin-walled profiles and sheeting up to 5,0 mm, plastics and wood.

Ø mm	Total length mm	Flute length mm	Article no.	Cont. pcs.
1,00	34,0	12,0	2146 010	10
1,50	40,0	18,0	2146 015	10
2,00	49,0	24,0	2146 020	10
2,50	57,0	30,0	2146 025	10
3,00	61,0	33,0	2146 030	10
3,20	65,0	36,0	2146 032	10
3,30	65,0	36,0	2146 033	10
3,50	70,0	39,0	2146 035	10
4,00	75,0	43,0	2146 040	10
4,10	75,0	43,0	2146 041	10
4,20	75,0	43,0	2146 042	10
4,50	80,0	46,0	2146 045	10
4,80	86,0	46,0	2146 048	10
5,00	86,0	46,0	2146 050	10
5,10	86,0	46,0	2146 051	10
5,20	86,0	46,0	2146 052	10
5,40	93,0	52,0	2146 054	10
5,50	93,0	52,0	2146 055	10

Ø mm	Total length mm	Flute length mm	Article no.	Cont. pcs.
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
11,80	151,0	98,0	2146 118	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 HSS ground "TURBO" in steel case and polystyrene case

Description	Article no.
19-piece set of twist drills DIN 338 HSS ground "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 HSS ground "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 "TURBO" Ø 1,0 mm up to 10,0 mm in increments of 0,5 mm in polystyrene case	214 614 RO
25-piece set of twist drills DIN 338 "TURBO" Ø 1,0 mm up to 13,0 mm in increments of 0,5 mm in polystyrene case	214 615 RO

Twist drills DIN 338 type N with reduced shank

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

Point cut: helical point
Helix angle: 20-30°
Ø tolerance: h8
right hand cutting

Packing unit: in plastic box

HSS rolled

Point cut: helical point
Point angle: 118°
Surface: black, steam tempered

High performance rolled twist drill consisting of heavy-duty high speed steel. The material is strengthened by the rolled production process and is more resistant to fracture.

Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 900 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

HSS ground

Point cut: **with split point** DIN 1412 C
Point angle: 118°
Surface: bright

High performance ground twist drill consisting of heavy-duty high speed steel. The fully ground twist drill has a more precise concentricity.

Application areas: for steel, alloyed and unalloyed cast iron (up to a strength of 900 N/mm²), grey, malleable, ductile and die-cast iron, sintered iron, nickel silver, graphite, short chipping aluminium alloys, brass and bronze.

HSS Co 5 ground

Point cut: **with split point** DIN 1412 C
Point angle: 130°
Surface: golden brown

Like HSS-G plus cobalt alloyed. The cobalt content ensures increased heat resistance.

Application areas: for unalloyed and alloyed steel (up to a strength of 900 N/mm²), hot and cold-working steel, reinforced and case-hardened steel and also steel resistant to rust and acid.

Twist drills DIN 338 type N with reduced shank HSS rolled, HSS ground and HSS Co 5 ground

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

Twist drills DIN 1897 type N - short

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 all hand-held drilling machines.

Point cut: helical point
Helix angle: 20-30°
Ø tolerance: h8
right hand cutting

Packing unit: in plastic box

HSS rolled

Point cut: helical point
Point angle: 118°
Surface: black, steam tempered

Short and stable rolled standard drill consisting of heavy-duty high speed steel.

Applications: for steel and cast-steel alloyed and unalloyed up to approx. 900 N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-silver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

HSS Co 5 ground

Point cut: from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 135°
Surface: golden brown

Short and stable ground standard drill consisting of cobalt alloyed heavy-duty high-speed steel with higher heat-resistance.

Applications: for steel and alloyed cast steel (up to a strength of 1100 N/mm²), grey cast, malleable cast, high-alloyed chromium steel such as stainless and acid resistant steel.

Twist drills DIN 1897 type N - short
HSS rolled and HSS Co 5 ground

Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.
2,00	38,0	12,0	202 020	10	202 020 E	10
2,10	38,0	12,0	202 021	10	—	—
2,20	40,0	13,0	202 022	10	—	—
2,30	40,0	13,0	202 023	10	—	—
2,40	43,0	14,0	202 024	10	—	—
2,50	43,0	14,0	202 025	10	202 025 E	10
2,60	43,0	14,0	202 026	10	—	—
2,70	46,0	16,0	202 027	10	—	—
2,80	46,0	16,0	202 028	10	—	—
2,90	46,0	16,0	202 029	10	—	—
3,00	46,0	16,0	202 030	10	202 030 E	10
3,10	49,0	18,0	202 031	10	202 031 E	10
3,20	49,0	18,0	202 032	10	202 032 E	10
3,25	49,0	18,0	—	—	202 0325 E	10
3,30	49,0	18,0	202 033	10	202 033 E	10
3,40	52,0	20,0	202 034	10	202 034 E	10
3,50	52,0	20,0	202 035	10	202 035 E	10
3,60	52,0	20,0	202 036	10	202 036 E	10
3,70	52,0	20,0	202 037	10	202 037 E	10
3,80	55,0	22,0	202 038	10	202 038 E	10
3,90	55,0	22,0	202 039	10	—	—
4,00	55,0	22,0	202 040	10	202 040 E	10
4,10	55,0	22,0	202 041	10	202 041 E	10
4,20	55,0	22,0	202 042	10	202 042 E	10
4,25	55,0	22,0	—	—	202 0425 E	10
4,30	58,0	24,0	202 043	10	—	—
4,40	58,0	24,0	202 044	10	202 044 E	10
4,50	58,0	24,0	202 045	10	202 045 E	10
4,60	58,0	24,0	202 046	10	—	—
4,70	58,0	24,0	202 047	10	202 047 E	10
4,80	62,0	26,0	202 048	10	202 048 E	10

Twist drills DIN 1897 type N - short
HSS rolled and HSS Co 5 ground

Ø mm	Total length mm	Flute length mm	Article no. **HSS-R**	Cont. pcs.	Article no. **HSS-G Co 5**	Cont. pcs.
4,90	62,0	26,0	202 049	10	202 049 E	10
5,00	62,0	26,0	202 050	10	202 050 E	10
5,10	62,0	26,0	202 051	10	202 051 E	10
5,20	62,0	26,0	202 052	10	202 052 E	10
5,30	62,0	26,0	202 053	10	—	—
5,40	66,0	28,0	202 054	10	—	—
5,50	66,0	28,0	202 055	10	202 055 E	10
5,60	66,0	28,0	202 056	10	—	—
5,70	66,0	28,0	202 057	10	202 057 E	10
5,80	66,0	28,0	202 058	10	202 058 E	10
5,90	66,0	28,0	202 059	10	202 059 E	10
6,00	66,0	28,0	202 060	10	202 060 E	10
6,10	70,0	31,0	202 061	10	—	—
6,20	70,0	31,0	202 062	10	—	—
6,30	70,0	31,0	202 063	10	—	—
6,40	70,0	31,0	202 064	10	—	—
6,50	70,0	31,0	202 065	10	202 065 E	10
6,60	70,0	31,0	202 066	10	—	—
6,70	70,0	31,0	202 067	10	—	—
6,80	74,0	34,0	202 068	10	202 068 E	10
6,90	74,0	34,0	202 069	10	—	—
7,00	74,0	34,0	202 070	10	202 070 E	10
7,10	74,0	34,0	202 071	10	—	—
7,20	74,0	34,0	202 072	10	—	—
7,30	74,0	34,0	202 073	10	—	—
7,40	74,0	34,0	202 074	10	—	—
7,50	74,0	34,0	202 075	10	202 075 E	10
7,60	79,0	36,0	202 076	10	—	—
7,70	79,0	36,0	202 077	10	—	—
7,80	79,0	36,0	202 078	10	—	—
7,90	79,0	36,0	202 079	10	—	—
8,00	79,0	36,0	202 080	10	202 080 E	10
8,50	79,0	36,0	202 085	10	202 085 E	10
9,00	84,0	40,0	202 090	10	202 090 E	10
9,50	84,0	40,0	202 095	10	202 095 E	10
10,00	89,0	43,0	202 100	10	202 100 E	10
10,20	89,0	43,0	—	—	202 102 E	10
10,50	89,0	43,0	—	—	202 105 E	5
11,00	95,0	47,0	—	—	202 110 E	5
11,50	95,0	47,0	—	—	202 115 E	5
12,00	102,0	51,0	—	—	202 120 E	5
12,50	102,0	51,0	—	—	202 125 E	5
13,00	102,0	51,0	—	—	202 130 E	5

Centre drills DIN 333 HSS shape A, shape A with reinforcing bead and shape R

Centre angle: 60°
Point angle: 120°
Ø tolerance: h9
right hand cutting

Packing unit:
in individual plastic pack

Shape A

For making centre holes according to DIN 332, Shape A.

Shape A with reinforcing bead

For making centre holes according to DIN 332 shape A with recess at the crossover of countersink and drill.

Shape R

For making centre holes with radius according to DIN 332 R.

Ø mm	Total length mm	Shank-Ø mm	Article no. **Shape A**	Article no. **Shape A with reinforcing bead**	Article no. **Shape R**
0,80	20,0	3,15	217 008	—	217 2 008
1,00	31,5	3,15	217 010	217 1 010	217 2 010
1,60	35,5	4,00	217 016	217 1 016	217 2 016
2,00	40,0	5,00	217 020	217 1 020	217 2 020
2,50	45,0	6,30	217 025	217 1 025	217 2 025
3,15	50,0	8,00	217 315	217 1 315	217 2 315
4,00	56,0	10,00	217 040	217 1 040	217 2 040
5,00	63,0	12,50	217 050	217 1 050	217 2 050
6,30	71,0	16,00	217 063	217 1 063	217 2 063

Hollow section twist drills works standard type N HSS ground

Point cut: helical point DIN 1412 A
Point angle: 118°
Helix angle: 20-30°
Ø tolerance: h8
Surface: black, steam tempered
right hand cutting

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

Applications: Optimal drill for roofers, plumbers, window and front works.

Packing unit:
in plastic box of 10

Ø mm	Total length mm	Flute length mm	Article no.
4,90	100,0	30,0	257 491
4,90	150,0	30,0	257 492
5,00	70,0	30,0	257 501
5,00	100,0	30,0	257 502
5,00	150,0	30,0	257 503
5,00	210,0	30,0	257 504
5,10	100,0	30,0	257 511
5,10	150,0	30,0	257 512
5,10	210,0	30,0	257 513
5,30	100,0	30,0	257 531
5,30	150,0	30,0	257 532

Ø mm	Total length mm	Flute length mm	Article no.
5,30	210,0	30,0	257 533
5,50	100,0	30,0	257 551
5,50	150,0	30,0	257 552
5,50	210,0	30,0	257 553
5,70	70,0	30,0	257 571
5,70	100,0	30,0	257 572
5,70	150,0	30,0	257 573
5,70	210,0	30,0	257 574
5,80	100,0	30,0	257 581
5,80	150,0	30,0	257 582
5,80	210,0	30,0	257 583

Spot drills HSS ground, extra short with split point

Point cut: helical point from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 135°
Ø tolerance: h8
Surface: bright
right hand cutting

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 all hand-held drilling machines. Advantages DIN 1412 C: good centring, little pressure required. Chip distribution improves chip removal.

Applications: for steel and cast-steel alloyed and unalloyed up to approx. 900 N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-siver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

Packing unit:
in plastic box of 10

Ø mm	Total length mm	Flute length mm	Article no.
2,50	38,0	14,0	251 025
2,80	40,0	16,0	251 028
3,00	40,0	16,0	251 030
3,10	40,0	16,0	251 031
3,20	40,0	16,0	251 032
3,25	41,0	16,0	251 0325
3,30	41,0	16,0	251 033
3,40	42,0	16,0	251 034
3,50	42,0	16,0	251 035
4,00	42,0	16,0	251 040
4,10	44,0	18,0	251 041
4,20	44,0	18,0	251 042

Ø mm	Total length mm	Flute length mm	Article no.
4,30	44,0	18,0	251 043
4,50	48,0	20,0	251 045
4,70	48,0	20,0	251 047
4,80	48,0	20,0	251 048
4,90	50,0	22,0	251 049
5,00	52,0	24,0	251 050
5,10	52,0	24,0	251 051
5,20	52,0	24,0	251 052
5,50	52,0	24,0	251 055
6,00	55,0	26,0	251 060
6,50	60,0	26,0	251 065

Double end sheet metal drills HSS ground with split point

Point cut: helical point from Ø 3,0 mm **with split point** DIN 1412 C
Point angle: 135°
Ø tolerance: h8
Surface: bright
right hand cutting

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.
Applications: for steel and cast-steel alloyed and unalloyed up to approx. 900 N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-silver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

Packing unit:
in plastic box of 10

Ø mm	Total length mm	Flute length mm	Article no.
2,50	43,0	10,0	252 025
2,80	46,0	11,0	252 028
3,00	46,0	11,0	252 030
3,10	49,0	11,0	252 031
3,20	49,0	11,0	252 032
3,25	49,0	11,0	252 0325
3,30	49,0	11,0	252 033
3,40	52,0	14,0	252 034
3,50	52,0	14,0	252 035
4,00	55,0	14,0	252 040
4,10	55,0	14,0	252 041

Ø mm	Total length mm	Flute length mm	Article no.
4,20	55,0	14,0	252 042
4,30	58,0	17,0	252 043
4,50	58,0	17,0	252 045
4,80	62,0	17,0	252 048
4,90	62,0	17,0	252 049
5,00	62,0	17,0	252 050
5,10	62,0	17,0	252 051
5,20	62,0	17,0	252 052
5,50	66,0	20,0	252 055
6,00	66,0	20,0	252 060
6,50	70,0	20,0	252 065

Twist drills DIN 1869 TL 3000 HSS ground with split point, extra long

Point cut: helical point from Ø 3,0 mm **with split point** DIN 1412 C
Pont angel: 130°
Helix angel: 40°
Ø-tolerance: h8
Surface: bright / black

right hand cutting

Packing unit: in individual plastic bags

Stable special drill. Ideally suitable for deep holes under difficult conditions, e.g. work for 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 deaerate chips often.

Applications: for steel and cast-steel alloyed and unalloyed up to 900N/mm² strength, grey cast, malleable cast iron, die-cast metal, iron sinter, nickel-silver, graphite cast iron, short-chipping aluminium alloys, bronze and brass.

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

Ø mm	Total length mm	Flute length mm	Article no.
7,00	225,0	155,0	254 070
7,50	225,0	155,0	254 075
8,00	240,0	165,0	254 080
8,50	240,0	165,0	254 085
9,00	250,0	175,0	254 090
9,50	250,0	175,0	254 095
10,00	265,0	185,0	254 100
10,50	265,0	185,0	254 105
11,00	280,0	195,0	254 110
11,50	280,0	195,0	254 115
12,00	295,0	205,0	254 120
12,50	295,0	205,0	254 125
13,00	295,0	205,0	254 130

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

Ø mm	Total length mm	Flute length mm	Article no.
7,50	290,0	200,0	255 075
8,00	305,0	210,0	255 080
8,50	305,0	210,0	255 085
9,00	320,0	220,0	255 090
9,50	320,0	220,0	255 095
10,00	340,0	235,0	255 100
10,50	340,0	235,0	255 105
11,00	365,0	250,0	255 110
11,50	365,0	250,0	255 115
12,00	375,0	260,0	255 120
12,50	375,0	260,0	255 125
13,00	375,0	260,0	255 130

Ø mm	Total length mm	Flute length mm	Article no.
3,50	265,0	180,0	256 035
4,00	280,0	190,0	256 040
4,20	280,0	190,0	256 042
4,50	295,0	200,0	256 045
5,00	315,0	210,0	256 050
5,50	330,0	225,0	256 055
6,00	330,0	225,0	256 060
6,50	350,0	235,0	256 065
7,00	370,0	250,0	256 070
7,50	370,0	250,0	256 075
8,00	390,0	265,0	256 080

Ø mm	Total length mm	Flute length mm	Article no.
8,50	390,0	265,0	256 085
9,00	410,0	280,0	256 090
9,50	410,0	280,0	256 095
10,00	430,0	295,0	256 100
10,50	430,0	295,0	256 105
11,00	455,0	310,0	256 110
11,50	455,0	310,0	256 115
12,00	480,0	330,0	256 120
12,50	480,0	330,0	256 125
13,00	480,0	330,0	256 130

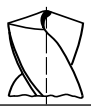
Twist drill grinding machine BSM 20 for subsequent grinding of twist drills, counter- and deburring sinkers

Length:	370,0 mm
Width:	310,0 mm
Height:	260,0 mm
Grinding wheel:	Ø 125,0 x 20,0 x 20,0 mm
Weight:	ca. 22,0 kg
Connection:	230 volt 50/60 Hz
Motor:	230 volt, 0,12 kW, 2.800 r.p.m.
Clamping range:	Ø 1,0 up to 20,0 mm
Clearance/ vertex angle:	infinetely adjustable

Packing unit:
individual in carton

- ✓ Quick and simple handling
- ✓ Tried and tested, patented prism process
- ✓ Guaranteed maximum symmetry of cutting edges
- ✓ Grinds twist drills, also special shapes such as plate drills, wood drills. Also taper and deburring countersinkers.

Description	Article no.
Twist drill grinding machine BSM 20, complete with corundum wheel	104 060

							
Cut chisel edge	Corrected major edge	Left-hand cutting	Split point	Grey cast iron	Centre point for metal and plastics	Centre point for wood	Tungsten carbide drills

Accessories for twist drill grinding machine BSM 20

Description	Article no.
Optical system with neon light	104 061
Grinding disk dresser	104 062
Corundum grinding wheel grain 60 Measurements Ø 125,0 x 20,0 x 20,0 mm (rough)	104 063
Corundum grinding wheel grain 80 Measurements Ø 125,0 x 20,0 x 20,0 mm (BSM standard)	104 064
Corundum grinding wheel grain 180 Measurements Ø 125,0 x 20,0 x 20,0 mm (fine)	104 065
Adapter for a additional grinding disk	104 066
Diamond wheel 3-sided covered D 76/3 125,0 mm for wood drills	104 067
Diamond wheel 3-sided covered D 76/3 125,0 mm for drills with tungsten carbide edges	104 068
Arbor for short spot weld millers 6,0 oder 8,0 mm	104 069
Sleeve for short morse taper drills (morse taper no. 1)	104 070
Sleeve for short morse taper drills (morse taper no. 2)	104 071

No. 104 061

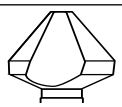
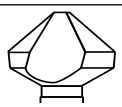
No. 104 064

No. 104 067

Special accessories for twist drill grinding machine BSM 20 for subsequent grinding of countersinkers

Description	Article no.
SVR 31 sink grinding device, basic equipment incl. 10,0 mm collet chuck for adapter	104 072
Collet chuck 6,0 mm for SVR 31	104 073
Collet chuck 8,0 mm for SVR 31	104 074
Collet chuck 12,0 mm for SVR 31	104 075
Nut for additional collet chuck	104 076
Curve for slotted taper and deburring countersinkers	104 077

No. 104 074 No. 104 072

 	
Point angel 60° up to 90° Taper and deburring countersinkers with cylindrical shank Ø 7,0 mm up to 31,0 mm	Slotted taper and deburring countersinkers 90° Ø $^{2}/_{5}$", $^{5}/_{10}$", $^{10}/_{15}$", $^{15}/_{20}$"

No. 104 077 No. 104 076

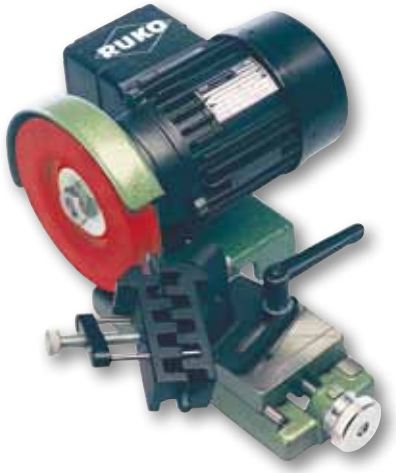
The Drillgrind® precision drill-grinding set

Motor speed:	2.800 r.p.m.
Power input:	70 Watt
Power output:	50 Watt
Supply voltage:	220 volt / 50 Hz
Weight:	9,0 kg
Swing-over prism:	1,0 up to 20,0 mm

The Drillgrind® precision drill-grinding set from RUKO is ideal for all those who want to save costs and time. This Drillgrind® can sharpen and point twist drills, adjust point angles and sharpen drills with carbide cutting edges.

Packing unit:
individual carton

Description	Article no.
Drillgrind® precision drill grinding set incl. special screw clamp and high-grade corundum wheel	104 020



Drillgrind® accessories

Description	Article no.
Grinding disc dresser	104 021
Optical system for fine adjustment	104 022
High-grade corundum wheel Measurements Ø 125,0 x 20,0 x 20,0 mm	104 023
Silicium carbide wheel Measurements Ø 125,0 x 20,0 x 20,0 mm	104 024
Diamond wheel Ø 125,0 mm	104 025

No. 104 021

No. 104 024

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

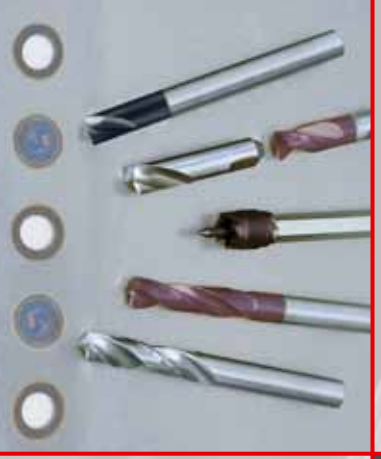
Material	Cutting speed Vc m/min	Coolant
High carbon struc. steel < 700 N/mm²	30 - 35	cutting spray
High carbon struc. steel > 700 N/mm²	20 - 25	cutting spray
Alloyed steel < 1000 N/mm²	20 - 25	cutting spray
Cast iron < 250 N/mm²	15 - 25	compressed air
Cast iron > 250 N/mm²	10 - 20	compressed air
CuZn alloy brittle	60 - 100	compressed air

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

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
High carbon struc. steel < 700 N/mm²	30 - 35	cutting spray
High carbon struc. steel > 700 N/mm²	20 - 25	cutting spray
Alloyed steel < 1000 N/mm²	20 - 25	cutting spray
Cast iron < 250 N/mm²	15 - 25	compressed air
Cast iron > 250 N/mm²	10 - 20	compressed air
CuZn alloy brittle	60 - 100	compressed air

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



SPECIAL DRILLS

RUKO

Spot weld miller HSS

right hand cutting

For removing spot welds from sheet metal. Exchangeable and double-headed milling crown. Adjustable milling depth with setting screw. No tearing of the sheet metal. No deformation of the sheet metal. Efficient and rapid working.

Packing unit:
in plastic boxes

Contents	Length mm	Article no.
Spot weld miller, complete	72,0	101 101

No. 101 101

Replacement parts for spot weld miller

Packing unit:
in plastic boxes of 1

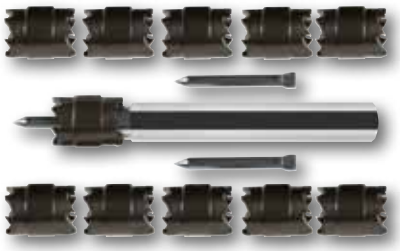
Contents	Ø mm	Article no.
Milling crown	9,6	101 102
Centering pin	2,5	101 103

No. 101 102 + 101 103

Spot weld miller set

Packing unit:
in plastic boxes

Contents	Article no.
13-piece set of spot weld miller 1 spot weld miller, complete + 10 milling crowns + 2 centering pins	101 104



No. 101 104

Spot weld miller special set

Packing unit:
in plastic boxes

Contents	Article no.
9-piece set of spot weld miller-special set 1 spot weld miller, complete + 5 milling + 2 centering pins + 1 fast cut HSS Co 5 Ø 8,0 mm	101 104 M

No. 101 104 M

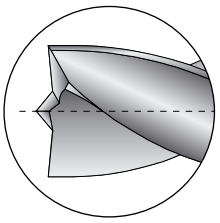
Fast Cut HSS Co 5, HSS Co 5-TiCN and tungsten-carbide with special coating

Point cut: center point similar to DIN 1412 E
Ø tolerance: h8
Surface: bright / TiCN / tungsten-carbide with special coating
right hand cutting

Extra stable special drill for hard requirements on hand drills. Good suited for clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision. Applicable for sheet steel, sheet brass, sheet aluminium, sheet zinc, sheet copper, plastic sheets.

Packing unit:
in plastic boxes

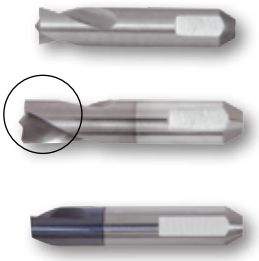
Ø mm	Total length mm	Article no. **HSS Co 5**	Article no. **HSS Co 5-TiCN**	Article no. **tungsten-carbide**
6,0	66,0	101 107	101 107 TC	101 107 HM
7,0	74,0	101 111	101 111 TC	—
8,0	80,0	101 108	101 108 TC	101 108 HM
10,0	88,0	101 114	101 114 TC	—



Spotle Drill HSS Co 5, HSS Co 5-TiCN and tungsten-carbide with special coating

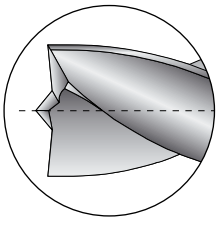
Point cut: center point similar to DIN 1412 E
Øtolerance: h8
Surface: bright / TiCN / tungsten-carbide with special coating
right hand cutting

Special shank for the application in pneumatic machines. For clean and burr-free milling of welding spots and thin-walled work pieces without centering. Extreme high precision.
(v = vario)



Packing unit:
in plastic boxes

Ø mm	Total length mm	Article no. **HSS Co 5**	Article no. **HSS Co 5-TiCN**	Article no. **tungsten-carbide**
6,5	40,0	101 065	101 065 TC	101 065 HM
6,5 (v)	44,0	—	—	101 066 HM
8,0	40,0	101 080	101 080 TC	101 080 HM
8,0 (v)	44,0	101 081	101 081 TC	101 081 HM



Tungsten-carbide with special coating

The new special coating is a new kind of nano-structured coating with high heat resistance and oxidation resistance. It is particularly well suited for tungsten-carbide tools. The coating excels thanks to its high hardness (3100 HV) with simultaneously good toughness.

The benefits of the special coating can be seen in dry and hard chip removal with a high cutting load. The harder the material to be processed, the higher the service life advantage compared with other coatings.

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

Material	Cutting speed Vc m/min	Coolant
High carbon struc. steel < 700 N/mm²	30 - 35	cutting spray
High carbon struc. steel > 700 N/mm²	20 - 25	cutting spray
Alloyed steel < 1000 N/mm²	20 - 25	cutting spray
Cast iron < 250 N/mm²	15 - 25	compressed air
Cast iron > 250 N/mm²	10 - 20	compressed air
CuZn alloy brittle	60 - 100	compressed air

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

TUBE AND SHEET DRILLS

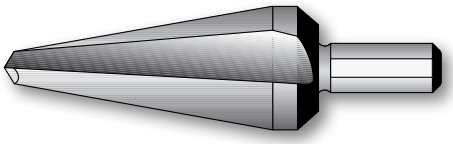
RUKO

Product Information

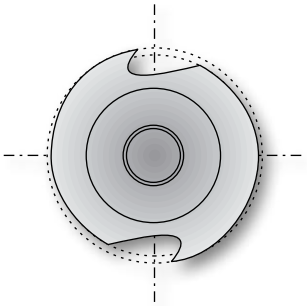
The flutes of the new RUKO high performance tube and sheet drills are CBN ground from the solid hardened form. Because CBN (cubical boron nitride) is a much harder abrasive than even silicium carbide or corundum, a better and sharper cutting edge is achieved - without burrs.

And, with higher dimensional precision the drills will last considerably longer while maintaining the precise process tolerances.

1. Because CBN ground flutes have better and sharper cutting edges - without burrs - unlike the conventional milled flutes.
   This guarantees a superior cutting edge and longer tool life.
2. Because radially adjusted relief produced by CBN grinding relates directly to its diameter, the cutting edge is always the highest point of the diameter.
3. The straight or spiral flute offers absolute running smoothness and high cutting performance. In the spiral flute non-breaking chips in particular are transported away cleanly as with a spiral drill.
4. The cone at the end of these tube and sheet drills makes it easier to withdraw the tool from the material.
5. The CBN ground bit ensures centering and spot-drilling even in thin-walled material.



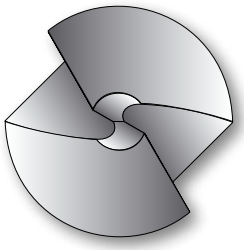
1. CBN ground flute



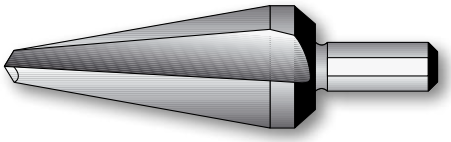
2. Radially adjusted relief produced by CBN grinding

Product Application

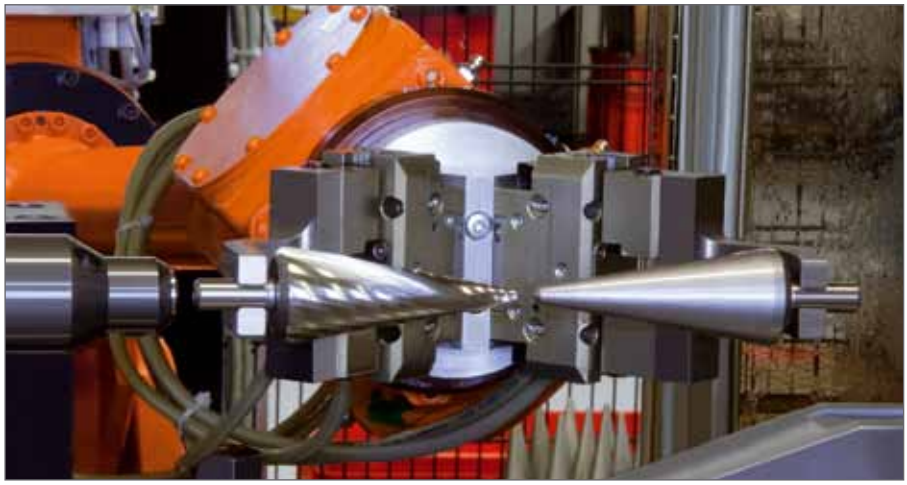
1. The ideal tool for sheet metal working in the following sectors of industries: electrical, sanitary engineering, heating technics, automotive, mechanical engineering, switching systems, aviation.
2. This tough tool is suitable for all standard industrial materials: nonferrous metal, special steel, thermoplastics and duroplastics as well as sheet metals up to 4,0 mm thickness.
3. This durable and versatile tool will center, spot-drill and bore - all in one smooth, high performance working cycle.
4. By using RUKO cutting spray or RUKO cutting paste tool life will be considerably prolonged.
5. Special sizes available on request.

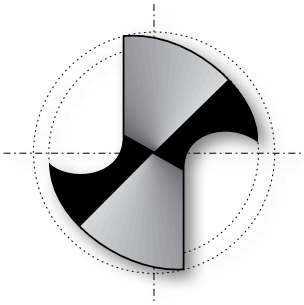


3. Flute



4. Cone at the end





5. CBN ground bit with split point DIN 1412 C

Product Information

HSS

Tube and sheet drills made of heavy-duty high speed steel. Suitable for steel, cast iron, non-ferrous and light metals.

HSS Co 5 for stainless steel

Like HSS plus cobalt alloy. Ideal for high-alloyed chromium steel such as stainless and acidresistant steel.

HSS-TiN

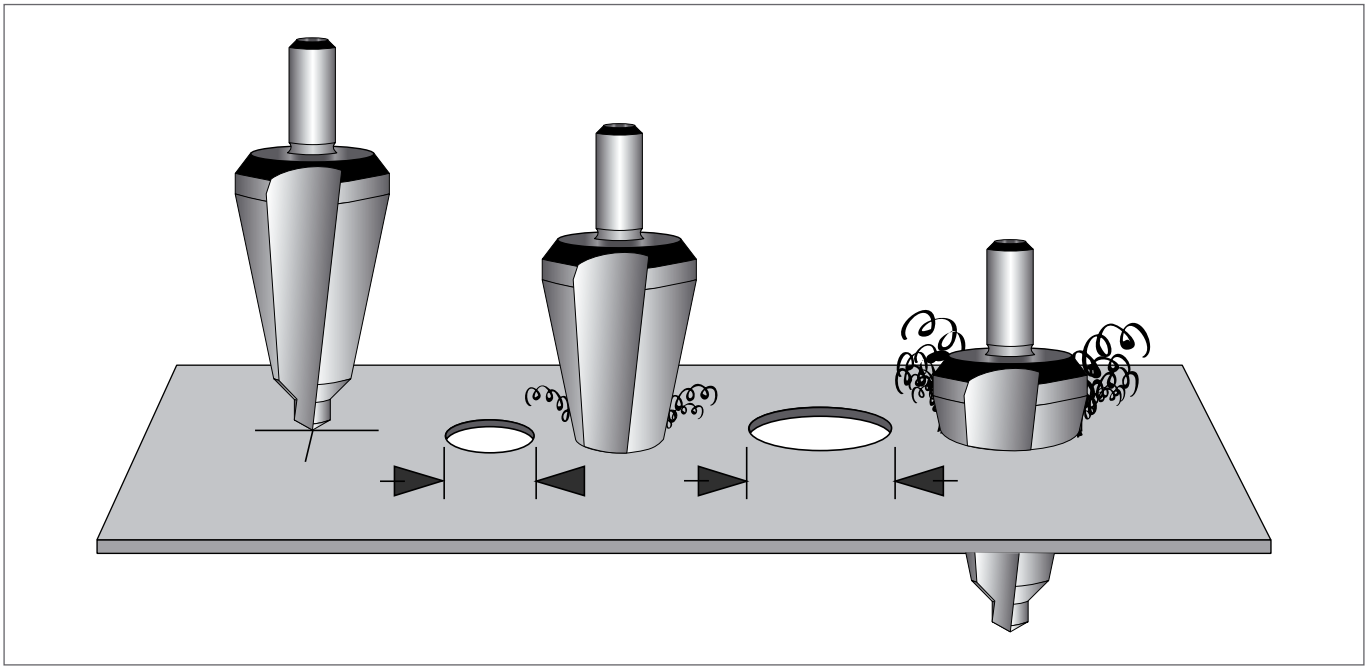
Like HSS plus titanium nitride coating. Higher surface hardness of approx. 2,300 HV. Suitable for steel, cast iron, non-ferrous and light metals.

HSS-TiAlN

Like HSS plus titanium aluminium nitride coating. Ideal for dry finishing due to higher surface hardness of approx. 3,000 HV. Suitable for steel, cast iron, non-ferrous and light metals.

Tube and sheet drills - Table of cutting speeds

Material:		High carbon struc. steel up to 700 N/mm²	High carbon struc. steel over 700 N/mm²	Alloyed steel over 1000 N/mm²	Cast iron up to 250 N/mm²	Cast iron over 250 N/mm²	CuZn-alloy brittle	CuZn-alloy tough	Al-alloy up to 11% Si	Thermo-plastics	Duro-plastics
Sheet thickness:		up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0
Vc = m/min		30	20	20	15	10	60	35	30	20	15
Cooling lubricant:		Cutting spray	Cutting spray	Cutting spray	Cutting spray	Air	Air	Air	Cutting spray	Water	Air
Size	Ø mm	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.	n = r.p.m.
No. 1	3,0-14,0	3185-682	2123-455	2123-455	1592-341	1062-227	6369-1365	3715-796	3185-682	2123-455	1592-341
No. 2	4,0-20,0	1911-478	1274-318	1274-318	955-239	637-159	3822- 955	2229-557	1911-478	1274-318	955-239
No. 3	16,0-30,5	597-313	398-209	398-209	299-157	199-104	1194- 627	697-365	597-313	398-209	299-157
No. 4	24,0-40,0	398-239	265-159	265-159	199-119	133- 80	796- 478	464-279	398-239	265-159	199-119
No. 5	36,0-50,0	265-191	177-127	177-127	133- 96	88- 64	531- 382	310-223	265-191	177-127	133- 96
No. 6	40,0-61,0	239-157	159-104	159-104	119- 78	80- 52	478- 313	279-183	239-157	159-104	119- 78
No. 7	5,0-25,4	1911-376	1274-251	1274-251	955-188	637-125	3822- 752	2229-439	1911-376	1274-251	955-188
No. 8	5,0-31,0	1911-308	1274-205	1274-205	955-154	637-103	3822- 616	2229-360	1911-308	1274-205	955-154
No. 9	5,0-22,5	1911-425	1274-283	1274-283	955-212	637-142	3822- 849	2229-495	1911-425	1274-283	955-212



Tube and sheet drills HSS, HSS Co 5, HSS-TiN and HSS-TiAlN, CBN ground with split point

Point cut: work´s specification with split point DIN 1412 C
Point angle: 118°
Cone angle: 20-30°
Ø tolerance: work´s specification
Shank: 3-way clamping surface
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

The CBN ground flutes guarantee quiet running and high cutting performance. The cone makes it easier to withdraw the tool from the material.

Packing unit:
in plastic tubes of 1

Size no.	Drilling range mm	Total length mm	Shank Ø mm	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
1	3,0 - 14,0	58,0	6,0	101 001	101 001 E	101 001 T	101 001 F
2	4,0 - 20,0	71,0	8,0	101 002	101 002 E	101 002 T	101 002 F
3	16,0 - 30,5	76,0	9,0	101 003	101 003 E	101 003 T	101 003 F
4	24,0 - 40,0	89,0	10,0	101 004	—	101 004 T	101 004 F
5	36,0 - 50,0	97,0	12,0	101 005	—	101 005 T	101 005 F
6	40,0 - 61,0	103,0	13,0	101 006	—	101 006 T	101 006 F
7	5,0 - 25,4	87,0	10,0	101 007	—	101 007 T	101 007 F
8	5,0 - 31,0	103,0	9,0	101 008	101 008 E	101 008 T	101 008 F
9	5,0 - 22,5	79,0	8,0	101 022	—	101 022 T	101 022 F

Tube and sheet drill bits HSS, HSS-TiN and HSS-TiAlN 1/4", CBN ground with split point

Point cut: work´s specification with split point DIN 1412 C
Point angle: 118°
Cone angle: 20-30°
Ø tolerance: work´s specification
Shank: 6,35 x 27,0 mm
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

The CBN ground flutes guarantee quiet running and high cutting performance. The cone makes it easier to withdraw the tool from the material.

Packing unit:
in plastic box of 1

Size no.	Drilling range mm	Total length mm	Shank hexagon	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
2	5,0 - 20,0	78,0	1/4"	101 049 H	101 049 TH	101 049 FH

Tube and sheet drill sets HSS, HSS Co 5, HSS-TiN and HSS-TiAlN in steel case

No. 101 020

No. 101 020 T

No. 101 020 F

No. 101 023

Contents	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
4-piece set of tube and sheet drills sizes 1, 2, 3 and 1 cutting spray 50 ml in polystyrene case	101 009	—	—	—
4-piece set of tube and sheet drills sizes 1, 2, 3 and 1 cutting paste 30 g in steel case	101 020	101 020 E	101 020 T	101 020 F
3-piece set of tube and sheet drills “Antenna” sizes 8, 9 and 1 milling drill Ø 6,0 mm x 90,0 mm in steel case	101 023	—	101 023 T	101 023 F

Tube and sheet drill sets HSS, HSS Co 5, HSS-TiN and HSS-TiAlN in ABS-Kunststoffkassette

No. 101 020 RO

No. 101 020 ERO

No. 101 020 TRO

No. 101 020 FRO

Contents	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
4-piece set of tube and sheet drills sizes 1, 2, 3 and 1 cutting paste 30 g	101 020 RO	101 020 ERO	101 020 TRO	101 020 FRO

Tube and sheet drills HSS with stopper and spot facer for cavity sealing, CBN ground with split point

Point cut: work´s specification with split point DIN 1412 C
Point angle: 118°
Cone angle: 20-30°
Ø tolerance: work´s specification
Shank: 3-way clamping surface
Surface: bright
right hand cutting

The CBN ground flutes guarantee quiet running and high cutting performance.

Packing unit:
in plastic box of 1

Size no.	Drilling range mm	Total length mm	Shank Ø mm	Article no.
1	3,0 - 7,8	48,0	6,0	101 041
2	3,0 - 10,2	52,0	6,0	101 042
3	3,0 - 11,8	56,0	6,0	101 043
5	2,0 - 7,8	48,0	6,0	101 045

No. 1 No. 2 No. 3 No. 5

Coolants and lubricants

The RUKO coolants and lubricants provide an outstanding separation and cooling effect. They generate a high surface quality and increase the service life of the tools, even with hard and brittle materials.

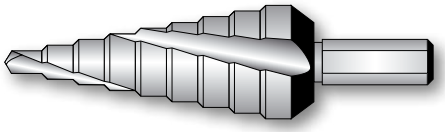
Suitably aligned to our product range, you will find the new series of coolants and lubricants in our new section 4.01 from page 293.

STEP DRILLS

Product information

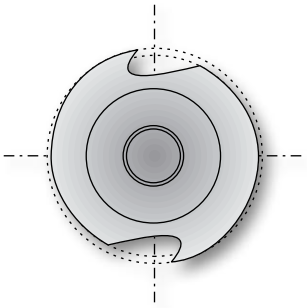
The flutes of new RUKO high performance step drills are CBN ground from the solid hardened form. Because CBN (cubical boron nitride) is a much harder abrasive than even silicium carbide or corundum, a better and sharper cutting edge is achieved - without burrs.

And, with higher dimensional precision the drills will last considerably longer while maintaining the precise process tolerances.



1. CBN ground spiral flute

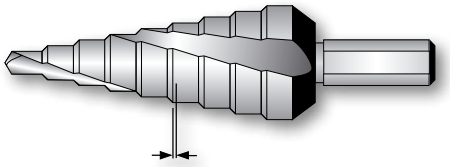
1. CBN ground spiral flutes enable very sharp and burr-free cutting edges compared to the ordinary milled flutes. Especially the chip flow is optimized, so even long, non-breaking chips will be removed easily. The optimized chip flow protects the cutting edges and reduces built-up edges and cold weld marks. Due to these special features, cutting performance and tool life are extended significantly.
2. Each step has a radially adjusted relief produced by CBN grinding that relates directly to the diameter of the step. This means the cutting edge is always the highest point of the diameter.
3. Each step is axially CBN relief ground. This means the cutting edge is always the highest point of the axial cutting axis.
4. The cutting edge of each step has relief angle. This means the cutting edge is also the highest point in advance direction.
5. The CBN ground bit ensures centering and spot-drilling even in thin-walled material.



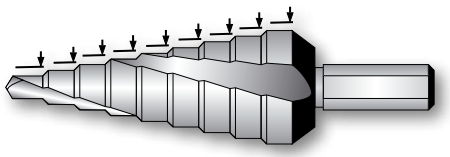
2. Radially adjusted relief produced by CBN grinding

Product application

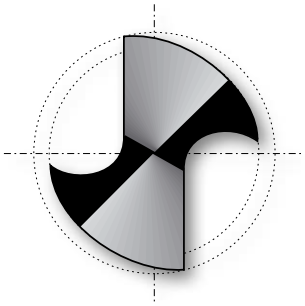
1. The ideal tool for sheet metal working in the following sectors of industries: electrical (size 4 + size 9), sanitary engineering and heating technics (size 6 + size 7) or automotive, mechanical engineering, aviation (size 0/5, size 0/9, size 1, size 2, size 3, size 5) and switching systems (size 0/9k, size 1k, size 2k) up to 2,0 mm sheet thickness.
2. This tough tool is suitable for all standard industrial materials: nonferrous metal, special steel, thermoplastics and duroplastics as well as sheet metals up to 4,0 mm thickness.
3. This durable and versatile tool will center, spot-drill, bore and debur - all in one smooth, high performance working cycle.
4. By using RUKO cutting spray or RUKO cutting paste tool life will be considerably prolonged.



3. Axially relief produced by CBN grinding



4. CBN ground relief angle



5. CBN ground bit with split point DIN 1412 C

Step drills HSS, HSS Co 5, HSS-TiN and HSS-TiAlN CBN ground, spiral fluted with split point

Point cut: work´s specification with split point DIN 1412 C
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

The CBN ground and spiral flutes guarantee quiet running and high cutting performance. Especially the chip flow is optimized, so even long, non-breaking chips will be removed easily.
The optimized chip flow protects the cutting edges and reduces built-up edges and cold weld marks. The cone makes it easier to withdraw the tool from the material.

Packing unit:
in plastic tubes of 1

HSS

Step drills made of heavy-duty high speed steel.
Suitable for steel, cast iron, non-ferrous and light metals.

HSS Co 5 for stainless steel

Like HSS plus cobalt alloy. Ideal for high-alloyed chromium steel such as stainless and acidresistant steel.

HSS-TiN

Like HSS plus titanium nitride coating.
Higher surface hardness of approx. 2,300 HV.
Suitable for steel, cast iron, non-ferrous and light metals.

HSS-TiAlN

Like HSS plus titanium aluminium nitride coating.
Ideal for dry finishing due to higher surface hardness of approx. 3,000 HV. Suitable for steel, cast iron, non-ferrous and light metals.

Size no.	Drilling range Ø mm	Total length mm	Steps	Shank Ø mm	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
0/5	4,0 - 12,00	65,0	5	6,0	101 050-5	—	101 050-5 T	**101 050-5 F**
0/9	4,0 - 12,00	65,0	9	6,0	101 050-9	101 050-9 E	101 050-9 T	**101 050-9 F**
1	4,0 - 20,00	75,0	9	8,0	101 051	101 051 E	101 051 T	**101 051 F**
2	4,0 - 30,00	100,0	14	10,0	101 052	101 052 E	101 052 T	**101 052 F**
3	6,0 - 38,00	100,0	12	10,0	101 053	—	101 053 T	**101 053 F**
4	6,0 - 26,75	75,0	8	10,0	101 055	—	101 055 T	**101 055 F**
5	4,0 - 39,00	107,0	13	10,0	101 056	101 056 E	101 056 T	**101 056 F**
6	6,0 - 32,00	75,0	8	10,0	101 057	—	101 057 T	**101 057 F**
7	5,0 - 28,00	69,0	7	10,0	101 058	—	101 058 T	**101 058 F**
8	6,0 - 30,50	80,0	9	10,0	101 098	—	101 098 T	**101 098 F**
9	6,0 - 37,00	100,0	12	10,0	101 060	101 060 E	101 060 T	**101 060 F**
10	4,8 - 10,65	54,0	5	6,0	101 094	—	101 094 T	**101 094 F**
11	6,0 - 25,00	65,0	7	10,0	101 095	—	101 095 T	**101 095 F**
12	6,0 - 32,00	76,0	9	10,0	101 096	—	101 096 T	**101 096 F**
13	6,0 - 40,00	105,0	16	13,0	101 097	—	101 097 T	**101 097 F**
18	6,5 - 32,50	91,0	12	10,0	—	101 534 E	—	—

Size no.	Drilling range Ø mm
0/5	4,0 / 6,0 / 8,0 / 10,0 / 12,0
0/9	4,0 / 5,0 / 6,0 / 7,0 / 8,0 / 9,0 / 10,0 / 11,0 / 12,0
1	4,0 / 6,0 / 8,0 / 10,0 / 12,0 / 14,0 / 16,0 / 18,0 / 20,0
2	4,0 / 6,0 / 8,0 / 10,0 / 12,0 / 14,0 / 16,0 / 18,0 / 20,0 / 22,0 / 24,0 / 26,0 / 28,0 / 30,0
3	6,0 / 9,0 / 13,0 / 16,0 / 19,0 / 21,0 / 23,0 / 26,0 / 29,0 / 32,0 / 35,0 / 38,0
4	6,0 / 9,0 / 11,4 (PG7) / 14,0 (PG9) / 17,25 (PG11) / 19,0 (PG13,5) / 21,25 (PG16) / 26,75 (PG21)
5	4,0 / 6,0 / 12,0 / 15,0 / 18,0 / 21,0 / 24,0 / 27,0 / 30,0 / 33,0 / 36,0 / 39,0
6	6,0 / 9,0 / 11,2 (R 1/8) / 14,5 (R 1/4) / 18,2 (R 3/8) / 22,3 (R 1/2) / 27,9 (R 3/4) / 32,0
7	5,0 / 8,8 (G 1/8) / 11,8 (G 1/4) / 15,3 (G 3/8) / 19,0 (G 1/2) / 24,5 (G 3/4) / 28,0
8	6,0 / 9,0 / 12,5 (PG7) / 15,2 (PG9) / 18,6 (PG11) / 20,4 (PG13,5) / 22,5 (PG16) / 28,3 (PG21) / 30,5
9	6,0 / 9,0 / 12,5 (PG7) / 15,2 (PG9) / 18,6 (PG11) / 20,4 (PG13,5) / 22,5 (PG16) / 26,0 / 28,3 (PG21) / 30,5 / 34,0 / 37,0 (PG29)
10	4,8 / 6,4 / 7,2 / 9,6 / 10,65
11	6,0 / 9,0 / 12,0 / 16,0 / 20,0 / 22,5 / 25,0
12	6,0 / 9,0 / 12,0 / 16,0 / 20,0 / 22,5 / 25,0 / 28,5 / 32,0
13	6,0 / 11,0 / 17,0 / 23,0 / 29,0 / 30,0 / 31,0 / 32,0 / 33,0 / 34,0 / 35,0 / 36,0 / 37,0 / 38,0 / 39,0 / 40,0
18	6,5 / 8,5 / 10,5 / 13,0 (PG7) / 15,7 (PG9) / 16,5 / 18,6 (PG11) / 21,0 (PG13,5) / 23,0 (PG16) / 25,5 / 28,8 (PG21) / 32,5

Step drill sets HSS, HSS Co 5, HSS-TiN and HSS-TiAIN in steel case

No. 101 026

No. 101 026 T

No. 101 026 F

No. 101 027

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAIN**
3-piece set of step drills spiral fluted, sizes 0/9, 1, 2	101 026	101 026 E	101 026 T	**101 026 F**
3-piece set of step drills-combi spiral fluted, sizes 1, 2 and 1 milling drill Ø 6,0 mm x 90,0 mm	101 027	101 027 E	101 027 T	**101 027 F**

Step drill sets HSS, HSS Co 5, HSS-TiN and HSS-TiAIN in polystyrene case

No. 101 026 RO

No. 101 026 ERO

No. 101 026 TRO

No. 101 026 FRO

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAIN**
3-piece set of step drills spiral fluted, sizes 0/9, 1, 2	101 026 RO	101 026 ERO	101 026 TRO	101 026 FRO

Step drills bit HSS, HSS-TiN and HSS-TiAlN, CBN ground, spiral fluted with split point

Point cut: work´s specification
with split point DIN 1412 C
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
Shank: 6,35 x 27,0 mm
right hand cutting

Packing unit:
in plastic boxes of 1

Size no.	Drilling range mm	Total length mm	Steps	Shank hexagon	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
0/9	4,0 - 12,0	72,0	9	1/4"	101 050-9 H	101 050-9 TH	**101 050-9 FH**
1	4,0 - 20,0	81,0	9	1/4"	101 051 H	101 051 TH	**101 051 FH**
2	4,0 - 30,0	105,0	14	1/4"	101 052 H	101 052 TH	**101 052 FH**

Step drills HSS, HSS-TiN and HSS-TiAlN, CBN ground with 3 cutting edges

Point cut: work´s specification
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

The deep-ground flutes of step drills with 3 cutting edges guarantee absolutely chatter-free working. The reduced load of the cutting edges allows a higher feed rate especially for soft materials like non-ferrous metals. The cone makes it easier to withdraw the tool from the material.

Packing unit:
in plastic boxes of 1

Size no.	Drilling range mm	Total length mm	Steps	Shank Ø mm	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
0/9	4,0 - 12,00	65,0	9	6,0	101 350-9	101 350-9 T	**101 350-9 F**
1	4,0 - 20,00	75,0	9	8,0	101 351	101 351 T	**101 351 F**
2	4,0 - 30,00	100,0	14	10,0	101 352	101 352 T	**101 352 F**

Step drill sets HSS, HSS-TiN and HSS-TiAlN, with 3 cutting edges in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
3-piece set of step drills with 3 cutting edges, sizes 0/9, 1, 2	101 326	101 326 T	101 326 F

Step drills HSS, HSS-TiN and HSS-TiAlN, CBN ground, spiral fluted with split point, short design

Point cut: work´s specification
with split point DIN 1412 C
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

Step height 2,0 mm ideal to produce switchboards.

Packing unit:
in plastic boxes of 1

Size no.	Drilling range mm	Total length mm	Steps	Shank Ø mm	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
0/9k	4,0 - 12,00	48,0	9	6,0	101 061	101 061 T	**101 061 F**
1k	4,0 - 20,00	58,0	9	8,0	101 062	101 062 T	**101 062 F**
2k	4,0 - 30,00	72,0	14	10,0	101 063	101 063 T	**101 063 F**

0/9k	4,0 / 5,0 / 6,0 / 7,0 / 8,0 / 9,0 / 10,0 / 11,0 / 12,0
1k	4,0 / 6,0 / 8,0 / 10,0 / 12,0 / 14,0 / 16,0 / 18,0 / 20,0
2k	4,0 / 6,0 / 8,0 / 10,0 / 12,0 / 14,0 / 16,0 / 18,0 / 20,0 / 22,0 / 24,0 / 26,0 / 28,0 / 30,0

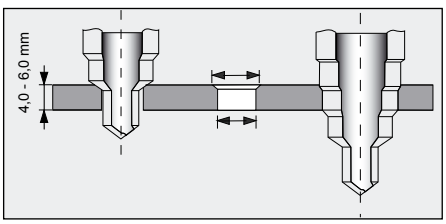
Step drills HSS, HSS-TiN and HSS-TiAlN, CBN ground, spiral fluted with split point for metric cable connections

Point cut: work´s specification
with split point DIN 1412 C
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

Packing unit:
in plastic boxes of 1

Size no.	Measurements	Drilling range mm	Total length mm	Steps	Shank Ø mm	Article no. **HSS**	Article no. **HSS-TiN**	Artikel-Nr. **HSS-TiAlN**
14	Core holes	5,3 - 30,5	79,0	9	10,0	101 093	101 093 T	**101 093 F**
15	Through holes	6,5 - 32,5	79,0	9	10,0	101 092	101 092 T	**101 092 F**
16	Core holes	5,3 - 38,5	96,0	11	10,0	101 091	101 091 T	**101 091 F**
17	Through holes	6,5 - 40,5	96,0	11	10,0	101 090	101 090 T	**101 090 F**

14	DIN/EN 60423	5,3 / 7,0 / 9,0 / 10,5 / 14,5 / 18,5 / 23,5 / 27,0 / 30,5
15	DIN/EN 50262	6,5 / 8,5 / 10,5 / 12,5 / 16,5 / 20,5 / 25,5 / 29,0 / 32,5
16	DIN/EN 60423	5,3 / 7,0 / 9,0 / 10,5 / 14,5 / 18,5 / 23,5 / 27,0 / 30,5 / 34,5 / 38,5
17	DIN/EN 50262	6,5 / 8,5 / 10,5 / 12,5 / 16,5 / 20,5 / 25,5 / 29,0 / 32,5 / 36,5 / 40,5



Step drills HSS, HSS-TiN and HSS-TiAlN, inch size, CBN ground, spiral fluted with split point

Point cut: work´s specification
with split point DIN 1412 C
Point angle: 118°
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

Packing unit:
in plastic boxes of 1

Size no.	Drilling range inch	Total length inch	Steps	Shank Ø inch	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
1	3/16 - 1/2	3 1/8	6	1/4	101 701	101 701 T	**101 701 F**
2	1/8 - 1/2	3 1/8	13	1/4	101 702	101 702 T	**101 702 F**
3	1/4 - 3/4	2 3/4	9	3/8	101 703	101 703 T	**101 703 F**
4	3/16 - 7/8	3 1/4	12	3/8	101 704	101 704 T	**101 704 F**
5	5/16 - 1	3 1/4	9	3/8	101 705	101 705 T	**101 705 F**
6	7/8 - 1 3/8	3 1/4	5	3/8	101 706	101 706 T	**101 706 F**
7	3/8 - 1/2	1 7/8	2	1/4	101 707	101 707 T	**101 707 F**
8	7/8	2 19/32	1	3/8	101 708	101 708 T	**101 708 F**
9	7/8 - 1 1/8	3 7/64	2	3/8	101 709	101 709 T	**101 709 F**

1	3/16 - 1/4 - 5/16 - 3/8 - 7/16 - 1/2
2	1/8 - 5/32 - 3/16 - 7/32 - 1/4 - 9/32 - 5/16 - 11/32 - 3/8 - 19/32 - 3/16 - 15/32 - 1/2
3	1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 9/16 - 5/8 - 11/16 - 3/4
4	3/16 - 1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 9/16 - 5/8 - 11/16 - 3/4 - 13/16 - 7/8
5	5/16 - 1/2 - 9/16 - 5/8 - 11/16 - 3/4 - 13/16 - 7/8 - 15/16 - 1
6	7/8 - 1 1/8 - 1 7/32 - 1 1/4 - 1 3/8
7	3/8 - 1/2
8	7/8
9	7/8 - 1 1/8

Step drills HSS without point, CBN ground

Point cut: without point
Step angle: 90°
Ø tolerance: work´s specification
Surface: bright
right hand cutting

Packing unit:
in plastic boxes of 1

Size no.	Drilling range mm	Total length mm	Steps	Shank Ø mm	Article no.
20	12,0 - 20,00	66,0	9	8,0	101 361
30	20,0 - 30,00	78,0	11	10,0	101 362
40	30,0 - 40,00	78,0	11	10,0	101 363

20	12,0 / 13,0 / 14,0 / 15,0 / 16,0 / 17,0 / 18,0 / 19,0 / 20,0
30	20,0 / 21,0 / 22,0 / 23,0 / 24,0 / 25,0 / 26,0 / 27,0 / 28,0 / 29,0 / 30,0
40	30,0 / 31,0 / 32,0 / 33,0 / 34,0 / 35,0 / 36,0 / 37,0 / 38,0 / 39,0 / 40,0

Milling Drill HSS, HSS-TiN and HSS-TiAlN

Point cut: helical point
Point angle: 118°
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

For drilling and milling contours into wood, sheet metal, plastics and other thin-walled materials. Twist drill in front, milling cutter with chip breakers afterwards.

Packing unit:
in plastic box of 1

Ø mm	Total length mm	Article no. **HSS**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**
6,0	90,0	101 201	101 201 T	**101 201 F**
8,0	90,0	101 202	101 202 T	**101 202 F**

Table of cutting speeds for step drills

Material:		High carbon struc. steel up to 700 N/mm²	High carbon struc. steel over 700 N/mm²	Alloyed steel over 1000 N/mm²	Cast iron up to 250 N/mm²	Cast iron over 250 N/mm²	CuZn-alloy brittle	CuZn-alloy tough	Al-alloy up to 11% Si	Thermo-plastics	Duro-plastics
Sheet thickness mm:		up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0	up to 4,0
Vc = m/min		30	20	20	15	10	60	35	30	20	15
Cooling lubricant:		Cutting spray	Cutting spray	Cutting spray	Air	Air	Air	Air	Cutting spray	Water	Air
Size	Ø mm	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m
No. 0/5	4,0 - 12,0	2400 - 800	1600 - 500	1600 - 500	1200 - 400	800 - 300	4800 - 1600	2800 - 900	2400 - 800	1600 - 500	1200 - 400
No. 0/9	4,0 - 12,0	2400 - 800	1600 - 500	1600 - 500	1200 - 400	800 - 300	4800 - 1600	2800 - 900	2400 - 800	1600 - 500	1200 - 400
No. 1	4,0 - 20,0	2400 - 500	1600 - 300	1600 - 300	1200 - 200	800 - 200	4800 - 1000	2800 - 600	2400 - 500	1600 - 300	1200 - 200
No. 2	4,0 - 30,0	2400 - 300	1600 - 200	1600 - 200	1200 - 200	800 - 100	4800 - 600	2800 - 400	2400 - 300	1600 - 200	1200 - 200
No. 3	6,0 - 38,0	1600 - 300	1100 - 200	1100 - 200	800 - 100	500 - 100	3200 - 500	1900 - 300	1600 - 300	1100 - 200	800 - 100
No. 4	6,0 - 26,8	1600 - 400	1100 - 200	1100 - 200	800 - 200	500 - 100	3200 - 700	1900 - 400	1600 - 400	1100 - 200	800 - 200
No. 5	4,0 - 32,0	2400 - 300	1600 - 200	1600 - 200	1200 - 100	800 - 100	4800 - 600	2800 - 300	2400 - 300	1600 - 200	1200 - 100
No. 6	6,0 - 32,0	1600 - 300	1100 - 200	1100 - 200	800 - 100	500 - 100	3200 - 600	1900 - 300	1600 - 300	1100 - 200	800 - 100
No. 7	5,0 - 28,0	1900 - 300	1300 - 200	1300 - 200	1000 - 200	600 - 100	3800 - 700	2200 - 400	1900 - 300	1300 - 200	1000 - 200
No. 8	6,0 - 30,5	1600 - 300	1100 - 200	1100 - 200	800 - 200	500 - 100	3200 - 600	1900 - 400	1600 - 300	1100 - 200	800 - 200
No. 9	6,0 - 37,0	1600 - 300	1100 - 200	1100 - 200	800 - 100	500 - 100	3200 - 500	1900 - 300	1600 - 300	1100 - 200	800 - 100
No. 10	4,8 - 10,7	2000 - 900	1300 - 600	1300 - 600	1000 - 400	700 - 300	4000 - 1800	2300 - 1000	2000 - 900	1300 - 600	1000 - 400
No. 11	6,0 - 25,0	1600 - 400	1100 - 300	1100 - 300	800 - 200	500 - 100	3200 - 800	1900 - 400	1600 - 400	1100 - 300	800 - 200
No. 12	6,0 - 32,0	1600 - 300	1100 - 200	1100 - 200	800 - 100	500 - 100	3200 - 600	1900 - 300	1600 - 300	1100 - 200	800 - 100
No. 13	6,0 - 40,0	1600 - 200	1100 - 200	1100 - 200	800 - 100	500 - 100	3200 - 500	1900 - 300	1600 - 200	1100 - 200	800 - 100
No. 14	5,3 - 30,5	1800 - 300	1200 - 200	1200 - 200	900 - 200	600 - 100	3600 - 600	2100 - 400	1800 - 300	1200 - 200	900 - 200
No. 15	6,5 - 32,5	1500 - 300	1000 - 200	1000 - 200	700 - 100	500 - 100	2900 - 600	1700 - 300	1500 - 300	1000 - 200	700 - 100
No. 16	5,3 - 38,5	1800 - 200	1200 - 200	1200 - 200	900 - 100	600 - 100	3600 - 500	2100 - 300	1800 - 200	1200 - 200	900 - 100
No. 17	6,5 - 40,5	1500 - 200	1000 - 200	1000 - 200	700 - 100	500 - 100	2900 - 500	1700 - 300	1500 - 200	1000 - 200	700 - 100
No. 18	6,5 - 32,5	1500 - 300	1000 - 200	1000 - 200	700 - 100	500 - 100	2900 - 600	1700 - 300	1500 - 300	1000 - 200	700 - 100
No. 20	12,0 - 20,0	800 - 500	500 - 300	500 - 300	400 - 200	300 - 200	1600 - 1000	900 - 600	800 - 500	500 - 300	400 - 200
No. 30	20,0 - 30,0	500 - 300	300 - 200	300 - 200	200 - 200	200 - 100	1000 - 600	600 - 400	500 - 300	300 - 200	200 - 200
No. 40	30,0 - 40,0	300 - 200	200 - 200	200 - 200	200 - 100	100 - 100	600 - 500	400 - 300	300 - 200	200 - 200	200 - 100
Size	Ø inch	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m	n = r.p.m
No. 1	3/16 - 1/2	2000 - 800	1300 - 500	1300 - 500	1000 - 400	700 - 300	4000 - 1500	2300 - 900	2000 - 800	1300 - 500	1000 - 400
No. 2	1/8 - 1/2	3000 - 800	2000 - 500	2000 - 500	1500 - 400	1000 - 300	6000 - 1500	3500 - 900	3000 - 800	2000 - 500	1500 - 400
No. 3	1/4 - 3/4	1500 - 500	1000 - 300	1000 - 300	800 - 300	500 - 200	3000 - 1000	1800 - 600	1500 - 500	1000 - 300	800 - 300
No. 4	3/16 - 7/8	2000 - 400	1300 - 300	1300 - 300	1000 - 200	700 - 100	4000 - 900	2300 - 500	2000 - 400	1300 - 300	1000 - 200
No. 5	5/16 - 1	1200 - 400	800 - 300	800 - 300	600 - 200	400 - 100	2400 - 800	1400 - 400	1200 - 400	800 - 300	600 - 200
No. 6	7/8 - 1 3/8	400 - 300	300 - 200	300 - 200	200 - 100	100 - 100	900 - 500	500 - 300	400 - 300	300 - 200	200 - 100
No. 7	3/8 - 1/2	1000 - 800	700 - 500	700 - 500	500 - 400	300 - 300	2000 - 1500	1200 - 900	1000 - 800	700 - 500	500 - 400
No. 8	7/8	400	300	300	200	100	900	500	400	300	200
No. 9	7/8 - 1 1/8	400 - 300	300 - 200	300 - 200	200 - 200	100 - 100	900 - 700	500 - 400	400 - 300	300 - 200	200 - 200

Table of application for step drills

Size	Description								
No. 0/5	for metric hole diameters								
	Ø 4,0 mm	Ø 6,0 mm	Ø 8,0 mm	Ø 10,0 mm	Ø 12,0 mm				
No. 0/9	for metric hole diameters								
	Ø 4,0 mm	Ø 5,0 mm	Ø 6,0 mm	Ø 7,0 mm	Ø 8,0 mm	Ø 9,0 mm	Ø 10,0 mm	Ø 11,0 mm	Ø 12,0 mm
No. 1	for metric hole diameters								
	Ø 4,0 mm	Ø 6,0 mm	Ø 8,0 mm	Ø 10,0 mm	Ø 12,0 mm	Ø 14,0 mm	Ø 16,0 mm	Ø 18,0 mm	Ø 20,0 mm
No. 2	for metric hole diameters								
	Ø 4,0 mm Ø 22,0 mm	Ø 6,0 mm Ø 24,0 mm	Ø 8,0 mm Ø 26,0 mm	Ø 10,0 mm Ø 28,0 mm	Ø 12,0 mm Ø 30,0 mm	Ø 14,0 mm	Ø 16,0 mm	Ø 18,0 mm	Ø 20,0 mm
No. 3	for metric hole diameters								
	Ø 6,0 mm Ø 32,0 mm	Ø 9,0 mm Ø 35,0 mm	Ø 13,0 mm Ø 38,0 mm	Ø 16,0 mm	Ø 19,0 mm	Ø 21,0 mm	Ø 23,0 mm	Ø 26,0 mm	Ø 29,0 mm
No. 4	for steel conduit threads (core holes)								
	PG 7 Ø 11,4 mm	PG 9 Ø 14,0 mm	PG 11 Ø 17,25 mm	PG 13,5 Ø 19,0 mm	PG 16 Ø 21,25 mm	PG 21 Ø 26,75 mm			
No. 5	for metric hole diameters								
	Ø 4,0 mm Ø 30, 0 mm	Ø 6,0 mm Ø 33,0 mm	Ø 9,0 mm Ø 36,0 mm	Ø 12,0 mm Ø 39,0 mm	Ø 15,0 mm	Ø 18,0 mm	Ø 21,0 mm	Ø 24,0 mm	Ø 27,0 mm
No. 6	for pipe threads (external Ø, through holes)								
	R 1/8" Ø 11,2 mm	R 1/4" 14,5 mm	R 3/8" Ø 18,2 mm	R 1/2" Ø 22,3 mm	R 3/4" Ø 27,9 mm				
No. 7	for pipe threads (core holes)								
	G 1/8" Ø 8,8 mm	G 1/4" 11,8 mm	G 3/8" Ø 15,3 mm	G 1/2" Ø 19,0 mm	G 3/4" Ø 24,5 mm				
No. 8	for steel conduit threads (through holes)								
	PG 7 Ø 12,5 mm	PG 9 Ø 15,2 mm	PG 11 Ø 18,6 mm	PG 13,5 Ø 20,4 mm	PG 16 Ø 22,5 mm	PG 21 Ø 28,3 mm			
No. 9	for steel conduit threads (through holes)								
	PG 7 Ø 12,5 mm	PG 9 Ø 15,2 mm	PG 11 Ø 18,6 mm	PG 13,5 Ø 20,4 mm	PG 16 Ø 22,5 mm	PG 21 Ø 28,3 mm	PG 29 Ø 37,0 mm		
No. 10	for blind rivets M3 - M4 - M5 - M6 - M8								
	Ø 4,8 mm	Ø 6,4 mm	Ø 7,2 mm	Ø 9,6 mm	Ø 10,65 mm				
No. 11	for metric hole diameters with high steps								
	Ø 6,0 mm	Ø 9,0 mm	Ø 12,0 mm	Ø 16,0 mm	Ø 20,0 mm	Ø 22,5 mm	Ø 25,0 mm		
No. 12	for metric hole diameters with high steps								
	Ø 6,0 mm	Ø 9,0 mm	Ø 12,0 mm	Ø 16,0 mm	Ø 20,0 mm	Ø 22,5 mm	Ø 25,0 mm	Ø 28,5 mm	Ø 32,0 mm
No. 13	for metric hole diameters and large diameters								
	Ø 6,0 mm Ø 34,0 mm	Ø 11,0 mm Ø 35,0 mm	Ø 17,0 mm Ø 36,0 mm	Ø 23,0 mm Ø 37,0 mm	Ø 29,0 mm Ø 38,0 mm	Ø 30,0 mm Ø 39,0 mm	Ø 31,0 mm Ø 40,0 mm	Ø 32,0 mm	Ø 33,0 mm
No. 14	for metric cable connections, core holes after DIN/EN 60423								
	M 6 Ø 5,3 mm	M 8 Ø 7,0 mm	M 10 Ø 9,0 mm	M 12 Ø 10,5 mm	M 16 Ø 14,5 mm	M 20 Ø 18,5 mm	M 25 Ø 23,5 mm	M 32 Ø 30,5 mm	
No. 15	for metric cable connections, through holes after DIN/EN 50262								
	M 6 Ø 6,5 mm	M 8 Ø 8,5 mm	M 10 Ø 10,5 mm	M 12 Ø 12,5 mm	M 16 Ø 16,5 mm	M 20 Ø 20,5 mm	M 25 Ø 25,5 mm	M 32 Ø 32,5 mm	
No. 16	for metric cable connections, core holes after DIN/EN 60423								
	M 6 Ø 5,3 mm	M 8 Ø 7,0 mm	M 10 Ø 9,0 mm	M 12 Ø 10,5 mm	M 16 Ø 14,5 mm	M 20 Ø 18,5 mm	M 25 Ø 23,5 mm	M 32 Ø 30,5 mm	M 40 Ø 38,5 mm
No. 17	for metric cable connections, through holes after DIN/EN 50262								
	M 6 Ø 6,5 mm	M 8 Ø 8,5 mm	M 10 Ø 10,5 mm	M 12 Ø 12,5 mm	M 16 Ø 16,5 mm	M 20 Ø 20,5 mm	M 25 Ø 25,5 mm	M 32 Ø 32,5 mm	M 40 Ø 40,5 mm
No. 18	for metric cable connections / for steel conduit threads, through holes								
	M 6 Ø 6,5 mm M 25 Ø 25,5 mm	M 8 Ø 8,5 mm PG 21 Ø 28,8 mm	M 10 Ø 10,5 mm M 32 Ø 32,5 mm	M 12 / PG 7 Ø 13,0 mm	PG 9 Ø 15,7 mm	M 16 Ø 16,5 mm	PG 11 Ø 19,0 mm	M 20 / PG 13,5 Ø 21,0 mm	PG 16 Ø 23,0 mm

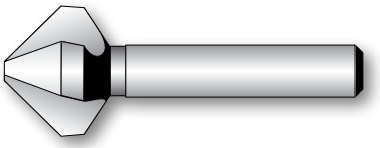
TAPER AND DEBURRING COUNTERSINKERS

Product information taper and deburring countersinkers

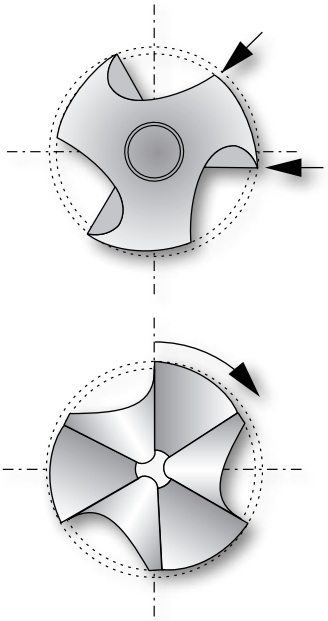
The flutes of the new RUKO high-performance taper and deburring countersinkers are CBN ground from the fully hardened material. Because CBN (cubic crystalline boron nitride) is a much harder abrasive than even silicium carbide or corundum, a better and sharper cutting edge is achieved - without burrs. And, with higher dimensional precision the countersinkers will last considerably longer while maintaining the precise tolerances.

Because of the CBN deep-ground flutes the cutting edges are extremely sharp. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

1. CBN deep-ground flutes have better and sharper cutting edges - without burrs - unlike conventional milled flutes. This guarantees a superior cutting edge and considerably longer tool life.
2. Because the radially-adjusted relief produced by CBN grinding relates directly to its diameter, the cutting edge is always the highest point of the diameter.
3. Each diameter has its own relief angle. Consequently the cutting edge is always the highest point, too.
4. The axial relief produced by CBN grinding guarantees a smooth low-heat cut.
5. The CBN ground countersinkers ensure an excellent chip flow, chatter free working, scratch-free surface and have ideal centring features.



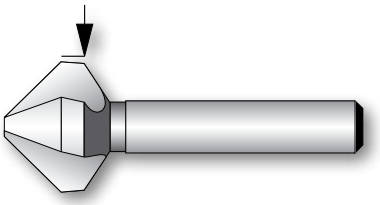
1. CBN deep-ground flute



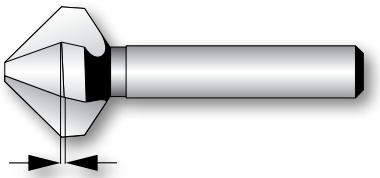
2. Radially adjusted relief produced by CBN grinding.

Product application

1. The ideal tool for countersinking and deburring in the following sectors of industry: electrical, sanitary engineering, heating technics, mechanical engineering, switching systems, tubular steel construction, furniture and wood working, automotive and aviation.
2. This tough tool is suitable for all standard industrial materials: non-ferrous metal, stainless steel, thermoplastics and duroplastics as well as sheet metals.
3. The taper and deburring countersinkers as per DIN 335 are suitable in particular for countersinkings of type A and B of fine execution as per DIN 74
   Type A for: countersunk screws as per DIN 963 and DIN 965,
   raised countersunk head screws as per DIN 964 and DIN 966,
   thread forming screws type F and G as per DIN 7513
   and type D and E as per DIN 7516,
   countersunk tapping screws type K, L, M and N as per DIN 7500,
   wood screws as per DIN 97 and DIN 7997
   oval head wood screws as per DIN 95 DIN 7997
   Type B for: countersunk screws with hexagon socket DIN 7991
4. By using RUKO cutting spray or RUKO cutting paste, longer tool life and superior surface quality of the workpiece is guaranteed.



3. CBN ground relief angle



4. Axial relief produced by CBN grinding

Countersinkings as per DIN 74 for countersunk screws as per DIN

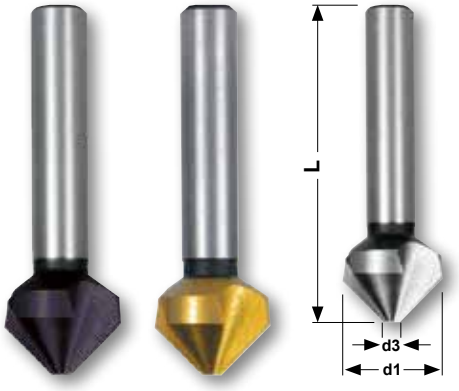
as per DIN 74	
type AF	type BF
DIN 963 / DIN 964 DIN 965 / DIN 966 DIN 7513 F. u. G. DIN 7516 D. u. E.	DIN 7991 (ISO 10642)

Taper and deburring countersinkers DIN 335 type C 90°

Counters. angle: 90°
Shank: cylindrical
Cutting edges: 3
Surface: bright / titanium-nitride / TiAlN coated
right hand cutting

Because of the CBN deep-ground flutes the cutting edges are extremely sharp.
Ideal for burr- and chatter-free deburring and countersinking. Best results at low cutting speeds.

Packing unit:
in plastic tubes of 1



HSS

Taper and deburring countersinkers made of heavy-duty high speed steel. Suitable for steel, cast iron, non-ferrous and light metals.

HSS for aluminium

Taper and deburring countersinkers made of heavy-duty high speed steel for aluminium.

HSS Co 5 for stainless steel

Like HSS plus cobalt alloy. Ideal for high-alloyed chromium steel such as stainless and acidresistant steel.

HSS-TiN

Like HSS plus titanium nitride coating. Higher surface hardness of approx. 2,300 HV. Suitable for steel, cast iron, non-ferrous and light metals.

HSS-TiAlN

Like HSS plus titanium aluminium nitride coating. Ideal for dry finishing due to higher surface hardness of approx. 3,000 HV. Suitable for steel, cast iron, non-ferrous and light metals.

Tungsten carbide K 20

Ideal for abrasive and hard steel with a strength of over 1000 N/mm², grey cast-iron over 240 HB.

Taper and deburring countersinkers DIN 335 type C 90°
HSS, HSS for aluminium, HSS Co 5, HSS-TiN, HSS-TiAlN and Tungsten carbide K 20

Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Countersinkings as per DIN 74 AF	BF	Article no. **HSS**	Article no. **HSS for alu**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**	Article no. **Carbide K 20**
4,3	1,3	40,0	4,0			102 101	—	102 101 E	102 101 T	102 101 F	—
4,8	1,5	40,0	4,0			102 102	—	—	102 102 T	102 102 F	—
5,0	1,5	40,0	4,0	M 2,5		102 103	—	102 103 E	102 103 T	102 103 F	—
5,3	1,5	40,0	4,0			102 104	—	102 104 E	102 104 T	102 104 F	—
5,8	1,5	45,0	5,0			102 105	—	—	102 105 T	102 105 F	—
6,0	1,5	45,0	5,0	M 3		102 106	—	102 106 E	102 106 T	102 106 F	—
6,3	1,5	45,0	5,0		M 3	102 107	102 107 A	102 107 E	102 107 T	102 107 F	102 261
7,0	1,8	50,0	6,0	M 3,5		102 108	—	—	102 108 T	102 108 F	—
7,3	1,8	50,0	6,0			102 109	—	—	102 109 T	102 109 F	—
8,0	2,0	50,0	6,0	M 4		102 110	—	102 110 E	102 110 T	102 110 F	—
8,3	2,0	50,0	6,0		M 4	102 111	102 111 A	102 111 E	102 111 T	102 111 F	102 262
9,4	2,2	50,0	6,0			102 112	—	—	102 112 T	102 112 F	—
10,0	2,5	50,0	6,0	M 5		102 113	—	102 113 E	102 113 T	102 113 F	—
10,4	2,5	50,0	6,0		M 5	102 114	102 114 A	102 114 E	102 114 T	102 114 F	102 263
11,5	2,8	56,0	8,0	M 6		102 115	—	102 115 E	102 115 T	102 115 F	—
12,4	2,8	56,0	8,0		M 6	102 116	102 116 A	102 116 E	102 116 T	102 116 F	102 264
13,4	2,9	56,0	8,0			102 117	—	—	102 117 T	102 117 F	—
15,0	3,2	60,0	10,0	M 8		102 118	—	102 118 E	102 118 T	102 118 F	—
16,5	3,2	60,0	8,0		M 8	102 119	102 119 A	102 119 E	102 119 T	102 119 F	—
16,5	3,2	60,0	10,0		M 8	102 119-1	102 119-1 A	102 119-1 E	102 119-1 T	102 119-1 F	102 265
19,0	3,5	63,0	10,0	M 10		102 120	—	102 120 E	102 120 T	102 120 F	—
20,5	3,5	63,0	10,0		M 10	102 121	102 121 A	102 121 E	102 121 T	102 121 F	102 266
23,0	3,8	67,0	10,0	M 12		102 122	—	102 122 E	102 122 T	102 122 F	—
25,0	3,8	67,0	10,0		M 12	102 123	102 123 A	102 123 E	102 123 T	102 123 F	102 267
26,0	3,9	71,0	12,0	M 14		102 171	—	—	102 171 T	102 171 F	—
28,0	4,0	71,0	12,0		M 14	102 124	—	102 124 E	102 124 T	102 124 F	—
30,0	4,1	71,0	12,0	M 16		102 172	—	—	102 172 T	102 172 F	—
31,0	4,2	71,0	12,0		M 16	102 125	102 125 A	102 125 E	102 125 T	102 125 F	102 268
*37,0	4,8	90,0	12,0			102 173	—	—	102 173 T	102 173 F	—
*40,0	10,0	80,0	15,0			102 174	—	—	102 174 T	102 174 F	—

Taper and deburring countersinker sets DIN 335 type C 90° HSS, HSS for aluminium, HSS Co 5, HSS-TiN, HSS-TiAlN and tungsten carbide K 20 in steel case

No. 102 152

No. 102 152 T

No. 102 154 F

No. 102 154 T

Description	Article no. **HSS**	Article no. **HSS for alu**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**	Article no. **Carbide K 20**
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 (shank-Ø 10,0 mm) - 20,5 - 25,0 mm	102 154	102 154 A	102 154 E	102 154 T	102 154 F	—
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 (shank-Ø 10,0 mm) - 20,5 mm	102 152	102 152 A	102 152 E	102 152 T	102 152 F	102 152 HM

Taper and deburring countersinker sets DIN 335 type C 90° HSS, HSS Co 5, HSS-TiN, HSS-TiAlN and tungsten carbide K 20 in polystyrene case

No. 102 152 RO

No. 102 152 TRO

No. 102 154 FRO

No. 102 154 TRO

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**	Article no. **HSS-TiAlN**	Article no. **Carbide K 20**
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 (shank-Ø 10,0 mm) - 20,5 - 25,0 mm	102 154 RO	102 154 ERO	102 154 TRO	102 154 FRO	—
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 (shank-Ø 10,0 mm) - 20,5 mm	102 152 RO	102 152 ERO	102 152 TRO	102 152 FRO	102 152 HMRO

Taper and deburring countersinker sets DIN 335 type C 90°
HSS, HSS for aluminium, HSS Co 5, HSS-TiN, HSS-TiAlN and tungsten carbide K 20

No. 102 142

No. 102 150

No. 102 155

Description	Article no. **HSS**	Article no. **HSS for alu**	Article no. **HSS Co 5**	Article no. **HSS-TiN**
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 (shank-Ø 8,0 mm) - 20,5 - 25,0 mm + 1 x 50 ml tin of cutting spray in polystyrene case	102 142	102 142 A	102 142 E	102 142 T
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 10,4 - 16,5 (shank-Ø 8,0 mm) - 20,5 - 25,0 mm + 1 x 30 g tin of cutting paste in steel case	102 150	102 150 A	102 150 E	102 150 T
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 8,3 - 10,4 - 16,5 (shank-Ø 8,0 mm) - 20,5 mm + 1 x 30 g tin of cutting paste in steel case	102 151	102 151 A	102 151 E	102 151 T
17-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 4,3 - 5,0 - 6,0 - 6,3 - 7,0 - 8,0 - 8,3 - 10,0 - 10,4 - 11,5 - 12,4 -15,0 - 16,5 (shank-Ø 10,0 mm) - 19,0 - 20,5 - 23,0 - 25,0 mm in wooden case	102 155	—	—	—

Hand deburrer DIN 335 type C 90° HSS, CBN ground

Packing unit: in plastic tubes of 1

Description	Article no.
Hand deburrer with countersinker Ø 12,4 mm	102 143
Hand deburrer with countersinker Ø 15,0 mm	102 144
Hand deburrer with countersinker Ø 16,5 mm	102 145
Hand deburrer with countersinker Ø 20,5 mm	102 146
Hand deburrer with countersinker Ø 25,0 mm	102 147

No. 102 143

Universal handle to fit countersinkers

Packing unit: in plastic tubes of 1

Description	Article no.
Universal handle for countersinker with 8,0 mm shank Ø	102 148
Universal handle for countersinker with 10,0 mm shank Ø	102 149
Universal handle for countersinker with 1/4" hexagon socket	102 320

No. 102 148

No. 102 320

Taper and deburring countersinkers „QUICK**Cut**“ (DIN 335) type C 90° HSS and HSS-TiAlN

Counters. angle: 90°
Shank: 3-face shank
Cutting edges: 3
Surface: bright / TiAlN beschichtet
right hand cutting

The optimised cutting geometry combined with the 3-surface section of the shaft leads to optimum countersinking results. The lower wear results in 25%, with TiAlN coating as much as 40% higher service lives. Due to its very good chip formation, the cutting geometry enables countersinking up to 30 % faster than with conventional countersinkers.

Specially developed for automatic and quick feed!

Packing unit:
in plastic tubes of 1

Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Countersinkings as per DIN 74 / BF	Article no. **HSS**	Article no. **HSS-TiAlN**
6,3	1,5	45,0	5,0	M 3	102 707	102 707 F
8,3	2,0	50,0	6,0	M 4	102 711	102 711 F
10,4	2,5	50,0	6,0	M 5	102 714	102 714 F
12,4	2,8	56,0	8,0	M 6	102 716	102 716 F
15,0	3,2	60,0	10,0	M 8	102 718	102 718 F
16,5	3,2	60,0	10,0	M 8	102 719	102 719 F
19,0	3,5	63,0	10,0	M 10	102 720	102 720 F
20,5	3,5	63,0	10,0	M 10	102 721	102 721 F
23,0	3,8	67,0	10,0	M 12	102 722	102 722 F
25,0	3,8	67,0	10,0	M 12	102 723	102 723 F
31,0	4,2	71,0	12,0	M 16	102 725	102 725 F

Taper and deburring countersinker sets „QUICK**Cut**“ (DIN 335) type C 90° in steel case

Description	Article no. **HSS**	Article no. **HSS-TiAlN**
6-piece set of taper and deburring countersinkers (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 752	102 752 F
5-piece set of taper and deburring countersinkers (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 754	102 754 F

Taper and deburring countersinker sets „QUICK**Cut**“ (DIN 335) type C 90° in polystyrene case

Description	Article no. **HSS**	Article no. **HSS-TiAlN**
6-piece set of taper and deburring countersinkers (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 752 RO	102 752 FRO
5-piece set of taper and deburring countersinkers (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 754 RO	102 754 FRO

Taper and deburring countersinkers DIN 335 type C 90° ASP

Counters. angle: 90°
Shank: cylindrical
Cutting edges: 3
Surface: bright
right hand cutting

Because of the CBN deep-ground flutes the cutting edges are extremely sharp.
Ideal for burr- and chatter-free deburring and countersinking.
Best results at low cutting speeds.

Packing unit:
in plastic tubes of 1

ASP

Taper and deburring countersinker tool in powder metallurgy high speed steel.
Metallurgy steels have, in contrast to conventional HSS steels, a constant, fine material grain.

This means they have good thermal curing, pressure resistance and wear resistance.
Ideal for stainless steels, rust and acid resistant steels, titanium and titanium alloys.

Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Countersinkings as per DIN 74 AF	BF	Article no.
6,3	1,5	45,0	5,0	-	M 3	102 107 ASP
8,3	2,0	50,0	6,0	-	M 4	102 111 ASP
10,4	2,5	50,0	6,0	-	M 5	102 114 ASP
12,4	2,8	56,0	8,0	-	M 6	102 116 ASP
16,5	3,2	60,0	10,0	-	M 8	102 119-1 ASP
20,5	3,5	63,0	10,0	-	M 10	102 121 ASP
25,0	3,8	67,0	10,0	-	M 12	102 123 ASP
31,0	4,2	71,0	12,0	-	M 16	102 125 ASP

Taper and deburring countersinker sets DIN 335 type C 90° ASP in steel case

Description	Article no.
6-piece set of taper and deburring countersinkers DIN 335 type C 90° ASP Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 152 ASP
5-piece set of taper and deburring countersinkers DIN 335 type C 90° ASP Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 154 ASP

Taper and deburring countersinkers DIN 335 type D 90° HSS

Counters. angle: 90°
Shank: Morse taper
Cutting edges: 3
Surface: bright
right hand cutting

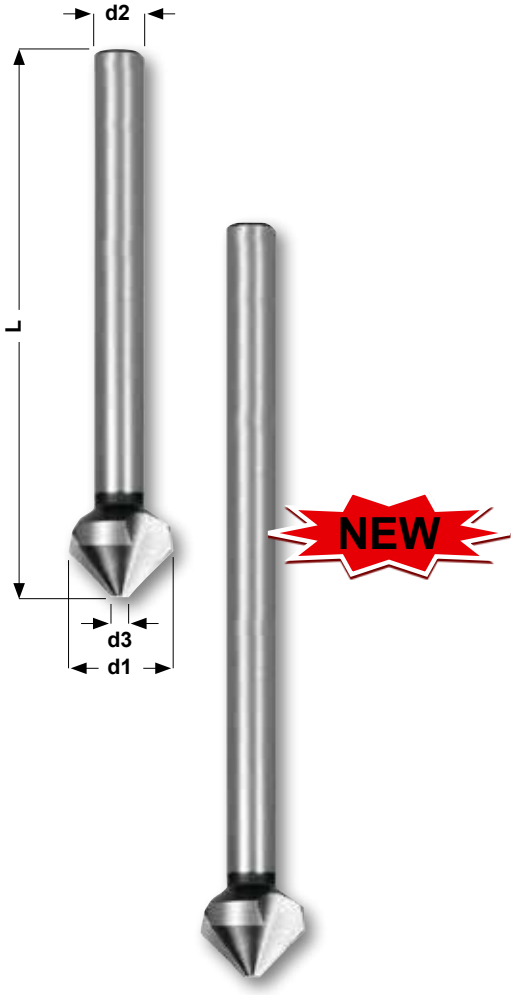
Packing unit:
in plastic tubes of 1

Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank MT	Countersinkings as per DIN 74 AF	BF	Article no.
15,0	3,2	85,0	MT 1	M 8	-	102 126
16,5	3,2	85,0	MT 1	-	M 8	102 127
19,0	3,5	100,0	MT 2	M 10	-	102 128
20,5	3,5	100,0	MT 2	-	M 10	102 129
23,0	3,8	106,0	MT 2	M 12	-	102 130
25,0	3,8	106,0	MT 2	-	M 12	102 131
26,0	3,8	106,0	MT 2	M 14	-	102 132
28,0	4,0	112,0	MT 2	-	M 14	102 133
30,0	4,2	112,0	MT 2	M 16	-	102 134
31,0	4,2	112,0	MT 2	-	M 16	102 135
34,0	4,5	118,0	MT 2	M 18	M 18	102 136
37,0	4,8	118,0	MT 2	M 20	M 20	102 137
40,0	10,0	140,0	MT 3	-	-	102 138
50,0	14,0	150,0	MT 3	-	-	102 139
63,0	16,0	180,0	MT 4	-	-	102 140
80,0	22,0	190,0	MT 4	-	-	102 141

Taper and deburring countersinkers DIN 335 type C 90° HSS, with long cylindrical shank

Counters. angle: 90°
Shank: cylindrical
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1



Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Countersinkings as per DIN 74 AF	BF	Article no.
6,3	1,5	85,0	5,0	-	M 3	102 271
8,3	2,0	85,0	6,0	-	M 4	102 272
10,4	2,5	88,0	6,0	-	M 5	102 273
12,4	2,8	108,0	8,0	-	M 6	102 274
15,0	3,2	110,0	10,0	M 8	-	102 275
16,5	3,2	112,0	10,0	-	M 8	102 276
20,5	3,5	115,0	10,0	-	M 10	102 277
25,0	3,8	118,0	10,0	-	M 12	102 278

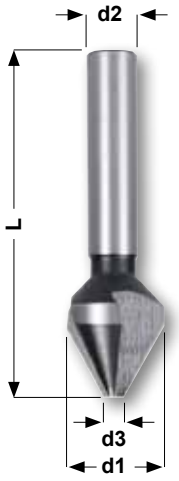
Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Countersinkings as per DIN 74 AF	BF	Article no.
6,3	1,5	154,0	5,0	-	M 3	**102 281**
8,3	2,0	155,0	6,0	-	M 4	**102 282**
10,4	2,5	157,0	6,0	-	M 5	**102 283**
12,4	2,8	158,0	8,0	-	M 6	**102 284**
15,0	3,2	158,0	10,0	M 8	-	**102 285**
16,5	3,2	161,0	10,0	-	M 8	**102 286**
20,5	3,5	164,0	10,0	-	M 10	**102 287**
25,0	3,8	164,0	10,0	-	M 12	**102 288**

Taper and deburring countersinkers

Taper and deburring countersinkers DIN 334 type C 60° HSS

Counters. angle: 60°
Shank: cylindrical
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1



Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Article no.
6,3	1,6	45,0	5,0	102 201
8,0	2,0	50,0	6,0	102 202
10,0	2,5	50,0	6,0	102 203
12,5	3,2	56,0	8,0	102 204
16,0	4,0	63,0	10,0	102 205
20,0	5,0	67,0	10,0	102 206
25,0	6,3	71,0	10,0	102 207

Taper and deburring countersinkers DIN 334 type D 60° HSS

Counters. angle: 60°
Shank: morse taper
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1

Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank MT	Article no.
16,0	4,0	90,0	MT 1	102 208
20,0	5,0	106,0	MT 2	102 209
25,0	6,3	112,0	MT 2	102 210
31,5	10,0	118,0	MT 2	102 211
40,0	12,5	150,0	MT 3	102 212
50,0	16,0	160,0	MT 3	102 213
63,0	20,0	190,0	MT 4	102 214
80,0	25,0	200,0	MT 4	102 215

Taper and deburring countersinkers type C 75° HSS

Counters. angle: 75°
Shank: cylindrical
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1

Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Article no.
6,3	1,6	45,0	5,0	102 221
8,3	2,0	50,0	6,0	102 222
10,4	2,5	50,0	6,0	102 223
12,4	3,2	56,0	8,0	102 224
16,5	4,0	63,0	10,0	102 225
20,5	5,0	67,0	10,0	102 226
25,0	6,3	71,0	10,0	102 227

Taper and deburring countersinkers type D 75° HSS

Counters. angle: 75°
Shank: morse taper
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1

Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank MT	Article no.
16,5	3,5	87,0	MT 1	102 228
20,5	4,5	102,0	MT 2	102 229
25,0	5,0	109,0	MT 2	102 230
31,0	5,0	116,0	MT 2	102 231
40,0	10,0	145,0	MT 3	102 232

Taper and deburring countersinkers type C 120° HSS

Counters. angle: 120°
Shank: cylindrical
Cutting edges: 3
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1

Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank Ø d2 mm	Article no.
6,3	1,5	45,0	5,0	102 241
8,3	2,0	50,0	6,0	102 242
10,4	2,5	50,0	6,0	102 243
12,4	3,0	56,0	8,0	102 244
16,5	3,5	63,0	10,0	102 245
20,5	4,0	67,0	10,0	102 246
25,0	5,0	71,0	10,0	102 247

Taper and deburring countersinkers type D 120° HSS

Counters. angle: 120°
Shank: morse taper
Cutting edges: 3
Surface: bright
right hand cutting

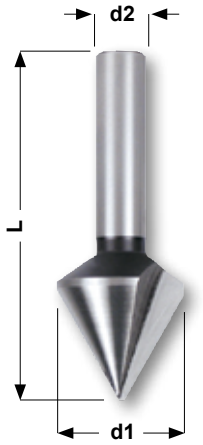
Packing unit:
in plastic tubes of 1

Countersinkers nominal Ø d1 mm	d3 mm	Total length L mm	Shank MT	Article no.
16,5	3,5	87,0	MT 1	102 248
20,5	4,5	102,0	MT 2	102 249
25,0	5,0	109,0	MT 2	102 250
31,0	5,0	116,0	MT 2	102 251
40,0	10,0	145,0	MT 3	102 252

Taper and deburring countersinkers type C 60° HSS

Counters. angle: 60°
Shank: cylindrical
Cutting edges: 1
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1

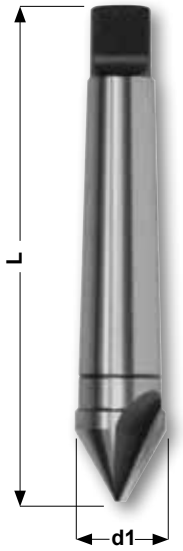


Nominal Ø d1 mm	Total length L mm	Shank Ø d2 mm	Article no.
6,0	45,0	5,0	102 501
8,0	50,0	6,0	102 502
10,0	50,0	6,0	102 503
12,0	56,0	8,0	102 504
16,0	63,0	10,0	102 505
20,0	67,0	10,0	102 506
25,0	71,0	10,0	102 507
30,0	81,0	12,0	102 508
40,0	89,0	15,0	102 509
50,0	98,0	15,0	102 510

Taper and deburring countersinkers type D 60° HSS

Counters. angle: 60°
Shank: morse taper
Cutting edges: 1
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1



Nominal Ø d1 mm	Total length L mm	Shank MT	Article no.
16,0	92,0	MT 1	102 511
20,0	107,0	MT 2	102 512
25,0	110,0	MT 2	102 513
30,0	114,0	MT 2	102 514
40,0	145,0	MT 3	102 515
50,0	152,0	MT 3	102 516

Taper and deburring countersinkers type C 90° HSS

Counters. angle: 90°
Shank: cylindrical
Cutting edges: 1
Surface: bright
right hand cutting

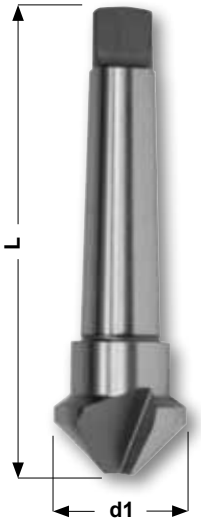
Packing unit:
in plastic tubes of 1

Nominal Ø d1 mm	Total length L mm	Shank Ø d2 mm	Article no.
6,0	45,0	5,0	102 521
8,0	50,0	6,0	102 522
10,0	50,0	6,0	102 523
12,0	56,0	8,0	102 524
16,0	60,0	10,0	102 525
20,0	63,0	10,0	102 526
25,0	67,0	10,0	102 527
30,0	71,0	12,0	102 528
40,0	89,0	15,0	102 529
50,0	98,0	15,0	102 530

Taper and deburring countersinkers type D 90° HSS

Counters. angle: 90°
Shank: morse taper
Cutting edges: 1
Surface: bright
right hand cutting

Packing unit:
in plastic tubes of 1



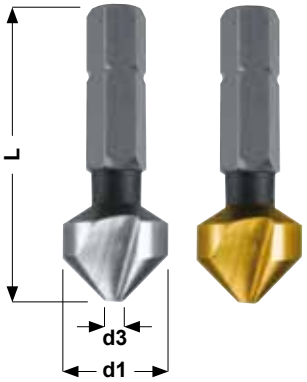
Nominal Ø d1 mm	Total length L mm	Shank MT	Article no.
16,0	92,0	MT 1	102 531
20,0	107,0	MT 2	102 532
25,0	110,0	MT 2	102 533
30,0	114,0	MT 2	102 534
40,0	145,0	MT 3	102 535
50,0	152,0	MT 3	102 536

Taper and deburring countersinker Bits 90° "short" HSS und HSS-TiN

Counters. angle: 90°
Shank: 6,35 x 27,0 mm
Cutting edges: 3
Surface: bright / titanium-nitride coated
right hand cutting

Rapid tool-changing thanks to hexagonal bit holder. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit:
in plastic tubes of 1



Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank hexagon	Countersinkings as per DIN 74 AF	BF	Article no. **HSS**	Article no. **HSS-TiN**
6,3	1,5	31,0	1/4"	-	M 3	W 102 313	W 102 313 T
8,3	2,0	31,0	1/4"	-	M 4	W 102 314	W 102 314 T
10,4	2,5	34,0	1/4"	-	M 5	W 102 315	W 102 315 T
12,4	2,8	35,0	1/4"	-	M 6	W 102 316	W 102 316 T
16,5	3,2	40,0	1/4"	-	M 8	W 102 317	W 102 317 T
20,5	3,5	41,0	1/4"	-	M 10	W 102 318	W 102 318 T

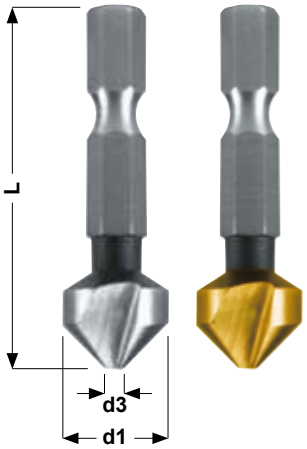
Taper and deburring countersinker bit set "short" 90° HSS and HSS-TiN in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**
7-piece set of taper and deburring countersinker bits 90° **"short"** 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with ¼" hexagon socket	W 102 319	W 102 319 T

Taper and deburring countersinker Bits "long" 90°
HSS and HSS-TiN

Counters. angle: 90°
Shank: 6,35 x 27,0 mm
Cutting edges: 3
Surface: bright / titanium-nitride coated
right hand cutting

Rapid tool-changing thanks to hexagonal bit holder. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.



Packing unit:
in plastic tubes of 1

Countersinker nominal Ø d1 mm	d3 mm	Total length L mm	Shank hexagon	Countersinkings as per DIN 74 AF	BF	Article no. **HSS**	Article no. **HSS-TiN**
6,3	1,5	38,0	1/4"	-	M 3	102 313	102 313 T
8,3	2,0	38,0	1/4"	-	M 4	102 314	102 314 T
10,4	2,5	41,0	1/4"	-	M 5	102 315	102 315 T
12,4	2,8	42,0	1/4"	-	M 6	102 316	102 316 T
16,5	3,2	47,0	1/4"	-	M 8	102 317	102 317 T
20,5	3,5	48,0	1/4"	-	M 10	102 318	102 318 T

Taper and deburring countersinker bit set "long" 90°
HSS and HSS-TiN in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**
7-piece set of taper and deburring countersinker bits 90° "**long**" 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with ¼" hexagon socket	102 319	102 319 T

Taper and deburring countersinker bit set "long" 90°
HSS and HSS-TiN in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**
7-piece set of taper and deburring countersinker bits 90° "**long**" 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with ¼" hexagon socket	102 319 RO	102 319 TRO

Slotted taper and deburring countersinkers 90° HSS, HSS Co 5 and HSS-TiN

Counters. angle: 90°
Shank: cylindrical
Cutting edges: diagonal slot
Surface: bright / titanium-nitride coated
right hand cutting

Peeling cut. Chip removal through the slot prevents chips from clogging the workpiece. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit:
in plastic tubes of 1

Countersinker nominal Ø mm	Countersinker range mm	Head Ø d1 mm	Shank Ø d2 mm	Total length L mm	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**
1/4	1,0 - 4,0	6,35	6,35	45,0	—	102 300 E	—
2/5	2,0 - 5,0	10,00	6,00	45,0	102 301	102 301 E	102 301 T
5/10	5,0 - 10,0	14,00	8,00	48,0	102 302	102 302 E	102 302 T
10/15	10,0 - 15,0	21,00	10,00	65,0	102 303	102 303 E	102 303 T
15/20	15,0 - 20,0	28,00	12,00	85,0	102 304	102 304 E	102 304 T
20/25	20,0 - 25,0	35,00	12,00	102,0	102 305	102 305 E	102 305 T
25/30	25,0 - 30,0	44,00	15,00	115,0	102 306	102 306 E	—
30/35	30,0 - 35,0	48,00	15,00	127,0	102 307	102 307 E	—
35/40	35,0 - 40,0	53,00	15,00	136,0	102 308	102 308 E	—
40/50	40,0 - 50,0	64,00	18,00	166,0	102 309	102 309 E	—

Slotted taper and deburring countersinkers sets 90° HSS, HSS Co 5 and HSS-TiN

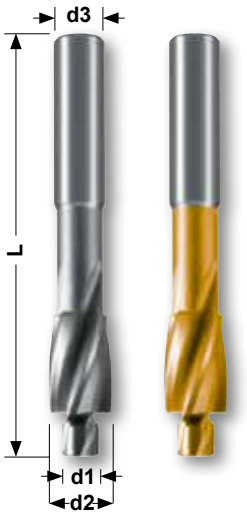
Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**
6-piece set of slotted taper and deburring countersinkers 90° in polystyrene case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 x 50 ml tin of cutting spray	—	102 310 E	—
5-piece set of slotted taper and deburring countersinkers 90° in steel case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 x 30 g tin of cutting paste	102 312	102 312 E	102 312 T

Slotted taper and deburring countersinkers sets 90° HSS, HSS Co 5 and HSS-TiN in polystyrene case

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS-TiN**
4-piece set of slotted taper and deburring countersinkers 90° nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20	102 312 RO	102 312 ERO	102 312 TRO

Taper and deburring countersinkers

Flat countersinkers DIN 373 HSS and HSS-TiN with fixed guide



Counters. angle: 180°
Shank: cylindrical
Surface: bright / titanium-nitride coated
right hand cutting

For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws.

Ideal for burr- and chatter-free deburring and countersinking.
Applicable for steel, cast iron, non-ferrous and light metals.
Best results at low cutting speeds.

Packing unit:
in individual plastic packs

Fine grade for through hole

For thread	CSK Ø d2 mm	Pilot Ø d1 mm	Shank Ø d3 mm	Total length L mm	Article no. **HSS**	Article no. **HSS-TiN**
M 3	6,0	3,2	5,0	71,0	102 401	102 401 T
M 4	8,0	4,3	5,0	71,0	102 402	102 402 T
M 5	10,0	5,3	8,0	80,0	102 403	102 403 T
M 6	11,0	6,4	8,0	80,0	102 404	102 404 T
M 8	15,0	8,4	12,5	100,0	102 405	102 405 T
M 10	18,0	10,5	12,5	100,0	102 406	102 406 T
M 12	20,0	13,0	12,5	100,0	102 407	102 407 T

Medium grade for through hole

M 3	6,0	3,4	5,0	71,0	102 408	102 408 T
M 4	8,0	4,5	5,0	71,0	102 409	102 409 T
M 5	10,0	5,5	8,0	80,0	102 410	102 410 T
M 6	11,0	6,6	8,0	80,0	102 411	102 411 T
M 8	15,0	9,0	12,5	100,0	102 412	102 412 T
M 10	18,0	11,0	12,5	100,0	102 413	102 413 T
M 12	20,0	13,5	12,5	100,0	102 414	102 414 T

For thread core hole

M 3	6,0	2,5	5,0	71,0	102 415	102 415 T
M 4	8,0	3,3	5,0	71,0	102 416	102 416 T
M 5	10,0	4,2	8,0	80,0	102 417	102 417 T
M 6	11,0	5,0	8,0	80,0	102 418	102 418 T
M 8	15,0	6,8	12,5	100,0	102 419	102 419 T
M 10	18,0	8,5	12,5	100,0	102 420	102 420 T
M 12	20,0	10,2	12,5	100,0	102 421	102 421 T

Flat countersinkers HSS with fixed guide

Counters. angle: 180°
Shank: morse taper
Surface: bright
right hand cutting

For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws.

Ideal for burr- and chatter-free deburring and countersinking.
Applicable for steel, cast iron, non-ferrous and light metals.
Best results at low cutting speeds.

Packing unit:
in individual plastic packs

Fine grade for through hole

For thread	CSK Ø d2 mm	Pilot Ø d1 mm	Shank MT	Total length L mm	Article no. **HSS**
M 10	18,0	10,5	MK 2	150,0	102 422
M 12	20,0	13,0	MK 2	150,0	102 423
M 14	24,0	15,0	MK 2	160,0	102 424
M 16	26,0	17,0	MK 3	190,0	102 425
M 18	30,0	19,0	MK 3	190,0	102 426
M 20	33,0	21,0	MK 3	190,0	102 427
M 22	36,0	23,0	MK 3	205,0	102 428

Medium grade for through hole

M 10	18,0	11,0	MK 2	150,0	102 429
M 12	20,0	13,5	MK 2	150,0	102 430
M 14	24,0	15,5	MK 2	160,0	102 431
M 16	26,0	17,5	MK 3	190,0	102 432
M 18	30,0	20,0	MK 3	190,0	102 433
M 20	33,0	22,0	MK 3	190,0	102 434
M 22	36,0	24,0	MK 3	205,0	102 435

For thread core hole

M 10	18,0	8,5	MK 2	150,0	102 436
M 12	20,0	10,2	MK 2	150,0	102 437
M 14	24,0	12,0	MK 2	160,0	102 438
M 16	26,0	14,0	MK 3	190,0	102 439
M 18	30,0	15,5	MK 3	190,0	102 440
M 20	33,0	17,5	MK 3	190,0	102 441
M 22	36,0	19,5	MK 3	205,0	102 442

Flat countersinker sets DIN 373 HSS and HSS-TiN with straight shank and fixed pilot in steel case

No. 102 450

No. 102 451

No. 102 450 T

No. 102 451 T

Description	Article no. **HSS**	Article no. **HSS-TiN**
6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 450	102 450 T
6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 451	102 451 T
6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 452	102 452 T

Flat countersinker sets DIN 373 HSS and HSS-TiN with straight shank and fixed pilot in polystyrene case


No. 102 450 RO


No. 102 451 RO


No. 102 450 TRO


No. 102 451 TRO

Description	Article no. **HSS**	Article no. **HSS-TiN**
6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 450 RO	102 450 TRO
6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 451 RO	102 451 TRO
6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 452 RO	102 452 TRO

Subland drills long type N HSS

Point cut: helical point
Point angle: 118°
Counters. angle: 90° / 180° / 90°
Shank: cylindrical
Ø tolerance: h8
Surface: black
right hand cutting

Enables drilling and sinking combined in one step.

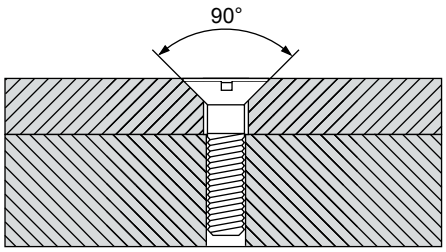
Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit:
in individual plastic packs

90° fine grade for through hole DIN 8374

For efficient drilling of through holes and screw head counterborings with 90° angle.

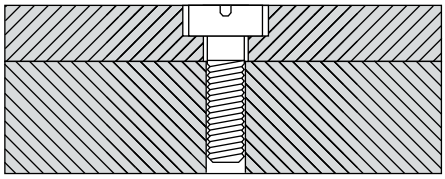
For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	3,2	6,0	9,0	57,0	93,0	102 601
M 4	4,3	8,0	11,0	75,0	117,0	102 602
M 5	5,3	10,0	13,0	87,0	133,0	102 603
M 6	6,4	11,5	15,0	94,0	142,0	102 604
M 8	8,4	15,0	19,0	114,0	169,0	102 605
M 10	10,5	19,0	23,0	135,0	198,0	102 606



180° medium grade for through hole DIN 8376

For efficient drilling of through holes and screw head counterborings with 180° angle.

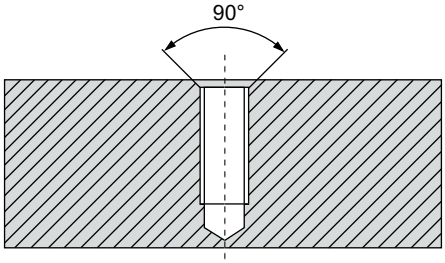
For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	3,4	6,0	9,0	57,0	93,0	102 607
M 4	4,5	8,0	11,0	75,0	117,0	102 608
M 5	5,5	10,0	13,0	87,0	133,0	102 609
M 6	6,6	11,0	15,0	94,0	142,0	102 610
M 8	9,0	15,0	19,0	114,0	169,0	102 611
M 10	11,0	18,0	23,0	130,0	191,0	102 612



90° for thread core hole DIN 8378

For efficient drilling of tapping holes and countersinkings with 90° angle.

For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	2,5	3,4	8,8	39,0	70,0	102 613
M 4	3,3	4,5	11,4	47,0	80,0	102 614
M 5	4,2	5,5	13,6	57,0	93,0	102 615
M 6	5,0	6,6	16,5	63,0	101,0	102 616
M 8	6,8	9,0	21,0	81,0	125,0	102 617
M 10	8,5	11,0	25,5	94,0	142,0	102 618
M 12	10,2	13,5	30,0	108,0	160,0	102 619



Taper and deburring countersinkers

Short step drill bit type N HSS

Point cut: helical point
Point angle: 118°
Counters. angle: 90° / 180° / 90°
Shank: cylindrical
Ø tolerance: h8
Surface: black
right hand cutting

Short and torsion stable drill, suitable for the use on CNC or NC machines. The drilling and countersinking is made in one step.

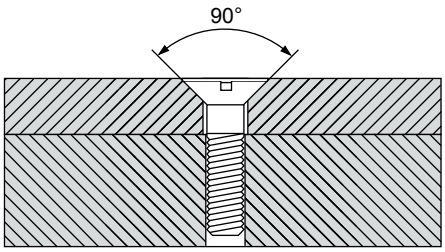
Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit:
in individual plastic packs

90° fine grade for through hole

For efficient drilling of through holes and screw head counterborings with 90° angle.

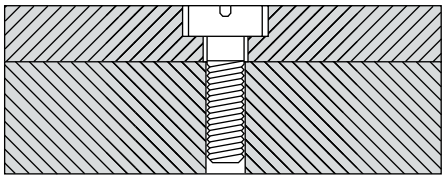
For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	3,2	6,0	9,0	28,0	66,0	102 620
M 4	4,3	8,0	11,0	37,0	79,0	102 621
M 5	5,3	10,0	13,0	43,0	89,0	102 622
M 6	6,4	11,5	15,0	47,0	95,0	102 623
M 8	8,4	15,0	19,0	56,0	111,0	102 624
M 10	10,5	19,0	23,0	64,0	127,0	102 625



180° medium grade for through hole

For efficient drilling of through holes and screw head counterborings with 180° angle.

For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	3,4	6,0	9,0	28,0	66,0	102 626
M 4	4,5	8,0	11,0	37,0	79,0	102 627
M 5	5,5	10,0	13,0	43,0	89,0	102 628
M 6	6,6	11,0	15,0	47,0	95,0	102 629
M 8	9,0	15,0	19,0	56,0	111,0	102 630
M 10	11,0	18,0	23,0	62,0	123,0	102 631



90° for thread core hole

For efficient drilling of tapping holes and countersinkings with 90° angle.

For thread	Step Ø mm	Countersinker Ø mm	Step length mm	Flute length mm	Total length mm	Article no.
M 3	2,5	3,4	8,8	20,0	52,0	102 632
M 4	3,3	4,5	11,1	24,0	58,0	102 633
M 5	4,2	5,5	13,6	28,0	66,0	102 634
M 6	5,0	6,6	16,5	31,0	70,0	102 635
M 8	6,8	9,0	21,0	40,0	84,0	102 636
M 10	8,5	11,0	25,5	47,0	95,0	102 637
M 12	10,2	13,5	30,0	54,0	107,0	102 638

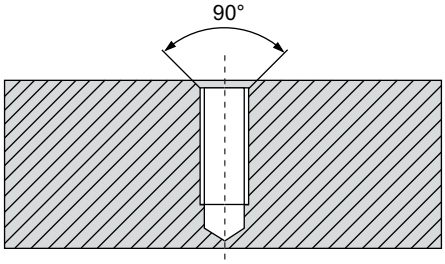


Table of recommended cutting speeds for taper and deburring countersinkers

Material:	High carbon struc. steel up to 700 N/mm²	High carbon struc. steel up to 700 N/mm²	Alloyed steel up to 1000 N/mm²	Cast iron up to 250 N/mm²	Cast iron over 250 N/mm²	CuZn alloy brittle	CuZn alloy tough	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics
Vc = m/min	20	15	10	10	8	40	20	20	15	10
Cooling lubricant	Cutting spray	Cutting spray	Cutting spray	Compressed air	Compressed air	Compressed air	Compressed air	Cutting spray	Water	Compressed air
Ø mm	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
4,3	1481	1111	741	741	593	2963	1481	1481	1111	741
5,0	1274	955	637	637	510	2548	1274	1274	955	637
5,3	1202	901	601	601	481	2404	1202	1202	901	601
5,8	1098	824	549	549	439	2196	1098	1098	824	549
6,0	1062	796	531	531	425	2123	1062	1062	796	531
6,3	1011	758	506	506	404	2022	1011	1011	758	506
7,0	910	682	455	455	364	1820	910	910	682	455
7,3	873	654	436	436	349	1745	873	873	654	436
8,0	796	597	398	398	318	1592	796	796	597	398
8,3	767	576	384	384	307	1535	767	767	576	384
9,4	678	508	339	339	271	1355	678	678	508	339
10,0	637	478	318	318	255	1274	637	637	478	318
10,4	612	459	306	306	245	1225	612	612	459	306
11,5	554	415	277	277	222	1108	554	554	415	277
12,0	531	398	265	265	212	1062	531	531	398	265
12,4	514	385	257	257	205	1027	514	514	385	257
12,5	510	382	255	255	204	1019	510	510	382	255
13,4	475	356	238	238	190	951	475	475	356	238
15,0	425	318	212	212	170	849	425	425	318	212
16,0	398	299	199	199	159	796	398	398	299	199
16,5	386	290	193	193	154	772	386	386	290	193
19,0	335	251	168	168	134	670	335	335	251	168
20,0	318	239	159	159	127	637	318	318	239	159
20,5	311	233	155	155	124	621	311	311	233	155
23,0	277	208	138	138	111	554	277	277	208	138
25,0	255	191	127	127	102	510	255	255	191	127
26,0	245	184	122	122	98	490	245	245	184	122
28,0	227	171	114	114	91	455	227	227	171	114
30,0	212	159	106	106	85	425	212	212	159	106
31,0	205	154	103	103	82	411	205	205	154	103
31,5	202	152	101	101	81	404	202	202	152	101
34,0	187	141	94	94	75	375	187	187	141	94
37,0	172	129	86	86	69	344	172	172	129	86
40,0	159	119	80	80	64	318	159	159	119	80
50,0	127	96	64	64	51	255	127	127	96	64
63,0	101	76	51	51	40	202	101	101	76	51
80,0	80	60	40	40	32	159	80	80	60	40

Table of recommended cutting speeds for Solid TC countersinkers

Material:	High carbon struc. steel up to 700 N/mm²		High carbon struc. steel up to 700 N/mm²		Alloyed steel up to 1200 N/mm²		Cast iron up to 250 N/mm²		Cast iron over 250 N/mm²		CuZn alloy brittle		CuZn alloy tough		Aluminium alloy up to 11% Si		Thermo-plastics		Duro-plastics	
Vc = m/min	15		12		8		12		10		25		15		20		20		10	
Ø mm	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f
6,3	758	0,10	606	0,10	404	0,10	606	0,15	505	0,15	1263	0,13	758	0,13	1011	0,13	1011	0,13	505	0,13
8,3	575	0,15	460	0,15	307	0,15	460	0,20	384	0,20	959	0,16	575	0,16	767	0,16	767	0,18	384	0,18
10,4	459	0,15	367	0,15	245	0,15	367	0,20	306	0,20	765	0,16	459	0,16	612	0,16	612	0,20	306	0,20
12,4	385	0,20	308	0,20	205	0,20	308	0,25	257	0,25	642	0,20	385	0,20	513	0,20	513	0,20	257	0,20
16,5	289	0,20	231	0,20	154	0,20	231	0,25	193	0,25	482	0,22	289	0,22	386	0,22	386	0,25	193	0,25
20,5	233	0,25	186	0,25	124	0,25	186	0,30	155	0,30	388	0,25	233	0,25	311	0,25	311	0,25	155	0,25
25,0	191	0,30	153	0,30	102	0,30	153	0,30	127	0,30	318	0,25	191	0,25	255	0,25	255	0,30	127	0,30
31,0	154	0,35	123	0,35	82	0,35	123	0,35	103	0,35	257	0,30	154	0,30	205	0,30	205	0,35	103	0,35

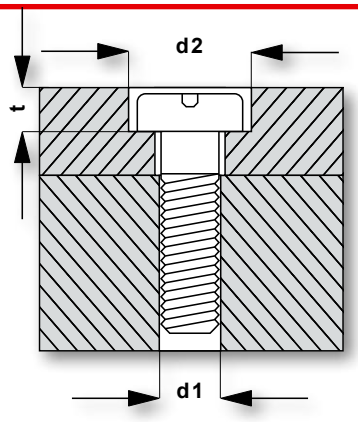
f in mm/rev = feed per revolution

Countersinkings as per DIN 74, Sheet 2

Countersinkings, type H
for cylinder-head screws as per DIN 84 and DIN 7984
for thread-cutting screws as per DIN 7513, Type B
for thread-furrowing screws as per DIN 7500, Type B

Countersinkings, type J
for cylinder-head screws as per DIN 6912

Countersinkings, type K
for cylinder-head screws as per DIN 912



For thread	d1 fine H 12 mm	d1 medium H 13 mm	d1 core hole mm	d2 H 13 mm	t type H mm	t type J mm	t type K mm	Tolerance for t mm
M 3	3,2	3,4	2,5	6,0	2,4	—	3,4	0 + 0,1
M 4	4,3	4,5	3,3	8,0	3,2	3,4	4,6	0 + 0,4
M 5	5,3	5,5	4,2	10,0	4,0	4,2	5,7	0 + 0,4
M 6	6,4	6,6	5,0	11,0	4,7	4,8	6,8	0 + 0,4
M 8	8,4	9,0	6,8	15,0	6,0	6,0	6,0	0 + 0,4
M 10	10,5	11,0	8,5	18,0	7,0	7,5	11,0	0 + 0,4
M 12	13,0	13,5	10,2	20,0	8,0	8,5	13,0	0 + 0,4
M 14	15,0	15,5	12,0	24,0	9,0	9,5	15,0	0 + 0,4
M 16	17,0	17,5	14,0	26,0	10,5	11,5	17,5	0 + 0,4
M 18	19,0	20,0	15,5	30,0	11,5	12,5	19,5	0 + 0,4
M 20	21,0	22,0	17,5	33,0	12,5	13,5	21,5	0 + 0,4
M 22	23,0	24,0	19,5	36,0	13,5	14,5	23,5	0 + 0,4

For your notes

THREAD-CUTTING TOOLS

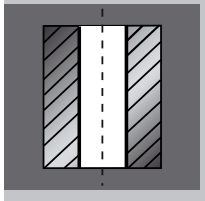
Technical data:

M	metric, DIN ISO 13
MF	metric fine, DIN ISO 13
Ww (BSW)	"British Standard Whitworth thread according to BS 84"
BSF	"British Standard Fine thread according to BS 84"
G (BSP)	DIN ISO 228 "G" (cylindrical pipe thread)
PG	DIN 40 430 steel conduit thread

UNC	american UNC coarse thread ANSI / ASME B 1.1
UNF	american UNF fine thread ANSI / ASME B 1.1
NPT	american conical pipe thread to ANSI B.1.20.1
Rp	DIN 2999 "Rp" Whitworth pipe thread
2B	Thread tolerance for american threads for internal threads
2A	Thread tolerance for american threads for external threads

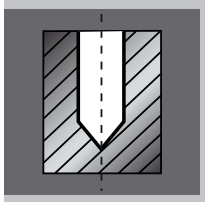
DIN 371	Machine taps with reinforced shank
DIN 376	Machine taps with overflow shank
800 N/mm²	Tenacity classes
60°	Thread angle
	"Steel quality and coloured ring mark"

B	Type B, 4 - 5 threads with progressive tap
C	Type C / 35° right-hand spiral flutes, 2 - 3 threads
D	Type D 4 - 6 threads
AZ	"Interrupted threads for machining soft materials"
ISO 2 6 H	"Thread tolerance for metric and metric fine threads according to DIN ISO 13 "



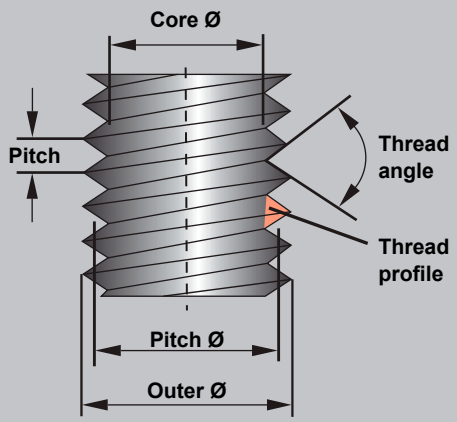
Through hole

When drilling a through hole, the workpiece is completely penetrated by the drill.



Blind hole

In finishing technology, a hole that does not completely penetrate the workpiece, in other words has a certain depth, is called a blind hole.



Product description for hand tapping tools

HSS

The Hand tap consists of heavy-duty high-speed steel.
For through threads and bottoming threads in unalloyed and low-alloyed steels up to a strength of 800 N/mm², malleable cast iron and non-ferrous metals. The thread is cut in three operation.

HSS Co 5

The Hand tap consists of 5% cobalt alloyed heavy-duty high-speed steel. For through threads and bottoming threads in unalloyed and alloyed steels up to a strength of 900 N/mm², malleable cast iron and non-ferrous metals. The thread is cut in three operation.

Product Application

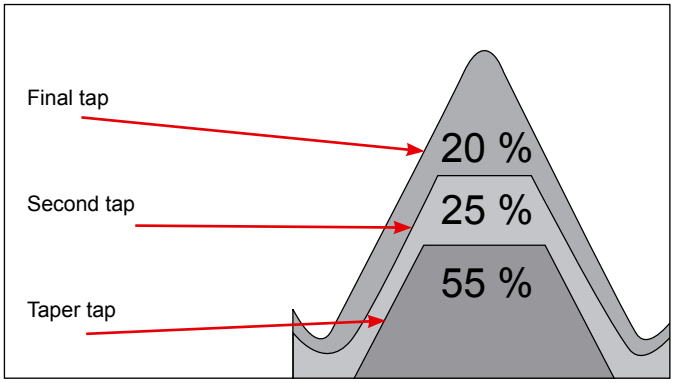
To cut an internal thread, at first a core hole is drilled, whose diameter is approximately smaller by the pitch of the thread than the nominal diameter of the thread.

Subsequently tapered counter bores are placed, which match the size of the thread diameter plus 10% of it. This is done to get a better insertion into the bore hole and to prevent the first and the last thread from being pushed out when beginning to cut.

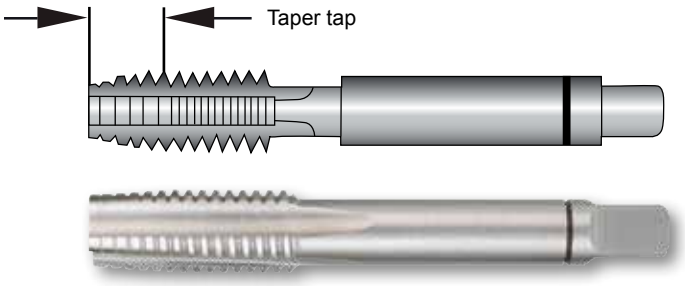
Then the taps are screwed in and out in order. The final core hole diameter is created through the additional plastic deformation of the thread flanks.

To increase the tool life and for optimum surface qualities, RUKO cutting oils or other cooling lubricants for the lubrication are used, as it minimises the friction between the chip and the cutting of the tap and thereby also reduce the necessary torque.

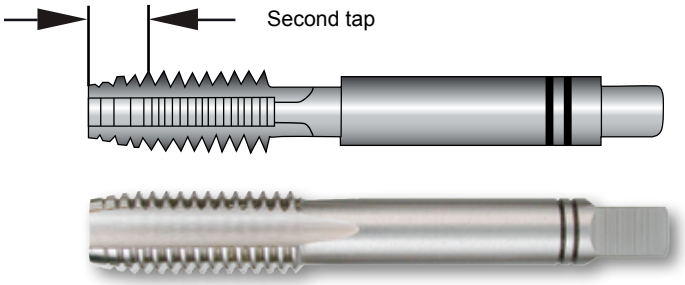
In hand taps, after two rotations of the drill, 1/3 rotation is rotated back to break the chip. In this way the stressing on the drill drops and it doesn't break so quickly.



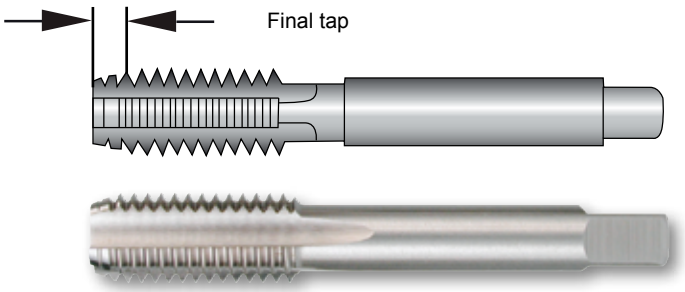
6 - 8-thread chamfer



4 - 5-thread chamfer



2 - 3-thread chamfer



Product description for dies

HSS + HSS Co 5

The Round die consists of heavy-duty high-speed steel (HSS) in unalloyed and low-alloyed steels up to a strength of 800 N/mm².
The Round die consists of 5% cobalt alloyed heavy-duty high-speed steel (HSS Co 5) in unalloyed and alloyed steels up to a strength of 1000 N/mm² and non-ferrous metals.

The thread is cut in one operation.

B

Form B dies = Closed, pre-slotted version!

Hand taps M DIN 352 HSS, HSS-Left-handed thread and HSS Co 5 ground

Set: 3-piece
Taper tap: 6 - 8-thread chamfer
Second tap: 4 - 5-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright / vaporised

right hand cutting / left hand cutting

Also available individually
Taper tap: Article no. 230 .....-1
Second tap: Article no. 230 .....-2
Final tap: Article no. 230 .....-3

Packing unit:
set in plastic pack

M | DIN 352 | HSS 800 N/mm² | HSS Co 5 1000 N/mm² | ISO 2 6H | 60°

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Article no. **HSS**	Article no. **HSS-Left-hand**	Article no. **HSS Co 5-VAP**
M 1	0,25	0,75	32,0	5,5	230 010	—	—
M 1,2	0,25	0,95	32,0	5,5	230 012	—	—
M 1,4	0,30	1,10	32,0	7,0	230 014	—	—
M 1,6	0,35	1,25	32,0	7,0	230 016	—	—
M 1,7	0,35	1,35	32,0	8,0	230 017	—	—
M 1,8	0,35	1,45	32,0	8,0	230 018	—	—
M 2	0,40	1,60	36,0	8,0	230 020	—	230 020 E
M 2,2	0,45	1,75	36,0	9,0	230 022	—	—
M 2,3	0,40	1,90	36,0	9,0	230 023	—	—
M 2,5	0,45	2,10	40,0	8,0	230 025	—	—
M 2,6	0,45	2,10	40,0	8,0	230 026	—	—
M 3	0,50	2,50	40,0	10,0	230 030	230 030 Li	230 030 E
M 3,5	0,60	2,90	45,0	12,0	230 035	—	—
M 4	0,70	3,30	45,0	12,0	230 040	230 040 Li	230 040 E
M 4,5	0,75	3,70	50,0	16,0	230 045	—	—
M 5	0,80	4,20	50,0	13,0	230 050	230 050 Li	230 050 E
M 6	1,00	5,00	56,0	15,0	230 060	230 060 Li	230 060 E
M 7	1,00	6,00	56,0	16,0	230 070	—	—
M 8	1,25	6,80	63,0	18,0	230 080	230 080 Li	230 080 E
M 9	1,25	7,80	63,0	22,0	230 090	—	—
M 10	1,50	8,50	70,0	24,0	230 100	230 100 Li	230 100 E
M 11	1,50	9,50	70,0	24,0	230 110	—	—
M 12	1,75	10,20	75,0	29,0	230 120	230 120 Li	230 120 E
M 14	2,00	12,00	80,0	30,0	230 140	230 140 Li	230 140 E
M 15	2,00	13,00	80,0	32,0	230 150	—	—
M 16	2,00	14,00	80,0	32,0	230 160	230 160 Li	230 160 E
M 18	2,50	15,50	95,0	40,0	230 180	230 180 Li	230 180 E
M 20	2,50	17,50	95,0	40,0	230 200	230 200 Li	230 200 E
M 22	2,50	19,50	100,0	40,0	230 220	—	230 220 E
M 24	3,00	21,00	110,0	45,0	230 240	—	230 240 E
M 27	3,00	24,00	110,0	50,0	230 270	—	—
M 30	3,50	26,50	125,0	56,0	230 300	—	—
M 33	3,50	29,50	125,0	56,0	230 330	—	—
M 36	4,00	32,00	150,0	63,0	230 360	—	—
M 39	4,00	35,00	150,0	63,0	230 390	—	—
M 42	4,50	37,50	150,0	63,0	230 420	—	—
M 45	4,50	40,50	160,0	70,0	230 450	—	—
M 48	5,00	43,00	180,0	75,0	230 480	—	—
M 52	5,00	47,00	180,0	75,0	230 520	—	—

Round dies M DIN EN 22568 HSS, HSS-Left-handed thread and HSS Co 5 ground (formerly DIN 223)

Type: Type B closed, preslotted
Thread: metric, DIN ISO 13
Tolerance: ISO - 6g
Surface: bright / vaporised

right hand cutting / left hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no. **HSS**	Article no. **HSS**	Article no. **HSS-Left-hand**	Article no. **HSS Co 5-VAP**
M 1	0,25	16,0	5,0	237 010	—	—	—
M 1,2	0,25	16,0	5,0	237 012	—	—	—
M 1,4	0,30	16,0	5,0	237 014	—	—	—
M 1,6	0,35	16,0	5,0	237 016	—	—	—
M 1,7	0,35	16,0	5,0	237 017	—	—	—
M 1,8	0,35	16,0	5,0	237 018	—	—	—
M 2	0,40	16,0	5,0	237 020	—	—	237 020 E
M 2,2	0,45	16,0	5,0	237 022	—	—	—
M 2,3	0,40	16,0	5,0	237 023	—	—	—
M 2,5	0,45	16,0	5,0	237 025	—	—	—
M 2,6	0,45	16,0	5,0	237 026	—	—	—
M 3	0,50	20,0	5,0	237 030	—	237 030 Li	237 030 E
M 3	0,50	25,0	9,0	—	238 030	—	—
M 3,5	0,60	20,0	5,0	237 035	—	—	—
M 4	0,70	20,0	5,0	237 040	—	237 040 Li	237 040 E
M 4	0,70	25,0	9,0	—	238 040	—	
M 4,5	0,75	20,0	7,0	237 045	—	—	—
M 5	0,80	20,0	7,0	237 050	—	237 050 Li	237 050 E
M 5	0,80	25,0	9,0	—	238 050	—	—
M 6	1,00	20,0	7,0	237 060		237 060 Li	237 060 E
M 6	1,00	25,0	9,0	—	238 060	—	—
M 7	1,00	25,0	9,0	237 070	—	237 070 Li	—
M 8	1,25	25,0	9,0	237 080	238 080	237 080 Li	237 080 E
M 9	1,25	25,0	9,0	237 090	—	—	—
M 10	1,50	30,0	11,0	237 100	—	237 100 Li	237 100 E
M 10	1,50	25,0	9,0	—	238 100	—	—
M 11	1,50	30,0	11,0	237 110	—	—	—
M 12	1,75	38,0	14,0	237 120	—	237 120 Li	237 120 E
M 12	1,75	25,0	9,0	—	238 120	—	—
M 14	2,00	38,0	14,0	237 140	—	237 140 Li	237 140 E
M 16	2,00	45,0	18,0	237 160	—	237 160 Li	237 160 E
M 18	2,50	45,0	18,0	237 180	—	237 180 Li	237 180 E
M 20	2,50	45,0	18,0	237 200	—	237 200 Li	237 200 E
M 22	2,50	55,0	22,0	237 220	—	—	237 220 E
M 24	3,00	55,0	22,0	237 240	—	—	237 240 E
M 27	3,00	65,0	25,0	237 270	—	—	—
M 30	3,50	65,0	25,0	237 300	—	—	—
M 33	3,50	65,0	25,0	237 330	—	—	—
M 36	4,00	65,0	25,0	237 360	—	—	—
M 39	4,00	75,0	30,0	237 390	—	—	—
M 42	4,50	75,0	30,0	237 420	—	—	—
M 45	4,50	90,0	36,0	237 450	—	—	—
M 48	5,00	90,0	36,0	237 480	—	—	—
M 52	5,00	90,0	36,0	237 520	—	—	—

Hand taps MF DIN 2181 HSS, ground

Set: 2-piece
Taper tap: 5 - 6-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: metric, fine, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Also available individually
Taper tap: Article no. 235 .....-1
Final tap: Article no. 235 .....-2

MF | DIN 2181 | HSS 800 N/mm² | ISO 2 6H | 60°

Packing unit:
set in plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Article no.
MF 3	0,35	2,60	40,0	10,0	235 030
MF 4	0,35	3,10	45,0	10,0	235 040
MF 4	0,50	3,50	45,0	12,0	235 041
MF 5	0,50	4,50	50,0	13,0	235 050
MF 5	0,75	4,25	50,0	13,0	235 051
MF 6	0,50	5,50	50,0	14,0	235 061
MF 6	0,75	5,20	50,0	15,0	235 060
MF 7	0,75	6,20	50,0	14,0	235 070
MF 8	0,50	7,50	50,0	19,0	235 082
MF 8	0,75	7,20	56,0	18,0	235 080
MF 8	1,00	7,00	56,0	18,0	235 081
MF 9	0,75	8,20	56,0	19,0	235 092
MF 9	1,00	8,00	63,0	20,0	235 090
MF 10	0,75	9,20	63,0	20,0	235 102
MF 10	1,00	9,00	63,0	18,0	235 100
MF 10	1,25	8,70	70,0	24,0	235 101
MF 11	1,00	9,20	63,0	20,0	235 110
MF 11	1,25	9,80	63,0	22,0	235 111
MF 12	1,00	11,00	70,0	20,0	235 122
MF 12	1,25	10,70	70,0	20,0	235 121
MF 12	1,50	10,50	70,0	20,0	235 120
MF 13	1,00	12,00	70,0	22,0	235 130
MF 13	1,50	11,50	70,0	22,0	235 131
MF 14	1,00	13,00	70,0	20,0	235 142
MF 14	1,25	12,70	70,0	20,0	235 140
MF 14	1,50	12,50	70,0	20,0	235 141
MF 15	1,50	13,50	70,0	22,0	235 150
MF 16	1,00	15,00	70,0	20,0	235 161
MF 16	1,25	14,75	70,0	20,0	235 162
MF 16	1,50	14,50	70,0	20,0	235 160
MF 18	1,00	17,00	80,0	22,0	235 181
MF 18	1,25	16,80	80,0	22,0	235 183
MF 18	1,50	16,50	80,0	22,0	235 180
MF 18	2,00	16,00	80,0	22,0	235 182
MF 20	1,00	19,00	80,0	22,0	235 201
MF 20	1,25	18,80	80,0	22,0	235 203
MF 20	1,50	18,50	80,0	22,0	235 200
MF 20	2,00	18,00	80,0	22,0	235 202
MF 22	1,00	21,00	80,0	22,0	235 221
MF 22	1,50	20,50	80,0	22,0	235 220
MF 22	2,00	20,00	80,0	22,0	235 222
MF 24	1,00	23,00	90,0	22,0	235 242
MF 24	1,50	22,50	90,0	22,0	235 240

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Article no.
MF 24	2,00	22,00	90,0	22,0	235 241
MF 25	1,50	23,50	90,0	22,0	235 250
MF 26	1,50	24,50	90,0	22,0	235 261
MF 26	2,00	24,00	90,0	22,0	235 260
MF 27	1,50	25,50	90,0	22,0	235 270
MF 27	2,00	25,00	90,0	22,0	235 271
MF 28	1,50	26,50	90,0	22,0	235 280
MF 28	2,00	26,00	90,0	22,0	235 281
MF 30	1,00	29,00	90,0	22,0	235 300
MF 30	1,50	28,50	90,0	22,0	235 301
MF 30	2,00	28,00	90,0	22,0	235 302
MF 32	1,50	30,50	90,0	22,0	235 320
MF 35	1,50	33,50	100,0	25,0	235 350
MF 38	1,50	36,50	110,0	25,0	235 380
MF 40	1,50	38,50	110,0	25,0	235 400
MF 42	1,50	40,50	110,0	25,0	235 420
MF 45	1,50	43,50	110,0	25,0	235 450
MF 48	1,50	46,50	125,0	40,0	235 480
MF 50	1,50	48,50	125,0	40,0	235 500
MF 52	1,50	50,50	125,0	40,0	235 520

Round dies MF DIN EN 22568 HSS, ground (formerly DIN 223)

Type: Type B closed, preslotted
Thread: metric fine, DIN ISO 13
Tolerance: ISO - 6g
Surface: bright
right hand cutting

For unalloyed or low-alloyed steels up to 800 N/mm² strength and

MF | B | DIN EN 22568 | HSS 800 N/mm² | ISO 6g | 60°

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
MF 3	0,35	20,0	5,0	239 030
MF 4	0,35	20,0	5,0	239 040
MF 4	0,50	20,0	5,0	239 041
MF 5	0,50	20,0	5,0	239 050
MF 5	0,75	20,0	7,0	239 051
MF 6	0,50	20,0	5,0	239 061
MF 6	0,75	20,0	7,0	239 060
MF 7	0,75	25,0	9,0	239 070
MF 8	0,50	25,0	9,0	239 082
MF 8	0,75	25,0	9,0	239 080
MF 8	1,00	25,0	9,0	239 081
MF 9	0,75	25,0	9,0	239 090
MF 9	1,00	25,0	9,0	239 091
MF 10	0,75	30,0	11,0	239 102
MF 10	1,00	30,0	11,0	239 100
MF 10	1,25	30,0	11,0	239 101
MF 11	1,00	30,0	11,0	239 110
MF 11	1,25	30,0	11,0	239 111
MF 12	1,00	38,0	10,0	239 121
MF 12	1,25	38,0	10,0	239 122
MF 12	1,50	38,0	10,0	239 120
MF 13	1,00	38,0	10,0	239 131
MF 13	1,50	38,0	10,0	239 130
MF 14	1,00	38,0	10,0	239 142
MF 14	1,25	38,0	10,0	239 140
MF 14	1,50	38,0	10,0	239 141
MF 15	1,50	38,0	10,0	239 150
MF 16	1,00	45,0	14,0	239 161
MF 16	1,25	45,0	14,0	239 162
MF 16	1,50	45,0	14,0	239 160
MF 18	1,00	45,0	14,0	239 181
MF 18	1,25	45,0	14,0	239 183
MF 18	1,50	45,0	14,0	239 180
MF 18	2,00	45,0	14,0	239 182
MF 20	1,00	45,0	14,0	239 201
MF 20	1,25	45,0	14,0	239 203
MF 20	1,50	45,0	14,0	239 200
MF 20	2,00	45,0	14,0	239 202
MF 22	1,00	55,0	16,0	239 221
MF 22	1,50	55,0	16,0	239 220
MF 22	2,00	55,0	16,0	239 222
MF 24	1,00	55,0	16,0	239 242
MF 24	1,50	55,0	16,0	239 240

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
MF 24	2,00	55,0	16,0	239 241
MF 25	1,50	55,0	16,0	239 250
MF 26	1,50	55,0	16,0	239 261
MF 26	2,00	55,0	16,0	239 262
MF 27	1,50	65,0	18,0	239 270
MF 27	2,00	65,0	18,0	239 271
MF 28	1,50	65,0	18,0	239 281
MF 28	2,00	65,0	18,0	239 282
MF 30	1,00	65,0	18,0	239 300
MF 30	1,50	65,0	18,0	239 301
MF 30	2,00	65,0	18,0	239 302
MF 32	1,50	65,0	18,0	239 320
MF 35	1,50	65,0	18,0	239 350
MF 38	1,50	75,0	20,0	239 380
MF 40	1,50	75,0	20,0	239 400
MF 42	1,50	75,0	20,0	239 420
MF 45	1,50	90,0	22,0	239 450
MF 48	1,50	90,0	22,0	239 480
MF 50	1,50	90,0	22,0	239 500
MF 52	1,50	90,0	22,0	239 520

Hand taps G DIN 5157 HSS ground

Set: 2-piece
Taper tap: 5 - 6-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
DIN 2999 "Rp" (Whitworth pipe thread)
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Also available individually
Taper tap: Article no. 236 .....-1
Final tap: Article no. 236 .....-2

Packing unit:
set in plastic pack

G (BSP) | Rp | DIN 5157 | HSS 800 N/mm² | ISO 2 6H | 60°

Nominal threadsize size		Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
G 1/8	Rp 1/8	28	8,80	63,0	18,0	236 018
G 1/4	Rp 1/4	19	11,80	70,0	20,0	236 014
G 3/8	Rp 3/8	19	15,25	70,0	20,0	236 038
G 1/2	Rp 1/2	14	19,00	80,0	22,0	236 012
G 5/8	Rp 5/8	14	21,00	80,0	22,0	236 058
G 3/4	Rp 3/4	14	24,50	90,0	22,0	236 034
G 7/8	Rp 7/8	14	28,25	90,0	22,0	236 078
G 1"	Rp 1"	11	30,75	100,0	25,0	236 010
G 1 1/8	Rp 1 1/8	11	35,50	125,0	40,0	236 118
G 1 1/4	Rp 1 1/4	11	39,50	125,0	40,0	236 114
G 1 3/8	Rp 1 3/8	11	41,50	140,0	40,0	236 138
G 1 1/2	Rp 1 1/2	11	45,25	140,0	40,0	236 112
G 1 3/4	Rp 1 3/4	11	51,00	140,0	40,0	236 134
G 2"	Rp 2"	11	57,00	160,0	40,0	236 020

Round dies G DIN EN 24231 HSS ground (formerly DIN 5158)

Type: Type B closed, preslotted
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
Surface: bright
right hand cutting

G (BSP) | B | DIN 24231 | HSS 800 N/mm² | 60°

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
G 1/8	28	30,0	11,0	240 018
G 1/4	19	38,0	10,0	240 014
G 3/8	19	45,0	14,0	240 038
G 1/2	14	45,0	14,0	240 012
G 5/8	14	55,0	16,0	240 058
G 3/4	14	55,0	16,0	240 034
G 7/8	14	65,0	18,0	240 078
G 1"	11	65,0	18,0	240 010

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
G 1 1/8	11	75,0	20,0	240 118
G 1 1/4	11	75,0	20,0	240 114
G 1 3/8	11	90,0	22,0	240 138
G 1 1/2	11	90,0	22,0	240 112
G 1 5/8	11	90,0	22,0	240 158
G 1 3/4	11	105,0	22,0	240 134
G 2"	11	105,0	22,0	240 020

Hand taps BSW ≈ DIN 352 HSS, ground

Set: 3-piece
Taper tap: 5 - 6-thread chamfer
Second tap: 4 - 5-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: BSW, formerly DIN 11
Flanks: relief-ground
Surface: bright
right hand cutting

Also available individually
Taper tap: Article no. 246 .....-1
Second tap: Article no. 246 .....-2
Final tap: Article no. 246 .....-3

Ww (BSW) | DIN 352 | HSS 800 N/mm² | 60°

Packing unit:
set in plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
1/16	60	1,15	32,0	7,0	246 116
3/32	48	1,80	40,0	8,0	246 332
1/8	40	2,60	40,0	10,0	246 018
5/32	32	3,10	45,0	12,0	246 532
3/16	24	3,60	50,0	13,0	246 316
7/32	24	4,40	50,0	15,0	246 732
1/4	20	5,10	50,0	16,0	246 014
5/16	18	6,50	56,0	18,0	246 516
3/8	16	7,90	70,0	24,0	246 038
7/16	14	9,30	70,0	24,0	246 716
1/2	12	10,50	80,0	30,0	246 012
9/16	12	12,00	80,0	30,0	246 916

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
5/8	11	13,50	80,0	32,0	246 058
3/4	10	16,50	95,0	40,0	246 034
7/8	9	19,25	100,0	40,0	246 078
1"	8	22,00	110,0	50,0	246 010
1 1/8	7	24,75	125,0	50,0	246 118
1 1/4	7	27,75	125,0	50,0	246 114
1 3/8	6	30,20	150,0	63,0	246 138
1 1/2	6	33,50	150,0	63,0	246 112
1 5/8	5	35,50	150,0	63,0	246 158
1 3/4	5	38,50	160,0	70,0	246 134
1 7/8	4 1/2	41,50	180,0	75,0	246 178
2"	4 1/2	44,50	180,0	75,0	246 020

Round dies BSW ≈ DIN EN 22568 HSS, ground (formerly DIN 223)

Type: Type B closed, preslotted
Thread: BSW, formerly DIN 11
Surface: bright
right hand cutting

Ww (BSW) | B | DIN 22568 | HSS 800 N/mm² | 60°

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
1/16	60	16,0	5,0	247 116
3/32	48	16,0	5,0	247 332
1/8	40	20,0	5,0	247 018
5/32	32	20,0	5,0	247 532
3/16	24	20,0	7,0	247 316
7/32	24	20,0	7,0	247 732
1/4	20	25,0	9,0	247 014
5/16	18	25,0	9,0	247 516
3/8	16	30,0	11,0	247 038
7/16	14	30,0	11,0	247 716
1/2	12	38,0	14,0	247 012
9/16	12	38,0	14,0	247 916

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
5/8	11	45,0	18,0	247 058
3/4	10	45,0	18,0	247 034
7/8	9	55,0	22,0	247 078
1"	8	55,0	22,0	247 010
1 1/8	7	65,0	25,0	247 118
1 1/4	7	65,0	25,0	247 114
1 3/8	6	65,0	25,0	247 138
1 1/2	6	75,0	30,0	247 112
1 5/8	5	75,0	30,0	247 158
1 3/4	5	90,0	36,0	247 134
1 7/8	4 1/2	90,0	36,0	247 178
2"	4 1/2	90,0	36,0	247 020

Hand taps UNC ≈ DIN 352 HSS, ground

Set: 3-piece
Taper tap: 5 - 6-thread chamfer
Second tap: 4 - 5-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: american UNC coarse thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Also available individually
Taper tap: Article no. 246 ..... UNC1
Second tap: Article no. 246 ..... UNC2
Final tap: Article no. 246 ..... UNC3

Packing unit:
set in plastic pack

UNC | 2B | DIN 352 | HSS 800 N/mm² | 60°

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
Nr. 2	56	1,85	36,0	11,0	246 020 UNC
Nr. 3	48	2,10	36,0	11,0	246 030 UNC
Nr. 4	40	3,5	40,0	12,0	246 040 UNC
Nr. 5	40	3,5	40,0	12,0	246 050 UNC
Nr. 6	32	4,0	45,0	14,0	246 060 UNC
Nr. 8	32	4,5	45,0	14,0	246 080 UNC
Nr. 10	24	6,0	50,0	16,0	246 100 UNC
Nr. 12	24	6,0	50,0	18,0	246 120 UNC
1/4	20	6,0	50,0	19,0	246 014 UNC
5/16	18	6,0	56,0	22,0	246 516 UNC
3/8	16	7,0	70,0	24,0	246 038 UNC
7/16	14	8,0	70,0	24,0	246 716 UNC

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
1/2	13	9,0	75,0	29,0	246 012 UNC
9/16	12	11,0	80,0	30,0	246 916 UNC
5/8	11	12,0	80,0	32,0	246 058 UNC
3/4	10	14,0	95,0	40,0	246 034 UNC
7/8	9	18,0	100,0	40,0	246 078 UNC
1"	8	18,0	110,0	50,0	246 010 UNC
1 1/8	7	22,0	132,0	56,0	246 118 UNC
1 1/4	7	22,0	132,0	56,0	246 114 UNC
1 3/8	6	28,0	150,0	63,0	246 138 UNC
1 1/2	6	32,0	150,0	63,0	246 112 UNC
1 3/4	5	36,0	160,0	70,0	246 134 UNC
2"	4 1/2	40,0	190,0	80,0	246 200 UNC

Round dies UNC ≈ DIN EN 22568 HSS, ground (formerly DIN 223)

Type: Type B closed, preslotted
Thread: american UNC coarse thread
Tolernace: 2 A
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

UNC | B | 2A | DIN 22568 | HSS 800 N/mm² | 60°

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
Nr. 2	56	16,0	5,0	240 020 UNC
Nr. 3	48	16,0	5,0	240 030 UNC
Nr. 4	40	20,0	5,0	240 040 UNC
Nr. 5	40	20,0	5,0	240 050 UNC
Nr. 6	32	20,0	7,0	240 060 UNC
Nr. 8	32	20,0	7,0	240 080 UNC
Nr. 10	24	20,0	7,0	240 100 UNC
Nr. 12	24	20,0	7,0	240 120 UNC
1/4	20	20,0	7,0	240 014 UNC
5/16	18	25,0	9,0	240 516 UNC
3/8	16	30,0	11,0	240 038 UNC
7/16	14	30,0	11,0	240 716 UNC

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
1/2	13	38,0	14,0	240 012 UNC
9/16	12	38,0	14,0	240 916 UNC
5/8	11	45,0	18,0	240 058 UNC
3/4	10	45,0	18,0	240 034 UNC
7/8	9	55,0	22,0	240 078 UNC
1"	8	55,0	22,0	240 010 UNC
1 1/8	7	65,0	25,0	240 118 UNC
1 1/4	7	65,0	25,0	240 114 UNC
1 3/8	6	65	25	240 138 UNC
1 1/2	6	75	30	240 112 UNC
1 3/4	5	90	36	240 134 UNC
2"	4,5	90	36	240 200 UNC

Hand taps UNF ≈ DIN 2181 HSS, ground

Set: 2-piece
Taper tap: 5 - 6-thread chamfer
Final tap: 2 - 3-thread chamfer
Thread: american UNF fine thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Also available individually
Taper tap: Article no. 246 ..... UNF1
Final tap: Article no. 246 ..... UNF2

UNF | 2B | DIN 2181 | HSS 800 N/mm² | 60°

Packing unit:
set in plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
Nr. 2	64	1,85	32,0	10,0	246 020 UNF
Nr. 3	56	2,15	32,0	10,0	246 030 UNF
Nr. 4	48	2,40	36,0	11,0	246 040 UNF
Nr. 5	44	2,70	36,0	11,0	246 050 UNF
Nr. 6	40	2,95	40,0	12,0	246 060 UNF
Nr. 8	36	3,50	40,0	12,0	246 080 UNF
Nr. 10	32	4,10	45,0	14,0	246 100 UNF
Nr. 12	28	4,60	50,0	14,0	246 120 UNF
1/4	28	5,50	50,0	18,0	246 014 UNF
5/16	24	6,90	56,0	22,0	246 516 UNF
3/8	24	8,50	63,0	22,0	246 038 UNF

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
7/16	20	9,90	63,0	22,0	246 716 UNF
1/2	20	11,50	75,0	24,0	246 012 UNF
9/16	18	12,90	80,0	28,0	246 916 UNF
5/8	18	14,50	80,0	28,0	246 058 UNF
3/4	16	17,50	95,0	32,0	246 034 UNF
7/8	14	20,50	100,0	36,0	246 078 UNF
1"	12	23,25	110,0	40,0	246 010 UNF
1 1/8	12	22,0	110,0	50,0	246 118 UNF
1 1/4	12	22,0	132,0	56,0	246 114 UNF
1 3/8	12	28,0	132,0	56,0	246 138 UNF
1 1/2	12	32,0	150,0	63,0	246 112 UNF

Round dies UNF ≈ DIN EN 22568 HSS, ground (formerly DIN 223)

Type: Type B closed, preslotted
Thread: american UNF fine thread
Tolernace: 2 A
Surface: bright
right hand cutting

UNF | B | 2A | DIN 22568 | HSS 800 N/mm² | 60°

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
Nr. 2	64	16,0	5,0	240 020 UNF
Nr. 3	56	16,0	5,0	240 030 UNF
Nr. 4	48	16,0	5,0	240 040 UNF
Nr. 5	44	20,0	5,0	240 050 UNF
Nr. 6	40	20,0	5,0	240 060 UNF
Nr. 8	36	20,0	7,0	240 080 UNF
Nr. 10	32	20,0	7,0	240 100 UNF
Nr. 12	28	20,0	7,0	240 120 UNF
1/4	28	20,0	7,0	240 014 UNF
5/16	24	25,0	9,0	240 516 UNF
3/8	24	30,0	11,0	240 038 UNF

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
7/16	20	30,0	11,0	240 716 UNF
1/2	20	38,0	10,0	240 012 UNF
9/16	18	38,0	10,0	240 916 UNF
5/8	18	45,0	11,0	240 058 UNF
3/4	16	45,0	14,0	240 034 UNF
7/8	14	55,0	16,0	240 078 UNF
1"	12	55,0	16,0	240 010 UNF
1 1/8	12	65	18	240 118 UNF
1 1/4	12	65	18	240 114 UNF
1 3/8	12	65	18	240 138 UNF
1 1/2	12	75	20	240 112 UNF

Hexagonal solid square bolt die M DIN 382 HSS ground

Thread: metric, DIN ISO 13
Tolerance: ISO - 6g
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
M 3	0,50	18,0	5,0	267 030
M 4	0,70	18,0	5,0	267 040
M 5	0,80	18,0	7,0	267 050
M 6	1,00	18,0	7,0	267 060
M 8	1,25	21,0	9,0	267 080
M 10	1,50	27,0	11,0	267 100
M 12	1,75	36,0	14,0	267 120
M 14	2,00	36,0	14,0	267 140

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
M 16	2,00	41,0	18,0	267 160
M 18	2,50	41,0	18,0	267 180
M 20	2,50	41,0	18,0	267 200
M 22	2,50	50,0	22,0	267 220
M 24	3,00	50,0	22,0	267 240
M 27	3,00	60,0	25,0	267 270
M 30	3,50	60,0	25,0	267 300

Hexagonal solid square bolt die MF DIN 382 HSS ground

Thread: metric fine, DIN ISO 13
Tolerance: ISO - 6g
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
MF 3	0,35	18,0	5,0	269 030
MF 4	0,35	18,0	5,0	269 040
MF 4	0,50	18,0	5,0	269 041
MF 5	0,50	18,0	5,0	269 050
MF 5	0,75	18,0	7,0	269 051
MF 6	0,50	18,0	5,0	269 061
MF 6	0,75	18,0	7,0	269 060
MF 7	0,75	21,0	9,0	269 070
MF 8	0,75	21,0	9,0	269 080
MF 8	1,00	21,0	9,0	269 081
MF 10	0,75	27,0	11,0	269 102
MF 10	1,00	27,0	11,0	269 100
MF 10	1,25	27,0	11,0	269 101
MF 12	1,00	36,0	10,0	269 121
MF 12	1,25	36,0	10,0	269 122
MF 12	1,50	36,0	10,0	269 120
MF 14	1,00	36,0	10,0	269 142
MF 14	1,25	36,0	10,0	269 140
MF 14	1,50	36,0	10,0	269 141
MF 16	1,00	41,0	14,0	269 161

Nominal thread size	Pitch mm	Outside Ø mm	Thickness mm	Article no.
MF 16	1,25	41,0	14,0	269 162
MF 16	1,50	41,0	14,0	269 160
MF 18	1,00	41,0	14,0	269 181
MF 18	1,50	41,0	14,0	269 180
MF 18	2,00	41,0	14,0	269 182
MF 20	1,00	41,0	14,0	269 201
MF 20	1,50	41,0	14,0	269 200
MF 20	2,00	41,0	14,0	269 202
MF 22	1,00	50,0	16,0	269 221
MF 22	1,50	50,0	16,0	269 220
MF 22	2,00	50,0	16,0	269 222
MF 24	1,00	50,0	16,0	269 242
MF 24	1,50	50,0	16,0	269 240
MF 24	2,00	50,0	16,0	269 241
MF 26	1,50	50,0	16,0	269 261
MF 27	1,50	60,0	18,0	269 270
MF 27	2,00	60,0	18,0	269 271
MF 30	1,50	60,0	18,0	269 301
MF 30	2,00	60,0	18,0	269 302

Hand tap sets
HSS and HSS Co 5 in steel case

No. 245 001

No. 245 002

No. 245 003

No. 245 003 E

Description	Article no. **HSS**	Article no. **HSS Co 5**
21-piece set of hand taps M DIN 352 one three-piece set each of M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 001	245 001 E
22-piece set of hand taps M DIN 352 one three-piece set each of M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 1 tap wrench DIN 1814 size 1 1/2	245 002	245 002 E
29-piece set of hand taps DIN 352 one three-piece set each of M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 Type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm + 1 tap wrench DIN 1814 size 1 1/2	245 003	245 003 E

Hand tap sets
HSS and HSS Co 5 in polystyrene case

No. 245 001 RO

No. 245 001 ERO

No. 245 003 RO

No. 245 003 ERO

Description	Article no. **HSS**	Article no. **HSS Co 5**
21-piece set of hand taps M DIN 352 one three-piece set each of M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 001 RO	245 001 ERO
29-piece set of hand taps DIN 352 one three-piece set each of M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 Type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm + 1 tap wrench DIN 1814 size 1 1/2	245 003 RO	245 003 ERO

Thread-cutting sets
HSS and HSS Co 5 in steel case

No. 245 020

No. 245 030

No. 245 040

Description	Article no. **HSS**	Article no. **HSS Co 5**
31-piece set of DIY thread-cutting tools one three-piece set each of hand taps M DIN 352 M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 dies Ø 25,0 mm ≈ DIN EN 22568 in each of the sizes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 1 die stock 25,0 x 9,0 mm DIN 225 + 1 tap wrench, size 1½ DIN 1814 + 1 screwdriver	245 010	245 010 E
37-piece set of thread-cutting tools one three-piece set each of hand taps M DIN 352 M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 dies M DIN EN 22568 in each of the sizes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 5 die stocks DIN 225 in each of the sizes 20,0 x 5,0 mm - 20,0 x 7,0 mm - 25,0 x 9,0 mm - 30,0 x 11,0 mm - 38,0 x 14,0 mm + 2 tap wrenches, size 1 and size 2 DIN 1814 + 1 screwdriver + 1 screw-pitch gauge	245 020	245 020 E
44-piece set of thread-cutting tools one three-piece set each of hand taps M DIN 352 M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm + 7 dies M DIN EN 22568 in each of the sizes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 5 die stocks DIN 225 in each of the sizes 20,0 x 5,0 mm - 20,0 x 7,0 mm - 25,0 x 9,0 mm - 30,0 x 11,0 mm - 38,0 x 14,0 mm + 2 tap wrenches, size 1 and size 2 DIN 1814 + 1 screwdriver + 1 screw-pitch gauge	245 030	245 030 E
54-piece set of thread-cutting tools one three-piece set each of hand taps M DIN 352 M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 - M 14 - M 16 - M 18 - M 20 + 11 dies M DIN EN 22568 in each of the sizes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 - M 14 - M 16 - M 18 - M 20 + 6 die stocks DIN 225 in each of the sizes 20,0 x 5,0 mm - 20,0 x 7,0 mm - 25,0 x 9,0 mm - 30,0 x 11,0 mm - 38,0 x 14,0 mm - 45,0 x 18,0 mm + 2 tap wrenches, size 1 and size 3 DIN 1814 + 1 screwdriver + 1 screw-pitch gauge	245 040	245 040 E
43-piece set of thread-cutting tools MF (metric fine) one two-piece set each of hand taps MF DIN 2181 MF 3 x 0,35 - MF 4 x 0,35 - MF 5 x 0,5 - MF 6 x 0,75 - MF 8 x 0,75 - MF 10 x 1,0 - MF 12 x 1,5 - MF 14 x 1,5 - MF 16 x 1,5 - MF 18 x 1,5 - MF 20 x 1,5 mm + 11 dies MF DIN 22568 in each of the sizes MF 3 - MF 4 - MF 5 - MF 6 - MF 8 - MF 10 - MF 12 - MF 14 - MF 16 - MF 18 - MF 20 + 6 die stocks DIN 225 in each of the sizes 20,0 x 5,0 mm - 20,0 x 7,0 mm - 25,0 x 9,0 mm - 30,0 x 11,0 mm - 38,0 x 10,0 mm - 45,0 x 14,0 mm + 2 tap wrenches, size 1 and 3 DIN 1814 + 1 screwdriver + 1 screw-pitch gauge	245 041	—

Single-cut taps G ≈ DIN 5157 HSS, ground

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
DIN 2999 "Rp" (whitworth pipe thread)
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

G (BSP) | B | Rp | DIN 5157 | HSS 800 N/mm² | ISO 2 6H | 60°

Nominal thread size		Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
G 1/8	Rp 1/8	28	8,6	63,0	20,0	236 218
G 1/4	Rp 1/4	19	11,5	70,0	22,0	236 214
G 3/8	Rp 3/8	19	15,0	70,0	22,0	236 238

Nominal thread size		Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Article no.
G 1/2	Rp 1/2	14	19,0	80,0	22,0	236 212
G 3/4	Rp 3/4	14	24,5	90,0	22,0	236 234
G 1"	Rp 1"	11	30,5	100,0	25,0	236 210

Hexagonal solid square bolt die G DIN 382 HSS, ground

Type: type B closed, preslotted
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

G (BSP) | B | DIN 382 | HSS 800 N/mm² | 60°

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
G 1/8	28	27,0	11,0	267 618
G 1/4	19	36,0	10,0	267 614
G 3/8	19	41,0	14,0	267 638

Nominal thread size	Threads per inch	Outside Ø mm	Thickness mm	Article no.
G 1/2	14	41,0	14,0	267 612
G 3/4	14	50,0	16,0	267 634
G 1"	11	60,0	18,0	267 610

Sanitary repair thread-cutting set HSS for cylindrical pipe thread in plastic case

Description	Article no.
13-piece set of sanitary repair thread-cutting tools for cylindrical pipe thread HSS, ground 6 single-cut taps G/Rp ≈ DIN 5157 HSS, ground G/Rp 1/8" x 28 - G/Rp 1/4" x 19 - G/Rp 3/8" x 19 - G/Rp 1/2" x 14 - G/Rp 3/4" x 14 - G/Rp 1" x 11 + 6 hexagonal dies G DIN 382 HSS, ground G 1/8" x 28 - G 1/4" x 19 - G 3/8" x 19 - G 1/2" x 14 - G 3/4" x 14 - G 1" x 11 + 1 cutting spray, 50 ml	245 059

Single-cut taps M ≈ DIN 352
HSS and HSS Co 5 ground

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

The single-cut tap HSS for through threads in unalloyed and low-alloyed steels up to a strength of 800 N/mm². The single-cut tap HSS Co 5 for through threads in unalloyed and alloyed steels up to a strength of 1000 N/mm², malleable cast iron and non-ferrous metals.
The thread can be cut in one operation by hand or machine.

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Article no. **HSS**	Article no. **HSS Co 5**
M 3	0,50	2,50	40,0	10,0	231 030	231 030 E
M 4	0,70	3,30	45,0	12,0	231 040	231 040 E
M 5	0,80	4,20	50,0	13,0	231 050	231 050 E
M 6	1,00	5,00	50,0	15,0	231 060	231 060 E
M 8	1,25	6,80	56,0	18,0	231 080	231 080 E
M 9	1,25	7,80	67,0	22,0	231 090	231 090 E
M 10	1,50	8,50	70,0	24,0	231 100	231 100 E
M 12	1,75	10,20	75,0	29,0	231 120	231 120 E

Single-cut tap set HSS
in steel case

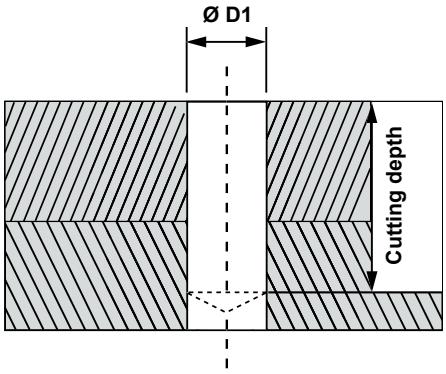
Description	Article no. **HSS**
15-piece set of single-cut taps 7 single-cut taps ≈ DIN 352 HSS, ground M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 Type N HSS, ground Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm + 1 tap wrench, size 1 1/2 DIN 1814	245 004

Single-cut tap set HSS
in polystyrene case

Description	Article no. **HSS**
15-piece set of single-cut taps 7 single-cut taps ≈ DIN 352 HSS, ground M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 Type N HSS, ground Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm + 1 tap wrench, size 1 1/2 DIN 1814	245 004 RO

Single-cut taps NPT HSS, ground

Chamfer: type C, ca. 2 - 3 threads
Thread: american conical pipe thread to ANSI B.1.20.1
Flanks: relief-ground
Cone: 1:16
Surface: bright
right hand cutting

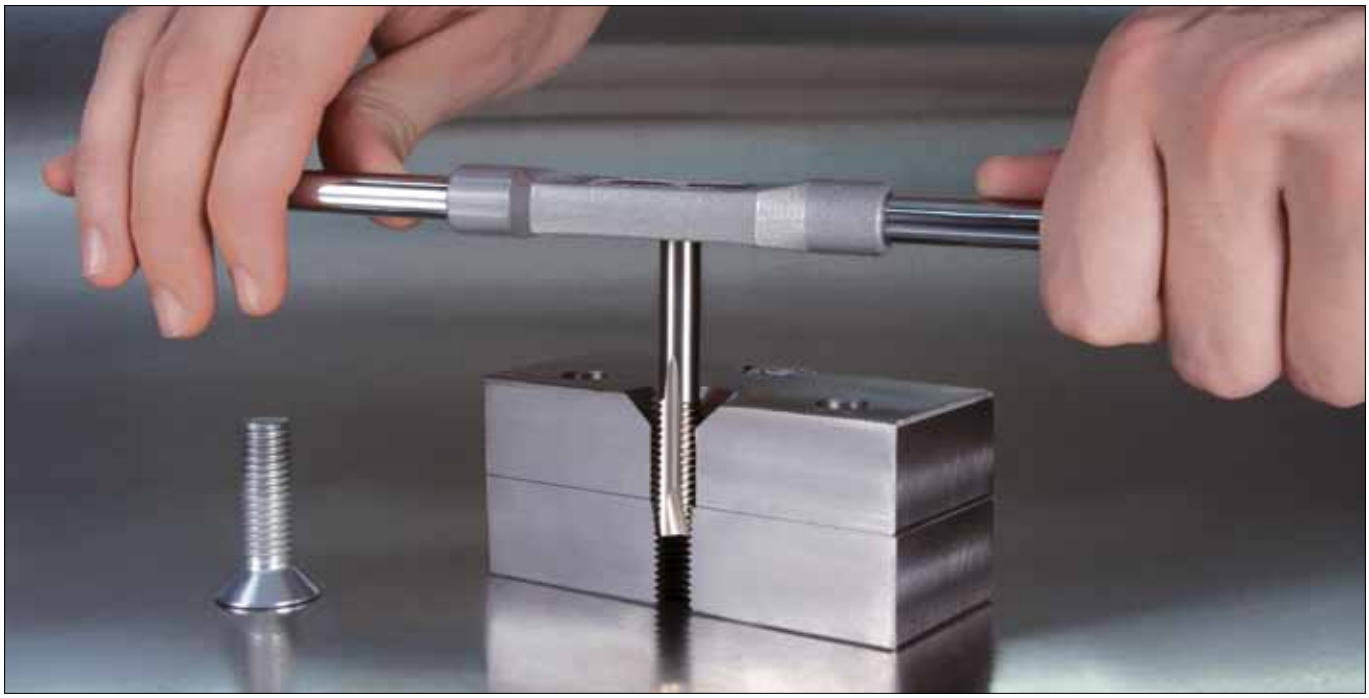


For through threads in unalloyed or low-alloyed steels up to 800 N/mm² strength, malleable cast iron and non-ferrous metals.
The thread can be cut in one operation by hand or machine.

Note: pilot drill cylindrically

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	D1 mm	Cutting depth mm	Total length mm	Thread length mm	Article no.
1/16	27,0	6,25	12,00	65,0	19,0	231 116 NPT
1/8	27,0	8,50	12,00	65,0	19,0	231 018 NPT
1/4	18,0	11,10	17,50	70,0	25,0	231 014 NPT
3/8	18,0	14,70	17,50	75,0	26,0	231 038 NPT
1/2	14,0	18,00	22,90	80,0	31,0	231 012 NPT
3/4	14,0	23,25	23,00	100,0	33,0	231 034 NPT
1"	11,5	29,25	27,40	110,0	38,0	231 010 NPT
1 1/4"	11,5	38,00	28,10	125,0	41,0	231 114 NPT
1 1/2"	11,5	44,25	28,40	140,0	42,0	231 112 NPT
2"	11,5	56,25	28,40	160,0	44,0	231 020 NPT



Die stocks as per DIN 225

For closed and slotted taps as per DIN EN 24231.
With steel handles one of which can be unscrewed and five screws for clamping the tap.

Version: die-cast zinc housing

Packing unit:
individual plastic pack

Size	Thickness mm	Length mm	for tap size M + MF	for tap size Ww	for tap size G	Article no.
16	5,0	160,0	M 1 - M 2,6	1/16 - 3/32	—	242 165
20	5,0	200,0	M 3 - M 4	1/8 - 5/32	—	242 205
20	7,0	200,0	M 4,5 - M 6	3/16 - 1/4	—	242 207
25	9,0	224,0	M 7 - M 9	5/16	1/16	242 259
30	11,0	280,0	M 10 - M 11	3/8 - 7/16	1/8	242 3011
38	10,0	315,0	MF 12 - MF 14	—	1/4	242 3810
38	14,0	315,0	M 12 - M 14	1/2 - 9/16	—	242 3814
45	14,0	450,0	MF 16 - MF 20	—	3/8 - 1/2	242 4514
45	18,0	450,0	M 16 - M 20	5/8 - 3/4	—	242 4518
55	16,0	560,0	MF 22 - MF 24	—	5/8 - 3/4	242 5516
55	22,0	560,0	M 22 - M 24	7/8 - 1	—	242 5522
65	18,0	630,0	MF 27 - MF 36	—	7/8 - 1	242 6518
65	25,0	630,0	M 27 - M 36	1 1/8 - 1 3/8	—	242 6525
75	30,0	740,0	M 38 - M 42	1 1/2 - 1 5/8	—	242 7530
75	20,0	740,0	MF 38 - MF 42	—	1 1/8 - 1 1/4	242 7520
90	36,0	900,0	M 45 - M 52	1 3/4 - 2	—	242 9036
90	22,0	900,0	MF 45 - MF 52	—	1 3/8 - 1 5/8	242 9022
105	36,0	975,0	M 54 - M 63	2 1/4 - 2 3/4	—	242 10536
105	22,0	975,0	MF 54 - MF 63	—	1 3/4 - 2	242 10522

Adjustable tap wrenches as per DIN 1814

Ideal for thread-cutting in inaccessible places.
With two-jaw chuck for tensioning square shanks.
With steel handles one of which can be unscrewed.

Version: die-cast zinc housing
Chuck jaws: hardened

Packing unit:
individual plastic pack

Size	Length mm	for hand tape size M	for hand tape size Ww	for hand tape size G	Article no.
0	130,0	M 1 - M 8	1/16 - 5/16	—	241 100
1	180,0	M 1 - M 10	1/8 - 3/8	—	241 101
1 1/2	180,0	M 1 - M 12	1/8 - 1/2	1/8	241 112
2	280,0	M 4 - M 12	3/16 - 5/8	1/8 - 3/8	241 102
3	380,0	M 5 - M 20	1/4 - 3/4	1/8 - 1/2	241 103
4	500,0	M 11 - M 27	1/2 - 1	1/8 - 3/4	241 104
5	700,0	M 13 - M 32	5/8 - 1 1/4	1/4 - 1	241 105
6	1000,0	M 19 - M 38	3/4 - 1 1/2	1/4 - 1 1/4	241 106
7	1200,0	M 25 - M 52	7/8 - 2	5/8 - 2 1/4	241 107

Tap wrench with ratchet

Ideal for thread-cutting in inaccessible places.
With two-jaw chuck for tensioning square shanks.

Version: adjustable left, right, fixed
Shank: sliding cross-handle with grooves at both ends
Surface: chromium-plated

Packing unit:
individual plastic pack

Size	Length mm	for hand tape size M	Ww	G	Article no.
1	85,0	M 3 - M 10	1/8 - 3/8	—	241 001
2	100,0	M 5 - M 12	7/32 - 1/2	1/8	241 002
10	250,0	M 3 - M 10	1/8 - 3/8	—	241 010
20	300,0	M 5 - M 12	7/32 - 1/2	1/8	241 020

Ball tap wrenches

Ideal for rapid fitting of taps.

Version: die-cast zinc housing
Shank: square as per DIN 10

Packing unit:
individual plastic pack

Size	Length mm	for hand tape size M	Ww	G	Article no.
0	200,0	M 1 - M 4	1/16 - 5/32	—	241 200
1	200,0	M 3,5 - M 8	5/32 - 5/16	—	241 201
2	240,0	M 4 - M 10	5/32 - 3/8	—	241 202
3	300,0	M 5 - M 12	7/32 - 1/2	—	241 203
4	340,0	M 9 - M 12	3/8 - 5/8	—	241 204
5	450,0	M 12 - M 20	1/2 - 13/16	—	241 205
6	650,0	M 18 - M 27	11/16 - 1	—	241 206

Extension sleeves DIN 377

As extension to hand thread-cutting tools.
Inside and outside square of identical size.

Version: hardened and ground
Shank: square as per DIN 10

Packing unit:
individual plastic pack

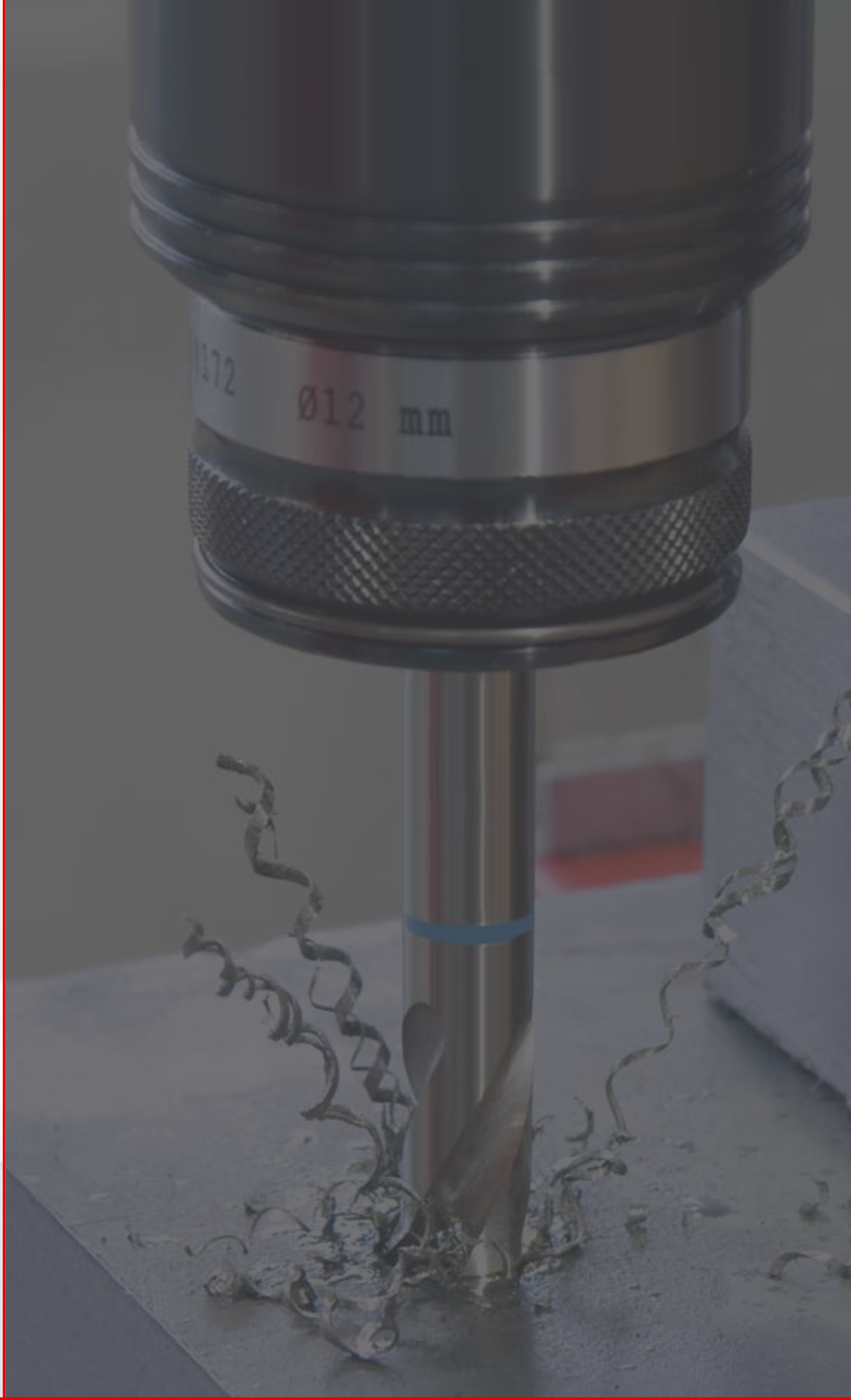
Square mm	Length mm	for hand tape size M	Ww	G	Article no.
2,1	60,0	M 1 - M 2,6	1/16 - 3/32	—	241 021
2,7	80,0	M 3	—	—	241 027
3,4	95,0	M 4	5/32	—	241 034
4,9	110,0	M 5 - M 8	7/32 - 5/16	—	241 049
5,5	115,0	M 9 - M 10	3/8	1/8	241 055
7,0	125,0	M 12	1/2	—	241 070
9,0	135,0	M 13 - M 16	9/16 - 5/8	1/4	241 090
11,0	150,0	M 18	11/16 - 3/4	—	241 110
12,0	155,0	M 20	13/16	1/2	241 120
14,5	174,0	M 22 - M 24	7/8 - 15/16	5/8	241 145
16,0	185,0	M 27 - M 28	1	3/4	241 160
18,0	195,0	M 30 - M 32	1 1/8	7/8	241 180

Thread-cutting sets HSS in wood case

Description	Article no. HSS
28-piece set of thread-cutting tools one two-piece set each of hand taps G DIN 5157 — 1/8 - 1/4 - 3/8 - 1/2 - 5/8 - 3/4 - 1" + 7 dies G DIN EN 24231 in each of the sizes 1/8 - 1/4 - 3/8 - 1/2 - 5/8 - 3/4 - 1" + 5 die stocks DIN 225 in each of the sizes 30,0 x 11,0 mm - 38,0 x 10,0 mm - 45,0 x 14,0 mm - 55,0 x 16,0 mm - 65,0 x 18,0 mm + 2 tap wrenches, size 3 and size 5 DIN 1814	245 074
35-piece set of thread-cutting tools one two-piece set each of hand taps UNF ≈ DIN 2181 — 1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 5/8 - 3/4 - 7/8 - 1" + 9 dies UNF ≈ DIN EN 22568 in each of the sizes 1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 5/8 - 3/4 - 7/8 - 1" + 6 die stocks DIN 225 in each of the sizes 20,0 x 7,0 - 25,0 x 9,0 - 30,0 x 11,0 - 38,0 x 10,0 - 45,0 x 14,0 - 55,0 x 16,0 mm + 2 tap wrenches, size 2 and size 4 DIN 1814	245 073
44-piece set of thread-cutting tools one three-piece set each of hand taps UNC ≈ DIN 352 — 1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 5/8 - 3/4 - 7/8 - 1" + 9 dies UNC ≈ DIN EN 22568 in each of the sizes 1/4 - 5/16 - 3/8 - 7/16 - 1/2 - 5/8 - 3/4 - 7/8 - 1" + 6 die stocks DIN 225 in each of the sizes 20,0 x 7,0 mm - 25,0 x 9,0 mm - 30,0 x 11,0 mm - 38,0 x 10,0 mm - 45,0 x 14,0 mm - 55,0 x 16,0 mm + 2 tap wrenches, size 2 and size 4 DIN 1814	245 072

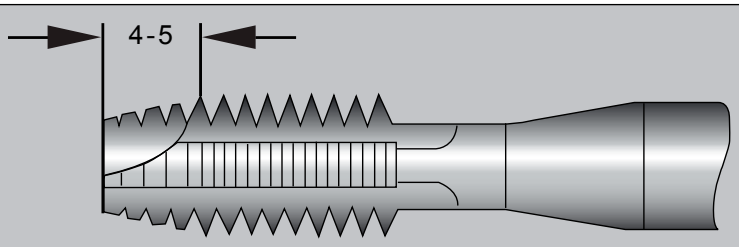
RUKO

MACHINE TAPS



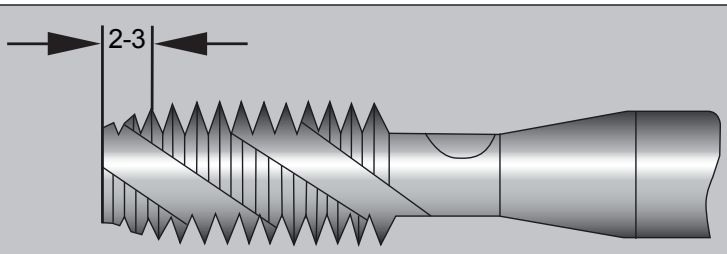
Technical data:

B



type B,
4 - 5 threads with progressive tap

C



type C / 35° right-hand spiral flutes,
2 - 3 threads

Application table

Material:	unalloyed steels up to 500 N/mm²	low alloy steels up to 800 N/mm²	Alloyed steel up to 1000 N/mm²	Alloyed steel over 1000 N/mm²	V2A V4A	Cast iron up to 300 N/mm²	Copper alloy	Nonferrous metals	Al-alloy	Plastics long chipping
Cooling lubricant:	Cutting oil	Cutting oil	Cutting oil	Cutting oil	Cutting oil	Air	Air	Air	Cutting oil	Air
HSS	■	□	□	☐	☐	☐	☐	☐	☐	□
HSS Co 5	■	■	□	☐	□	☐	□	□	□	□
HSS Co 5-VAP	■	■	■	□	■	☐	□	□	□	☐
HSS-TiN	■	■	■	□	□	☐	□	□	□	□
HSS Co 5-TiAlN	■	■	■	■	■	□	□	□	□	□
HSS-AZ	□	☐	☐	☐	☐	□	■	■	■	■
HSS Co 5-TiCN	☐	☐	☐	☐	□	■	☐	☐	□	☐

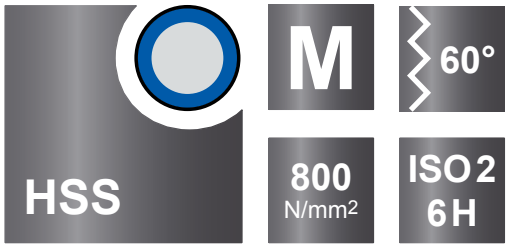
■ well applicable □ efficient applicable ☐ not recommended

Product information for machine taps

HSS

The machine tap consists of heavy-duty high-speed steel.
For through threads and bottoming threads in unalloyed steels up to a strength of 800 N/mm², malleable.The thread is cut in one operation.

Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting



High speed tool steel, best known as 'high speed steel', refers to a group of alloyed tool steels with up to 2.06% carbon content and up to 30% proportion of alloying elements such as tungsten, molybdenum, vanadium, cobalt, nickel and titanium.

HSS materials are characterised by great hardness, wear resistance and heat resistance up to 600° C.
The HSS tools are less sensitive to shocks and vibrations, which sometimes quickly lead to breaks in the harder cutting materials.

HSS Co 5

The machine tap consists of cobalt alloyed heavy-duty high-speed steel. Its high heat resistance means a longer tool life. For through threads and bottoming threads in unalloyed and alloyed steels up to a strength of 1000 N/mm², malleable cast iron and non-ferrous metals.
The thread is cut in one operation.

Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Like high speed steel with cobalt alloy.

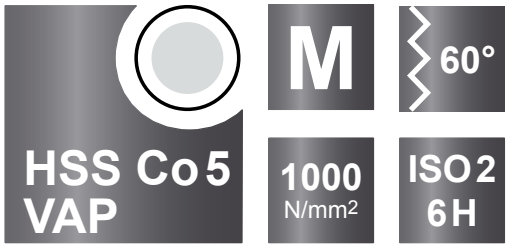
This heat-resistant material is used for processing materials with high strength and in long cutting channels with correspondingly strong heating. The cobalt content of 5% provides a higher heat resistance and higher stressing capacity.

Product information for machine taps

HSS Co 5-VAP for stainless steel

The machine tap consists of cobalt alloyed and vaporised heavy-duty high-speed steel. For through threads and bottoming threads in unalloyed and alloyed steels up to a strength of 1000 N/mm², stainless steel. The thread is cut in one operation.

Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: vaporised
right hand cutting



By "vaporisation" is meant the evaporation of a non-metallic oxide film. Vaporisation acts as a separating layer and reduces the occurrence of cold welding. In cold welding there are workpiece chips that build up on the flanks of the tap and damage the finished thread.

Consequences of cold welding are torn and dirty flanks.

VAP improves the adhesion of lubricants to the tool surface.

HSS-TiN

The machine tap consists of heavy-duty high-speed steel with a titanium nitride coating. For universal use on a wide range of materials due to layer of hard material! For through threads and bottoming threads in unalloyed and alloyed steels up to a strength of 1000 N/mm², stainless steel. The thread is cut in one operation.
Note: cutting speeds from 10 m/min.

Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: titanium-nitride coated
right hand cutting

By the TiN wear-resistant coating, the surface hardness increases to about 2500 HV. Titanium nitride is a chemical compound of the two elements, titanium and nitrogen. TiN is a metallic hard material with a typical golden yellow colour.

Advantages:
Increased hardness, low friction coefficient, more service life.
Cooling is not necessary, but recommended.

Product information for machine taps

HSS Co5-TiAlN

NEW

The machine tap consists of heavy-duty high-speed steel.
For through-hole threads and blind-hole threads, in unalloyed, low alloy and alloyed steels up to 1200 N/mm² strength and cast.
The thread is cut in one operation.

Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: titanium-aluminium-nitride coated
right hand cutting

By the TiAlN wear-resistant coating, the surface hardness increases to about 3500 HV. Titanium aluminium nitride is a chemical compound of three elements titanium, aluminium and nitrogen. TiAlN is a metallic hard material with a typical black/violet colour.

Advantages:
The TiAlN coating enables the dry machining tools to cut without a cooling. Increased hardness, very low friction coefficient, optimal service life.

Machine taps M DIN 371 HSS, HSS Co 5, HSS Co 5-VAP for stainless steel, HSS-TiN and HSS Co 5-TiAlN, ground

Machine taps with reinforced shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright / vaporised / titanium-nitride coated
titanium-aluminium-nitride coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm
M 2	0,40	1,60	45,0	8,0	2,8
M 2,5	0,45	2,10	50,0	9,0	2,8
M 3	0,50	2,50	56,0	11,0	3,5
M 4	0,70	3,30	63,0	13,0	4,5
M 5	0,80	4,20	70,0	16,0	6,0
M 6	1,00	5,00	80,0	19,0	6,0
M 8	1,25	6,80	90,0	22,0	8,0
M 10	1,50	8,50	100,0	24,0	10,0

Nominal thread size	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
M 2	232 020	232 020 E	232 020 VA	232 020 T	232 020 EF
M 2,5	232 025	232 025 E	**232 025 VA**	**232 025 T**	232 025 EF
M 3	232 030	232 030 E	232 030 VA	232 030 T	232 030 EF
M 4	232 040	232 040 E	232 040 VA	232 040 T	232 040 EF
M 5	232 050	232 050 E	232 050 VA	232 050 T	232 050 EF
M 6	232 060	232 060 E	232 060 VA	232 060 T	232 060 EF
M 8	232 080	232 080 E	232 080 VA	232 080 T	232 080 EF
M 10	232 100	232 100 E	232 100 VA	232 100 T	232 100 EF

Emphasised articles are new additions.

Machine taps M DIN 371 HSS, HSS Co 5, HSS Co 5-VAP for stainless steel, HSS-TiN and HSS Co 5-TiAlN, ground

Machine taps with reinforced shank and 35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right-hand spiral flutes, 2 - 3 threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright / vaporised / titanium-nitride coated
titanium-aluminium-nitride coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm
M 2	0,40	1,60	45,0	4,0	2,8
M 2,5	0,45	2,10	50,0	5,0	2,8
M 3	0,50	2,50	56,0	6,0	3,5
M 4	0,70	3,30	63,0	7,0	4,5
M 5	0,80	4,20	70,0	11,0	6,0
M 6	1,00	5,00	80,0	13,0	6,0
M 8	1,25	6,80	90,0	13,0	8,0
M 10	1,50	8,50	100,0	15,0	10,0

Nominal thread size	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
M 2	234 020	234 020 E	234 020 VA	234 020 T	234 020 EF
M 2,5	234 025	234 025 E	**234 025 VA**	**234 025 T**	234 025 EF
M 3	234 030	234 030 E	234 030 VA	234 030 T	234 030 EF
M 4	234 040	234 040 E	234 040 VA	234 040 T	234 040 EF
M 5	234 050	234 050 E	234 050 VA	234 050 T	234 050 EF
M 6	234 060	234 060 E	234 060 VA	234 060 T	234 060 EF
M 8	234 080	234 080 E	234 080 VA	234 080 T	234 080 EF
M 10	234 100	234 100 E	234 100 VA	234 100 T	234 100 EF

Emphasised articles are new additions.

Machine taps M DIN 376 HSS, HSS Co 5, HSS Co 5-VAP for stainless steel, HSS-TiN and HSS Co 5-TiAlN, ground

Machine taps with overflow shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright / vaporised / titanium-nitride coated
titanium-aluminium-nitride coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm
M 3	0,50	2,50	56,0	11,0	2,2
M 4	0,70	3,30	63,0	13,0	2,8
M 5	0,80	4,20	70,0	16,0	3,5
M 6	1,00	5,00	80,0	19,0	4,5
M 8	1,25	6,80	90,0	22,0	6,0
M 10	1,50	8,50	100,0	24,0	7,0
M 12	1,75	10,20	110,0	29,0	9,0
M 14	2,00	12,00	110,0	30,0	11,0
M 16	2,00	14,00	110,0	32,0	12,0
M 18	2,50	15,50	125,0	34,0	14,0
M 20	2,50	17,50	140,0	34,0	16,0
M 22	2,50	19,50	140,0	34,0	18,0
M 24	3,00	21,00	160,0	38,0	18,0
M 27	3,00	24,00	160,0	38,0	20,0
M 30	3,50	26,50	180,0	45,0	22,0

Nominal thread size	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
M 3	—	232 031 E	**232 031 VA**	—	**232 031 EF**
M 4	—	232 041 E	**232 041 VA**	—	**232 041 EF**
M 5	—	232 051 E	**232 051 VA**	—	**232 051 EF**
M 6	—	232 061 E	**232 061 VA**	—	**232 061 EF**
M 8	—	232 081 E	**232 081 VA**	—	**232 081 EF**
M 10	—	232 101 E	**232 101 VA**	—	**232 101 EF**
M 12	232 120	232 120 E	232 120 VA	232 120 T	**232 120 EF**
M 14	232 140	232 140 E	232 140 VA	232 140 T	**232 140 EF**
M 16	232 160	232 160 E	232 160 VA	232 160 T	**232 160 EF**
M 18	232 180	232 180 E	232 180 VA	232 180 T	**232 180 EF**
M 20	232 200	232 200 E	232 200 VA	232 200 T	**232 200 EF**
M 22	232 220	232 220 E	232 220 VA	232 220 T	**232 220 EF**
M 24	232 240	232 240 E	232 240 VA	232 240 T	**232 240 EF**
M 27	232 270	232 270 E	232 270 VA	232 270 T	**232 270 EF**
M 30	232 300	232 300 E	232 300 VA	232 300 T	**232 300 EF**

Emphasised articles are new additions.

Machine taps M DIN 376 HSS, HSS Co 5, HSS Co 5-VAP for stainless steel, HSS-TiN and HSS Co 5-TiAlN, ground

Machine taps with overflow shank and 35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right-hand spiral flutes, 2 - 3 threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright / vaporised / titanium-nitride coated
titanium-aluminium-nitride coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm
M 3	0,50	2,50	56,0	5,0	2,2
M 4	0,70	3,30	63,0	7,0	2,8
M 5	0,80	4,20	70,0	8,0	3,5
M 6	1,00	5,00	80,0	10,0	4,5
M 8	1,25	6,80	90,0	12,0	6,0
M 10	1,50	8,50	100,0	14,0	7,0
M 12	1,75	10,20	110,0	19,0	9,0
M 14	2,00	12,00	110,0	20,0	11,0
M 16	2,00	14,00	110,0	20,0	12,0
M 18	2,50	15,50	125,0	25,0	14,0
M 20	2,50	17,50	140,0	25,0	16,0
M 22	2,50	19,50	140,0	25,0	18,0
M 24	3,00	21,00	160,0	30,0	18,0
M 27	3,00	24,00	160,0	30,0	20,0
M 30	3,50	26,50	180,0	35,0	22,0

Nominal thread size	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
M 3	—	233 030 E	**233 030 VA**	—	**233 030 EF**
M 4	—	233 040 E	**233 040 VA**	—	**233 040 EF**
M 5	—	233 050 E	**233 050 VA**	—	**233 050 EF**
M 6	—	233 060 E	**233 060 VA**	—	**233 060 EF**
M 8	—	233 080 E	**233 080 VA**	—	**233 080 EF**
M 10	—	233 100 E	**233 100 VA**	—	**233 100 EF**
M 12	233 120	233 120 E	233 120 VA	233 120 T	**233 120 EF**
M 14	233 140	233 140 E	233 140 VA	233 140 T	**233 140 EF**
M 16	233 160	233 160 E	233 160 VA	233 160 T	**233 160 EF**
M 18	233 180	233 180 E	233 180 VA	233 180 T	**233 180 EF**
M 20	233 200	233 200 E	233 200 VA	233 200 T	**233 200 EF**
M 22	233 220	233 220 E	233 220 VA	233 220 T	**233 220 EF**
M 24	233 240	233 240 E	233 240 VA	233 240 T	**233 240 EF**
M 27	233 270	233 270 E	233 270 VA	233 270 T	**233 270 EF**
M 30	233 300	233 300 E	233 300 VA	233 300 T	**233 300 EF**

Emphasised articles are new additions.

Machine tap sets HSS, HSS Co 5, HSS Co 5-VAP, HSS-TiN and HSS Co 5-TiAlN in steel case

No. 245 061

No. 245 062

No. 245 063

No. 245 064

No. 245 065

No. 245 066

No. 245 051

No. 245 052

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
7-piece set of machine taps M DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 057	245 061	245 063	245 065	245 068
7-piece set of machine taps M DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 058	245 062	245 064	245 066	245069
14-piece set of machine taps 7 machine taps DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	**245 048**	245 051	—	—	—
14-piece set of machine taps 7 machine taps DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	**245 049**	245 052	—	—	—
21-piece set of machine taps 7 machine taps DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 machine taps DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 Typ N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	—	245 054	—	—	—

Emphasised articles are new additions.

Machine tap sets HSS, HSS Co 5, HSS Co 5-VAP, HSS-TiN and HSS Co 5-TiAlN in polystyrene case

No. 245 061 RO

No. 245 062 RO

No. 245 063 RO

No. 245 064 RO

No. 245 065 RO

No. 245 066 RO

No. 245 051 RO

No. 245 052 RO

Description	Article no. **HSS**	Article no. **HSS Co 5**	Article no. **HSS Co 5-VAP**	Article no. **HSS-TiN**	Article no. **HSS Co 5-TiAlN**
7-piece set of machine taps M DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 057 RO	245 061 RO	245 063 RO	245 065 RO	245 068 RO
7-piece set of machine taps M DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12	245 058 RO	245 062 RO	245 064 RO	245 066 RO	245069 RO
14-piece set of machine taps 7 machine taps DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	**245 048 RO**	245 051 RO	—	—	—
14-piece set of machine taps 7 machine taps DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	**245 049 RO**	245 052 RO	—	—	—
21-piece set of machine taps 7 machine taps DIN 371 / 376 type B with progressive tap M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 machine taps DIN 371 / 376 type C / 35° right-hand spiral flutes M 3 - M 4 - M 5 - M 6 - M 8 - M 10 - M 12 + 7 twist drills DIN 338 type N Ø 2,5 - 3,3 - 4,2 - 5,0 - 6,8 - 8,5 - 10,2 mm	—	—	—	—	—

Emphasised articles are new additions.

Machine taps M DIN 371 HSS, ground with interrupted threads

Machine tap with reinforced shank, for through threads, in aluminium, aluminium alloys, bronze, copper, nickel and plastics.

Chamfer: type B, 4 - 5 threads with progressive tap and interrupted threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
M 3	0,50	2,50	56,0	11,0	3,5	272 030
M 4	0,70	3,30	63,0	13,0	4,5	272 040
M 5	0,80	4,20	70,0	16,0	6,0	272 050
M 6	1,00	5,00	80,0	19,0	6,0	272 060
M 8	1,25	6,80	90,0	22,0	8,0	272 080
M 10	1,50	8,50	100,0	24,0	10,0	272 100

Machine taps M DIN 376 HSS, ground with interrupted threads

Machine tap with overflow shank, for through threads, in aluminium, aluminium alloys, bronze, copper, nickel and plastics.

Chamfer: type B, 4 - 5 threads with progressive tap and interrupted threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
M 12	1,75	10,20	110,0	29,0	9,0	272 120
M 14	2,00	12,00	110,0	30,0	11,0	272 140
M 16	2,00	14,00	110,0	32,0	12,0	272 160
M 18	2,50	15,50	125,0	34,0	14,0	272 180
M 20	2,50	17,50	140,0	34,0	16,0	272 200
M 22	2,50	19,50	140,0	34,0	18,0	272 220
M 24	3,00	21,00	160,0	38,0	18,0	272 240

Machine taps M DIN 371
HSS Co 5-TiCN, ground

NEW

Machine taps with reinforced shank
for through-hole thread in cast iron and cast alloys.

Chamfer: type C / 2 - 3 threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: TiCN coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
M 3	0,50	2,50	56,0	11,0	3,5	**273 030 ETC**
M 4	0,70	3,30	63,0	13,0	4,5	**273 040 ETC**
M 5	0,80	4,20	70,0	16,0	6,0	**273 050 ETC**
M 6	1,00	5,00	80,0	19,0	6,0	**273 060 ETC**
M 8	1,25	6,80	90,0	22,0	8,0	**273 080 ETC**
M 10	1,50	8,50	100,0	24,0	10,0	**273 100 ETC**

Machine taps M DIN 376
HSS Co 5-TiCN, ground

NEW

Machine taps with reduced shank
for through-hole thread in cast iron and cast alloys.

Chamfer: type C / 2 - 3 threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: TiCN coated
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
M 12	1,75	10,20	110,0	29,0	9,0	**273 120 ETC**
M 14	2,00	12,00	110,0	30,0	11,0	**273 140 ETC**
M 16	2,00	14,00	110,0	32,0	12,0	**273 160 ETC**
M 18	2,50	15,50	125,0	34,0	14,0	**273 180 ETC**
M 20	2,50	17,50	140,0	34,0	16,0	**273 200 ETC**
M 22	2,50	19,50	140,0	34,0	18,0	**273 220 ETC**
M 24	3,00	21,00	160,0	38,0	18,0	**273 240 ETC**

HSS Co 5-TiCN

Due to the titanium carbo-nitride coating, the surface hardness increases to about 3000 HV.
TiCN is a metallic hard material with a typical violet colour.

Advantages: Increased hardness and optimal service life; cooling not required, but recommended.

Machine taps G DIN 5156
HSS Co 5, ground

Machine taps with overflow shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
DIN 2999 "Rp" (whitworth pipe thread)
Flanks: relief-ground
Surface: bright
right hand cutting

Packing unit: individual plastic pack

Nominal thread size		Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
G 1/8	Rp 1/8	28	8,80	90,0	20,0	7,0	262 018 E
G 1/4	Rp 1/4	19	11,80	100,0	22,0	11,0	262 014 E
G 3/8	Rp 3/8	19	15,25	100,0	22,0	12,0	262 038 E
G 1/2	Rp 1/2	14	19,00	125,0	25,0	16,0	262 012 E
G 5/8	Rp 5/8	14	21,00	125,0	25,0	18,0	262 058 E
G 3/4	Rp 3/4	14	24,50	140,0	28,0	20,0	262 034 E
G 7/8	Rp 7/8	14	28,25	150,0	28,0	22,0	262 078 E
G 1"	Rp 1"	11	30,75	160,0	30,0	25,0	262 010 E
G 1 1/8	Rp 1 1/8	11	35,50	170,0	30,0	28,0	262 118 E
G 1 1/4	Rp 1 1/4	11	39,50	170,0	30,0	32,0	262 114 E
G 1 3/8	Rp 1 3/8	11	41,50	180,0	32,0	36,0	262 138 E
G 1 1/2	Rp 1 1/2	11	45,25	190,0	32,0	36,0	262 112 E
G 1 3/4	Rp 1 3/4	11	51,00	190,0	32,0	40,0	262 134 E
G 2"	Rp 2"	11	57,00	220,0	40,0	45,0	262 020 E

Machine taps G DIN 5156
HSS Co 5, ground

Machine taps with overflow shank and 35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right hand spiral flutes, 2 - 3 threads
Thread: DIN ISO 228 "G" (cylindrical pipe thread)
DIN 2999 "Rp" (whitworth pipe thread)
Flanks: relief-ground
Surface: bright
right hand cutting

Packing unit: individual plastic pack

Nominal thread size		Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
G 1/8	Rp 1/8	28	8,80	90,0	20,0	7,0	263 018 E
G 1/4	Rp 1/4	19	11,80	100,0	22,0	11,0	263 014 E
G 3/8	Rp 3/8	19	15,25	100,0	22,0	12,0	263 038 E
G 1/2	Rp 1/2	14	19,00	125,0	25,0	16,0	263 012 E
G 5/8	Rp 5/8	14	21,00	125,0	25,0	18,0	263 058 E
G 3/4	Rp 3/4	14	24,50	140,0	28,0	20,0	263 034 E
G 7/8	Rp 7/8	14	28,25	150,0	28,0	22,0	263 078 E
G 1"	Rp 1"	11	30,75	160,0	30,0	25,0	263 010 E
G 1 1/8	Rp 1 1/8	11	35,50	170,0	30,0	28,0	263 118 E
G 1 1/4	Rp 1 1/4	11	39,50	170,0	30,0	32,0	263 114 E
G 1 3/8	Rp 1 3/8	11	41,50	180,0	32,0	36,0	263 138 E
G 1 1/2	Rp 1 1/2	11	45,25	190,0	32,0	36,0	263 112 E
G 1 3/4	Rp 1 3/4	11	51,00	190,0	32,0	40,0	263 134 E
G 2"	Rp 2"	11	57,00	220,0	40,0	45,0	263 020 E

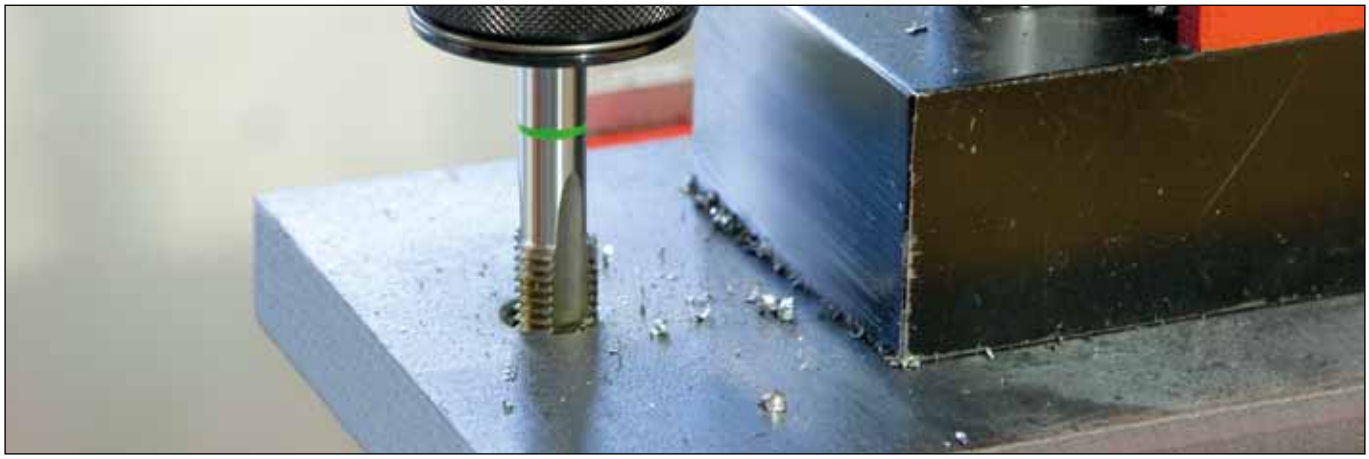
Machine taps MF DIN 374
HSS Co 5, ground

Machine tap with overflow shank
for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: metric, fine, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
MF 4	0,50	3,65	63,0	10,0	2,8	260 041 E
MF 5	0,50	4,50	70,0	12,0	3,5	260 050 E
MF 6	0,75	5,20	80,0	14,0	4,5	260 060 E
MF 8	1,00	7,00	90,0	22,0	6,0	260 081 E
MF 10	1,00	9,00	90,0	20,0	7,0	260 100 E
MF 10	1,25	8,80	100,0	24,0	7,0	260 101 E
MF 12	1,00	11,00	100,0	22,0	9,0	260 122 E
MF 12	1,25	10,80	100,0	22,0	9,0	260 121 E
MF 12	1,50	10,50	100,0	22,0	9,0	260 120 E
MF 14	1,00	13,00	100,0	22,0	11,0	260 142 E
MF 14	1,25	12,70	100,0	22,0	11,0	260 143 E
MF 14	1,50	12,50	100,0	22,0	11,0	260 141 E
MF 16	1,00	15,00	100,0	22,0	12,0	260 161 E
MF 16	1,50	14,50	100,0	22,0	12,0	260 160 E
MF 18	1,00	17,00	110,0	25,0	14,0	260 181 E
MF 18	1,50	16,50	110,0	25,0	14,0	260 180 E
MF 18	2,00	16,00	125,0	34,0	14,0	260 182 E
MF 20	1,00	19,00	125,0	25,0	16,0	260 201 E
MF 20	1,50	18,50	125,0	25,0	16,0	260 200 E
MF 20	2,00	18,00	140,0	34,0	16,0	260 202 E
MF 22	1,50	20,50	125,0	25,0	18,0	260 220 E
MF 22	2,00	20,00	140,0	34,0	18,0	260 222 E
MF 24	1,00	23,00	140,0	28,0	18,0	260 242 E
MF 24	1,50	22,50	140,0	28,0	18,0	260 240 E
MF 24	2,00	22,00	140,0	28,0	18,0	260 241 E
MF 28	1,50	26,50	140,0	28,0	20,0	260 281 E
MF 28	2,00	26,00	140,0	28,0	20,0	260 282 E
MF 30	1,50	28,50	150,0	28,0	22,0	260 301 E
MF 30	2,00	28,00	150,0	28,0	22,0	260 302 E



Machine taps MF DIN 374
HSS Co 5, ground

Machine taps with overflow shank and
35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right-hand spiral flutes, 2 - 3 threads
Thread: metric, fine, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
MF 4	0,50	3,65	63,0	7,0	2,8	261 041 E
MF 5	0,50	4,50	70,0	8,0	3,5	261 050 E
MF 6	0,75	5,20	80,0	10,0	4,5	261 060 E
MF 8	1,00	7,00	90,0	10,0	6,0	261 081 E
MF 10	1,00	9,00	90,0	12,0	7,0	261 100 E
MF 10	1,25	8,80	100,0	15,0	7,0	261 101 E
MF 12	1,00	11,00	100,0	15,0	9,0	261 122 E
MF 12	1,25	10,80	100,0	15,0	9,0	261 121 E
MF 12	1,50	10,50	100,0	15,0	9,0	261 120 E
MF 14	1,00	13,00	100,0	15,0	11,0	261 142 E
MF 14	1,25	12,70	100,0	15,0	11,0	261 143 E
MF 14	1,50	12,50	100,0	15,0	11,0	261 141 E
MF 16	1,00	15,00	100,0	15,0	12,0	261 161 E
MF 16	1,50	14,50	100,0	15,0	12,0	261 160 E
MF 18	1,00	17,00	110,0	17,0	14,0	261 181 E
MF 18	1,50	16,50	110,0	17,0	14,0	261 180 E
MF 18	2,00	16,00	125,0	20,0	14,0	261 182 E
MF 20	1,00	19,00	125,0	17,0	16,0	261 201 E
MF 20	1,50	18,50	125,0	17,0	16,0	261 200 E
MF 20	2,00	18,00	140,0	25,0	16,0	261 202 E
MF 22	1,50	20,50	125,0	20,0	18,0	261 220 E
MF 22	2,00	20,00	140,0	20,0	18,0	261 222 E
MF 24	1,00	23,00	140,0	25,0	18,0	261 242 E
MF 24	1,50	22,50	140,0	25,0	18,0	261 240 E
MF 24	2,00	22,00	140,0	25,0	18,0	261 241 E
MF 28	1,50	26,50	140,0	25,0	20,0	261 281 E
MF 28	2,00	26,00	140,0	25,0	20,0	261 282 E
MF 30	1,50	28,50	150,0	25,0	22,0	261 301 E
MF 30	2,00	28,00	150,0	25,0	22,0	261 302 E

Machine taps UNC ≈ DIN 371
HSS Co 5, ground

Machine taps with reinforced shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: american UNC coarse thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

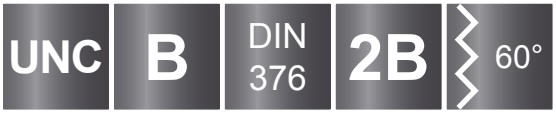
Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
Nr. 4	40	2,35	56,0	11,0	3,5	265 040 UNC
Nr. 5	40	2,65	56,0	11,0	3,5	265 050 UNC
Nr. 6	32	2,85	56,0	13,0	4,0	265 060 UNC
Nr. 8	32	3,50	63,0	13,0	4,5	265 080 UNC
Nr. 10	24	3,90	70,0	16,0	6,0	265 100 UNC
Nr. 12	24	4,50	70,0	16,0	6,0	265 120 UNC
1/4	20	5,10	80,0	17,0	7,0	265 014 UNC
5/16	18	6,60	90,0	20,0	8,0	265 516 UNC
3/8	16	8,00	100,0	22,0	10,0	265 038 UNC

Machine taps UNC ≈ DIN 376
HSS Co 5, ground

Machine taps with overflow shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: american UNC coarse thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting



Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
7/16	14	9,40	100,0	22,0	8,0	265 716 UNC
1/2	13	10,80	110,0	25,0	9,0	265 012 UNC
9/16	12	12,20	110,0	26,0	11,0	265 916 UNC
5/8	11	13,50	110,0	27,0	12,0	265 058 UNC
3/4	10	16,50	125,0	30,0	14,0	265 034 UNC
7/8	9	19,50	140,0	32,0	18,0	265 078 UNC
1"	8	22,25	160,0	36,0	18,0	265 010 UNC

Machine taps UNC ≈ DIN 371
HSS Co 5, ground

Machine taps with reinforced shank and
35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right hand spiral flutes, 2 - 3 threads
Thread: american UNC coarse thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
Nr. 4	40	2,35	56,0	7,0	3,5	266 040 UNC
Nr. 5	40	2,65	56,0	7,0	3,5	266 050 UNC
Nr. 6	32	2,85	56,0	8,0	4,0	266 060 UNC
Nr. 8	32	3,50	63,0	8,0	4,5	266 080 UNC
Nr. 10	24	3,90	70,0	10,0	6,0	266 100 UNC
Nr. 12	24	4,50	70,0	10,0	6,0	266 120 UNC
1/4	20	5,10	80,0	13,0	7,0	266 014 UNC
5/16	18	6,60	90,0	14,0	8,0	266 516 UNC
3/8	16	8,00	100,0	16,0	10,0	266 038 UNC

Machine taps UNC ≈ DIN 376
HSS Co 5, ground

Machine taps with overflow shank and
35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right hand spiral flutes, 2 - 3 threads
Thread: american UNC coarse thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
7/16	14	9,40	100,0	17,0	8,0	266 716 UNC
1/2	13	10,80	110,0	20,0	9,0	266 012 UNC
9/16	12	12,20	110,0	20,0	11,0	266 916 UNC
5/8	11	13,50	110,0	22,0	12,0	266 058 UNC
3/4	10	16,50	125,0	25,0	14,0	266 034 UNC
7/8	9	19,50	140,0	27,0	18,0	266 078 UNC
1"	8	22,25	160,0	30,0	18,0	266 010 UNC

Machine taps UNF ≈ DIN 371
HSS Co 5, ground

Machine taps with reinforced shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: american UNF fine thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
Nr. 4	48	2,40	56,0	11,0	3,5	265 040 UNF
Nr. 5	44	2,70	56,0	11,0	3,5	265 050 UNF
Nr. 6	40	2,95	56,0	13,0	4,0	265 060 UNF
Nr. 8	36	3,50	63,0	13,0	4,5	265 080 UNF
Nr. 10	32	4,10	70,0	16,0	6,0	265 100 UNF
Nr. 12	28	4,60	70,0	16,0	6,0	265 120 UNF
1/4	28	5,50	80,0	17,0	7,0	265 014 UNF
5/16	24	6,60	90,0	17,0	8,0	265 516 UNF
3/8	24	8,50	100,0	18,0	10,0	265 038 UNF

Machine taps UNF ≈ DIN 374
HSS Co 5, ground

Machine taps with overflow shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: american UNF fine thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
7/16	20	9,90	100,0	22,0	8,0	265 716 UNF
1/2	20	11,50	100,0	22,0	9,0	265 012 UNF
9/16	18	12,90	100,0	22,0	11,0	265 916 UNF
5/8	18	14,50	100,0	22,0	12,0	265 058 UNF
3/4	16	17,50	110,0	25,0	14,0	265 034 UNF
7/8	14	20,50	140,0	26,0	18,0	265 078 UNF
1"	12	23,25	150,0	28,0	18,0	265 010 UNF

Machine taps UNF ≈ DIN 371
HSS Co 5, ground

Machine taps with reinforced shank and 35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right hand spiral flutes, 2 - 3 threads
Thread: american UNF fine thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
Nr. 4	48	2,40	56,0	5,5	3,5	266 040 UNF
Nr. 5	44	2,70	56,0	6,0	3,5	266 050 UNF
Nr. 6	40	2,95	56,0	7,0	4,0	266 060 UNF
Nr. 8	36	3,50	63,0	7,5	4,5	266 080 UNF
Nr. 10	32	4,10	70,0	8,0	6,0	266 100 UNF
Nr. 12	28	4,60	70,0	9,0	6,0	266 120 UNF
1/4	28	5,50	80,0	10,0	7,0	266 014 UNF
5/16	24	6,90	90,0	10,0	8,0	266 516 UNF
3/8	24	8,50	100,0	10,0	10,0	266 038 UNF

Machine taps UNF ≈ DIN 374
HSS Co 5, ground

Machine taps with overflow shank and 35° right-hand spiral flutes for bottoming.

Chamfer: type C / 35° right hand spiral flutes, 2 - 3 threads
Thread: american UNF fine thread
Flanks: relief-ground
Tolerance: 2 B
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
7/16	20	9,90	100,0	13,0	8,0	266 716 UNF
1/2	20	11,50	100,0	13,0	9,0	266 012 UNF
9/16	18	12,90	100,0	15,0	11,0	266 916 UNF
5/8	18	14,50	100,0	15,0	12,0	266 058 UNF
3/4	16	17,50	110,0	17,0	14,0	266 034 UNF
7/8	14	20,50	140,0	17,0	18,0	266 078 UNF
1"	12	23,25	150,0	20,0	18,0	266 010 UNF

Machine taps PG
HSS, ground

Machine taps with overflow shank for through threads.

Chamfer: type B, 4 - 5 threads with progressive tap
Thread: DIN 40 430 steel conduit thread
Flanks: relief-ground
Tolerance: work´s specific
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Threads per inch	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
PG 7	20	11,35	70,0	22,0	9,0	264 007
PG 9	18	13,95	70,0	22,0	12,0	264 009
PG 11	18	17,35	80,0	22,0	14,0	264 011
PG 13,5	18	19,15	80,0	22,0	16,0	264 135
PG 16	18	21,25	80,0	22,0	18,0	264 016
PG 21	16	26,95	90,0	22,0	22,0	264 021
PG 29	16	35,60	100,0	25,0	28,0	264 029
PG 36	16	45,60	140,0	40,0	36,0	264 036
PG 42	16	52,60	140,0	40,0	40,0	264 042
PG 48	16	57,90	160,0	40,0	45,0	264 048

Nut taps M DIN 357
HSS, ground

Long shank to retain several cut nuts.

Chamfer: 2/3 of the thread length
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: bright
right hand cutting

Packing unit:
individual plastic pack

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no.
M 3	0,50	2,50	70,0	22,0	2,2	243 030
M 4	0,70	3,30	90,0	25,0	2,8	243 040
M 5	0,80	4,20	100,0	28,0	3,5	243 050
M 6	1,00	5,00	110,0	32,0	4,5	243 060
M 8	1,25	6,80	125,0	40,0	6,0	243 080
M 10	1,50	8,50	140,0	45,0	7,0	243 100
M 12	1,75	10,20	180,0	50,0	9,0	243 120
M 14	2,00	12,00	200,0	56,0	11,0	243 140
M 16	2,00	14,00	200,0	63,0	12,0	243 160
M 18	2,50	15,50	220,0	63,0	14,0	243 180
M 20	2,50	17,50	250,0	70,0	16,0	243 200
M 22	2,50	19,50	280,0	80,0	18,0	243 220
M 24	3,00	21,00	280,0	80,0	18,0	243 240

Forming taps DIN 2174
HSS Co 5-nitrated-VAP and HSS Co 5-TiAlN, ground

Forming taps with reinforced shank for through threads and bottoming.

Chamfer: type D, 4 - 6 threads
Thread: metric, DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6H
Surface: nitrated-vaporised / titan-aluminium-nitride coating
right hand cutting

As shaping is done without cutting, no interruption of the course of the fibre in the material. The deformation creates very rigid threads. Consistent accuracy even with high productivity.

Packing unit:
individual plastic pack

HSS Co 5-nitrated-VAP

The forming tap consists of cobalt alloyed, nitrated and vaporised heavy-duty high-speed steel.
Applications: for non-alloyed and alloyed steels up to a strength of 1000 N/mm² and non-ferrous metals.

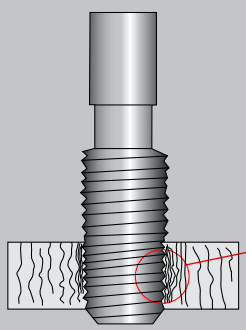
HSS Co 5-TiAlN

The forming tap consists of cobalt alloyed heavy-duty high-speed steel with titanium aluminium nitride coating.
Applications: for non-alloyed and alloyed steels up to a strength of 1000 N/mm², V2A and non-ferrous metals.

Nominal thread size	Pitch mm	Thread core hole mm	Total length mm	Thread length mm	Ø shank mm	Article no. **HSS Co 5 nitrated-VAP**	Article no. **HSS Co 5 TiAlN**
M 3	0,50	2,80	56,0	11,0	3,5	271 003 N	271 003 F
M 4	0,70	3,70	63,0	13,0	4,5	271 004 N	271 004 F
M 5	0,80	4,65	70,0	16,0	6,0	271 005 N	271 005 F
M 6	1,00	5,55	80,0	19,0	6,0	271 006 N	271 006 F
M 8	1,25	7,45	90,0	22,0	8,0	271 008 N	271 008 F
M 10	1,50	9,35	100,0	24,0	10,0	271 010 N	271 010 F
M 12	1,75	11,20	110,0	28,0	9,0	271 012 N	271 012 F

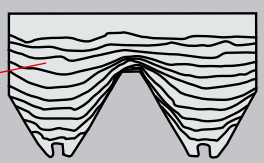
General information:

Type D, 4 - 6 threads



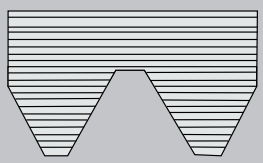
Thread forming

Fibre orientation in thread forming



Tapping

Fibre orientation in tapping



Combined machine taps bit "long" and bit "short" HSS and HSS-TiN, ground

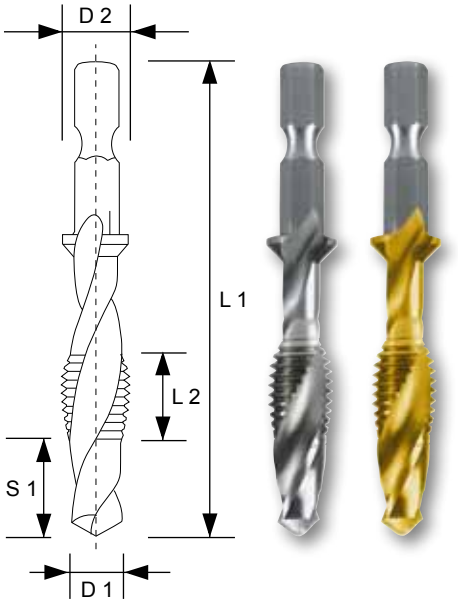
Combined machine tap with ¼" hexagon shank for tapping drill hole and through thread.

Thread: metric DIN ISO 13
Flanks: relief-ground
Tolerance: ISO 2 / 6 H
Surface: bright / titanium-nitride
Shank: 6,35 x 27,0 mm
right hand cutting

In one working stroke:

- ✓ hole drilling
- ✓ thread cutting (tapping)
- ✓ thread deburring
- ✓ thread cleaning

Packing unit:
individual plastic pack



The combined machine tap is suitable for sheet metal working with right/left handed rotation cordless drilling machines. The thread is cut in one operation, without any tool changing. The tool incorporates a twist drill before the thread-tapping part.

HSS

Applications: for unalloyed and low-alloyed steels up to 600 N/mm² strength, malleable cast iron and non-ferrous metals.

HSS-TiN

Applications: for unalloyed and low-alloyed steels up to 1000 N/mm² strength, malleable cast iron and non-ferrous metals.

Combined machine taps bit "long" HSS and HSS-TiN, ground

Nominal thread size	Pitch mm	L 1 mm	S 1 mm	L 2 mm	D 1 mm	D 2 mm	Article no. **HSS**	Article no. **HSS-TiN**
M 3	0,50	51,0	5,0	7,0	2,5	7,0	270 014	270 014 T
M 4	0,70	54,0	6,0	8,5	3,3	7,0	270 015	270 015 T
M 5	0,80	57,0	7,0	10,0	4,2	7,0	270 016	270 016 T
M 6	1,00	60,0	8,0	12,0	5,0	7,0	270 017	270 017 T
M 8	1,25	68,0	11,0	15,0	6,8	9,5	270 018	270 018 T
M 10	1,50	75,0	15,0	17,0	8,5	11,5	270 019	270 019 T

Combined machine taps bit "short" HSS and HSS-TiN, ground

Nominal thread size	Pitch mm	L 1 mm	S 1 mm	L 2 mm	D 1 mm	D 2 mm	Article no. **HSS**	Article no. **HSS-TiN**
M 3	0,50	36,0	5,0	6,0	2,5	7,2	R 270 014	R 270 014 T
M 4	0,70	39,0	6,0	8,0	3,3	7,2	R 270 015	R 270 015 T
M 5	0,80	41,0	7,0	9,0	4,2	7,2	R 270 016	R 270 016 T
M 6	1,00	44,0	8,0	11,0	5,0	7,2	R 270 017	R 270 017 T
M 8	1,25	51,0	11,0	14,0	6,8	8,8	R 270 018	R 270 018 T
M 10	1,50	59,0	15,0	15,0	8,5	11,0	R 270 019	R 270 019 T

Hexagonal magnetic holder and quick-change adapter

Packing unit:
individual plastic pack

Description	Article no.
Hexagonal magnetic holder	270 013
Quick-change adapter	270 022

Combined machine tap sets "long" HSS and HSS-TiN in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**
7-piece set of combined machine taps **"long"** 6 combined machine taps M 3 - M 4 - M 5 - M 6 - M 8 - M 10 + 1 hexagon magnetic holder	270 020	270 020 T

Combined machine tap sets "short" HSS and HSS-TiN in steel case

Description	Article no. **HSS**	Article no. **HSS-TiN**
7-piece set of combined machine taps **"short"** 6 combined machine taps M 3 - M 4 - M 5 - M 6 - M 8 - M 10 + 1 hexagon magnetic holder	R 270 020	R 270 021 T

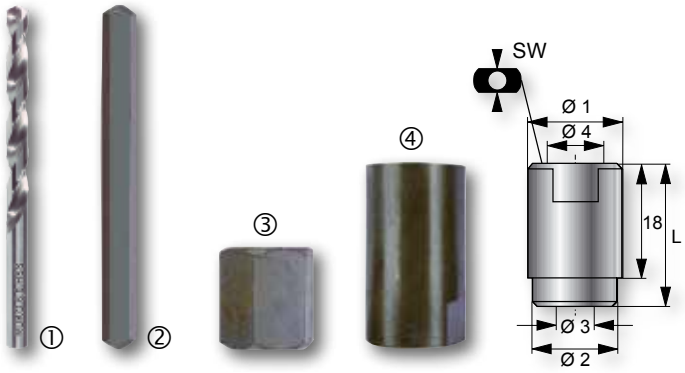
Thread-extractor sets in plastic case

Description	Article no.
Set 1: 21-pieces in plastic case 4 twist drills, 4 studs, 4 extractor nuts and 9 drilling jigs	244 150
Set 2: 25-pieces in plastic case 5 twist drills, 5 studs, 5 extractor nuts and 10 drilling jigs	244 151

① High-performance twist drills DIN 338 HSS

ground version,
made to match the drilling jigs exactly

Ø mm	Ø inch	for stud size	Length mm	Article no.
3,2	1/8	1 - 4	65,0	214 032
4,8	3/16	5 - 7	86,0	214 048
6,4	1/4	8	101,0	214 064
8,0	5/16	9	117,0	214 080
8,7	11/32	10	125,0	214 087



② Studs

made of special steel profile, hardened, gunmetal finish

Size	For threads	Ø mm	Ø inch	Length mm	Article no.
1	M 5 - M 6	3,2	1/8	60,0	244 001
2	M 7 - M 8	4,8	3/16	70,0	244 002
3	M 9 - M 10	6,4	1/4	78,0	244 003
4	M 12	8,0	5/16	83,0	244 004
5	M 14 - M 16	8,7	11/32	94,0	244 005

③ Extractor nuts

with special inside profile, hardened, gunmetal finish

Size	For stud size	Spanner width mm	Length mm	Article no.
1	1	10,0	16,0	244 032
2	2	11,0	16,0	244 046
3	3	13,0	16,0	244 064
4	4	14,0	16,0	244 080
5	5	17,0	16,0	244 087

④ Drilling jigs

reduced shank, hardened, gunmetal finish, for lower-lying
broken screws (Ø 1 + Ø 2), for protruding broken screws (Ø 4)

Size	Ø 1 mm	Ø 2 mm	Ø 3 mm	Ø 4 mm	Ø 3 inch	Ø 4 inch	SW mm	L mm	Article no.
1	7,0	6,0	3,2	5,0	1/8	3/16	6,0	30,0	244 101
2	8,0	7,0	3,2	6,0	1/8	—	7,0	30,0	244 102
3	9,0	—	3,2	7,0	1/8	1/4	8,0	30,0	244 103
4	10,0	—	3,2	8,0	1/8	5/16	9,0	30,0	244 104
5	11,0	—	4,8	8,0	3/16	5/16	9,0	30,0	244 105
6	12,0	—	4,8	9,0	3/16	—	10,0	30,0	244 106
7	13,0	—	4,8	10,0	3/16	1/8	11,0	30,0	244 107
8	14,0	—	6,4	11,0	1/4	7/16	12,0	30,0	244 108
9	15,0	—	8,0	12,0	5/16	—	13,0	30,0	244 109
10	17,0	16,0	8,7	14,0	11/32	—	14,0	30,0	244 110

Instructions for use

No. 1
Drill into
broken thread
with drilling jig

No. 2
Drive in stud
and screw nut
down to the base

No. 3
Turn broken
screw out steadily
without tilting

RUKO

CORE DRILLS

The cutting edge is the important thing ...

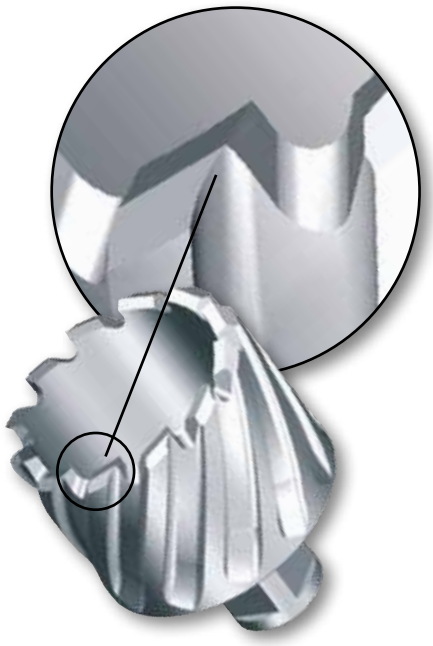
Considerably improved cutting behaviour was attained by research into the cutting geometry, which has a beneficial effect on cutting performance and drill life.

1. Optimised cutting edge geometry for increased cutting performances and reduced cutting forces.

2. The effective cutting angles are designed for universal use in various sorts of steel.

3. Improved removal of chips thanks to U-shaped recesses.
   The specific geometry of the recess reduces the thermal load on the HSS core drill as the heat created in cutting is removed with the chips to a very great extent.

4. Reduction of the friction between the HSS core drill and the workpiece thanks to optimised spiral-shaped guide chamfers.



Product information

Core drills HSS

Core drill made of heavy-duty high speed steel.

Suitable for steel (such as T-brackets, large sheets), cast iron, non-ferrous and light metals.

Core drills HSS Co 5 ComPact

Core drills made of cobalt alloyed heavy-duty high speed steel with increased heat resistance.
Ideal for drilling materials that are difficult to cut and for the highest demands.

Suitable for working with unalloyed and alloyed steel (up to a strength of 1200 N/mm²),
hot and cold-working steel and also for reinforced and case-hardened steel.

Core drills HSS-TiAlN

Core drills made of heavy-duty high speed steel with titanium aluminium nitride coating.
The TiAlN wear-resistant coating increases the surface hardness of the tool to approx. 3,000 HV / micro-hardness and the heat resistance to 900° C. It is characterised by high tenacity plus high thermal and chemical stability and helps to achieve better tool life and cutting values.
Suitable for dry finishing due to TiAlN coating.

Especially suitable for working with unalloyed and alloyed steel (up to a strength of 1200 N/mm²),
high-alloyed chromium steel such as stainless and acidresistant steel, as well as cast iron and tough brass.

Core drills TC

Core drills with tungsten carbide cutters.

Particularly for rail tracks, Hardox / Weldox 400 steel,
steel, cast iron, high-alloyed chromium steel such as stainless and acidresistant steel.

Solid drills with weldon shank (3/4")

For use in magnetic-stand and pillar drilling machines with morse taper retainer. In connection with RUKO arbor holders no. 108 302 / 108 303 / 108 315 / 108 316, with RUKO EasyLock no. 108 312 / 108 313 / 108 314 or a weldon direct shank such as the RUKO magnetic-stand RS5*e* / RS10 drill.

Handling
- Push Solid drill „Solid 3S“ into arbor and tighten hexagon socket screw firmly.
- Check proper seating of Solid drill „Solid 3S“ in arbor holder.
- With the EasyLock arbor, the Solid drill „Solid 3S“ gets automatically locked.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the Solid drill „Solid 3S“ permits rapid upward chip removal.
- Observe table of cutting speeds and employ appropriate cooling agent.

Solid drills with Quick IN-shank

For use in magnetic-stand and column drilling machines in connection with Quick IN-adapter as the Fein KBM 32 Q.

Handling
- Push Solid drill „Solid 3S“ into Quick In-adapter.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the Solid drill „Solid 3S“ permits rapid upward chip removal.
- Observe table of cutting speeds and employ appropriate cooling agent.

Step core drills with weldon shank (3/4")

For use in magnetic-stand and pillar drilling machines with morse taper retainer. In connection with RUKO arbor holders no. 108 302 / 108 303 / 108 315 / 108 316, with RUKO EasyLock no. 108 312 / 108 313 / 108 314 or a weldon direct shank such as the RUKO magnetic-stand RS5*e* / RS10 drill.

Handling
- Insert ejector pin into step core drill.
- Push step core drill into arbor and tighten hexagon socket screw firmly.
- Check proper seating of step core drill in arbor holder.
- With the EasyLock arbor, the step core drill gets automatically locked.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the step core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-out.
- Observe table of cutting speeds and employ appropriate cooling agent.

Step core drills with Quick IN-shank

For use in magnetic-stand and column drilling machines in connection with Quick IN-adapter as the Fein KBM 32 Q.

Handling
- Insert ejector pin into step core drill.
- Push step core drill into Quick In-adapter.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the step core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-out.
- Observe table of cutting speeds and employ appropriate cooling agent.

Core drills with weldon shank (3/4")

For use in magnetic-stand and pillar drilling machines with morse taper retainer. In connection with RUKO arbor holders no. 108 302 / 108 303 / 108 315 / 108 316, with RUKO EasyLock no. 108 312 / 108 313 / 108 314 or a weldon direct shank such as the RUKO magnetic-stand RS5*e* / RS10 drill.

Handling
- Insert Weldon shank ejector pin into core drill.
- Push core drill into arbor and tighten hexagon socket screw firmly.
- Check proper seating of core drill in arbor holder.
- With the EasyLock arbor, the core drill gets automatically locked.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-out.
- Observe table of cutting speeds and employ appropriate cooling agent.

Core drills HSS with Quick IN-shank

For use in magnetic-stand and column drilling machines in connection with Quick IN-adapter as the Fein KBM 32 Q.

Handling
- Insert ejector pin into core drill.
- Push core drill into Quick In-adapter.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-outs.
- Observe table of cutting speeds and employ appropriate cooling agent.

Core drills with Nitto-shank

For use in magnetic-stand and column drilling machines in connection with Nitto-adapter.

Handling
- Insert ejector pin into core drill.
- Push core drill into Nitto-adapter.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-outs.
- Observe table of cutting speeds and employ appropriate cooling agent.

Core drills with threaded retainer

For use in magnetic-stand and pillar drilling machines with morse taper retainer. In connection with RUKO arbor holders no. 108 102 / 108 103 / 108 104 / 108 105 or a threaded retainer such as the Fein KBM 542 / KBM 65.

Handling
- Screw core drill into arbor holder.
- Drill to full dimension straight away. No centring or pre-drilling required.
- The blade geometry of the core drill permits rapid upward chip removal.
- The spring-loaded ejector pin facilitates removal of the cut-outs.
- Observe table of cutting speeds and employ appropriate cooling agent.

Solid drills „Solid 3S“ HSS with weldon shank (3/4") and Quick IN-shank, CBN ground and 3 cutting edges, cutting depth 30,0 mm

The spiral-grooved geometry with 3 cutting edges ensures extremely high stability of the "Solid 3S" solid drill, thus preventing the risk of breakage of the cutting edges by overloading or jamming of the chips. Thanks to the high stability, the service life of the "Solid 3S" is considerably increased. This reduces the costs of use. The "Solid 3S" enables drilling to full dimension without centring or pre-drilling. The "Solid 3S" can be ground more simply than core drills of the same diameter.

Solid drills „Solid 3S“ with weldon shank

Cutting edges: HSS
Cutting depth: 30,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS 5*e* / RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting

Solid drills „Solid 3S“ with Quick IN-shank

Cutting edges: HSS
Cutting depth: 30,0 mm
Adapter: 18,0 mm Quick IN-shank
Machine no.: with Quick IN-adapter
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Ø Quick IN-shank mm	Total length mm	Cutting depth mm	Article no. **Weldon shank**	Article no. **Quick IN-shank**
10,0	19,0	18,0	64,0	30,0	108 1210	108 1220
11,0	19,0	18,0	64,0	30,0	108 1211	108 1221
12,0	19,0	18,0	64,0	30,0	108 1212	108 1222
13,0	19,0	18,0	64,0	30,0	108 1213	108 1223
14,0	19,0	18,0	64,0	30,0	108 1214	108 1224
15,0	19,0	18,0	64,0	30,0	108 1215	108 1225

Set of solid drill „Solid 3S“ HSS with weldon shank (3/4") and Quick IN-shank, CBN ground, and 3 cutting edges, in steel case

No. 108 830

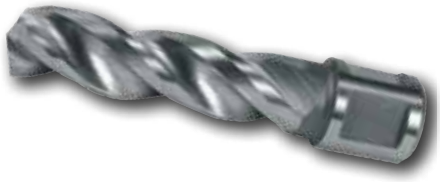
No. 108 831

Description	Article no. **Weldon shank**	Article no. **Quick IN-shank**
6 - piece set of solid drills „Solid 3S“ HSS 6 Solid drills „Solid 3S“ HSS Ø 10,0 mm - 11,0 mm - 12,0 mm - 13,0 mm - 14,0 mm - 15,0 mm	108 830	108 831

Multi-layer solid drills „Solid 3S“ HSS with weldon shank (3/4"), CBN ground and 3 cutting edges, cutting depth 55,0 mm

The multi-layer solid drill enables drilling through a number of sheets arranged on top of one another in one working step.
The spiral-grooved geometry with 3 cutting edges ensures extremely high stability of the multi-layer solid drill "Solid 3S", thus preventing the risk of breakage of the cutting edges by overloading or jamming of the chips. Thanks to the high stability, the service life of the multi-layer solid drill "Solid 3S" is considerably increased. This reduces the costs of use. The multi-layer solid drill "Solid 3S" enables drilling to full dimension without centring or pre-drilling. The multi-layer solid drill "Solid 3S" can be ground more simply than core drills of the same diameter.

Cutting edges: HSS
Cutting depth: 55,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting



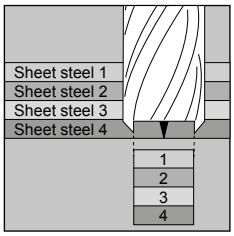
Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
10,0	19,0	85,0	55,0	108 440
11,0	19,0	85,0	55,0	108 441
12,0	19,0	85,0	55,0	108 442
13,0	19,0	85,0	55,0	108 443
14,0	19,0	85,0	55,0	108 444
15,0	19,0	85,0	55,0	108 445

Multi-layer core drills HSS with weldon shank (3/4"), CBN ground, cutting depth 50,0 mm

The multi-layer core drill enables drilling through a number of sheets arranged on top of one another in one working step.

Cutting edges: HSS
Cutting depth: 50,0 mm
Adapter: 19,0 mm weldon shank 19,0 mm (3/4")
Machine no.: RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting



Packing unit:
individual plastic pack

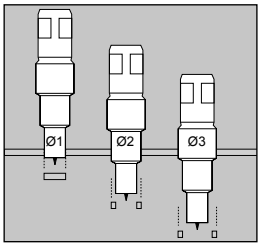
Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
16,0	19,0	84,0	50,0	108 446
18,0	19,0	84,0	50,0	108 448
19,0	19,0	84,0	50,0	108 449
20,0	19,0	84,0	50,0	108 450
22,0	19,0	84,0	50,0	108 452
24,0	19,0	84,0	50,0	108 454
25,0	19,0	84,0	50,0	108 455
26,0	19,0	84,0	50,0	108 456
27,0	19,0	84,0	50,0	108 457
28,0	19,0	84,0	50,0	108 458
30,0	19,0	84,0	50,0	108 460
32,0	19,0	84,0	50,0	108 462
33,0	19,0	84,0	50,0	108 463
36,0	19,0	84,0	50,0	108 466

Step core drills HSS with weldon shank (3/4") and Quick IN-shank, CBN ground, cutting depth 15,0 mm each step

Up to 3 different diameters can be drilled with the step core drill without tool change.
The drilled diameter can be deburred with the next step.

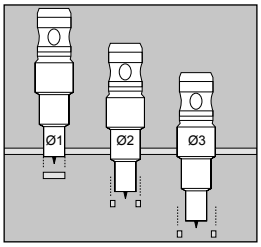
Step core drills with weldon shank

Cutting edges: HSS
Cutting depth: 15,0 mm each step
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS10 / RS20 / RS25e / RS30e / RS40e
right hand cutting



Step core drills with Quick IN-shank

Cutting edges: HSS
Cutting depth: 15,0 mm each step
Adapter: 18,0 mm Quick IN-shank
Machine no.: with Quick IN-adapter
right hand cutting



Packing unit:
individual plastic pack

Size	Ø1 / Ø2 / Ø3 mm	Ø Weldon shank mm	Ø Quick IN-shank mm	Total length mm	Article no. **Weldon shank**	Article no. **Quick IN-shank**
1	14,0 / 16,0 / 18,0	19,0	18,0	78,0	108 331	108 334
2	20,0 / 22,0 / 24,0	19,0	18,0	78,0	108 332	108 335
3	26,0 / 28,0 / 30,0	19,0	18,0	78,0	108 333	108 336

Set of step core drills HSS with weldon shank (3/4") and Quick IN-shank, CBN ground, in plastic case

No. 108 812

No. 108 814

Description	Article no. **Weldon shank**	Article no. **Quick IN-shank**
5-piece set of step core drills HSS 3 step core drills HSS Size 1 Ø 14,0 mm - 16,0 mm - 18,0 mm Size 2 Ø 20,0 mm - 22,0 mm - 24,0 mm Size 3 Ø 26,0 mm - 28,0 mm - 30,0 mm + 1 cutting spray ml article-no. 101 010 + 1 ejector pin Ø 6,35 mm x 95,0 mm for cutting depth 15,0 mm each step article-no. 108 310	108 812	108 814

Core drills HSS, HSS Co 5 ComPact and HSS-TiAlN with weldon shank (3/4"), CBN ground, cutting depth 30,0 mm

Cutting edges: HSS, HSS Co **5 ComPact** and HSS-TiAlN
Cutting depth: 30,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS 5*e* / RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no. **HSS**	Article no. **HSS Co 5 ComPact**	Article no. **HSS-TiAlN**
12,0	19,0	63,0	30,0	108 212	108 212 E	108 212 F
13,0	19,0	63,0	30,0	108 213	108 213 E	108 213 F
14,0	19,0	63,0	30,0	108 214	108 214 E	108 214 F
15,0	19,0	63,0	30,0	108 215	108 215 E	108 215 F
16,0	19,0	63,0	30,0	108 216	108 216 E	108 216 F
17,0	19,0	63,0	30,0	108 217	108 217 E	108 217 F
18,0	19,0	63,0	30,0	108 218	108 218 E	108 218 F
19,0	19,0	63,0	30,0	108 219	108 219 E	108 219 F
20,0	19,0	63,0	30,0	108 220	108 220 E	108 220 F
21,0	19,0	63,0	30,0	108 221	108 221 E	108 221 F
22,0	19,0	63,0	30,0	108 222	108 222 E	108 222 F
23,0	19,0	63,0	30,0	108 223	108 223 E	108 223 F
24,0	19,0	63,0	30,0	108 224	108 224 E	108 224 F
25,0	19,0	63,0	30,0	108 225	108 225 E	108 225 F
26,0	19,0	63,0	30,0	108 226	108 226 E	108 226 F
27,0	19,0	63,0	30,0	108 227	108 227 E	108 227 F
28,0	19,0	63,0	30,0	108 228	108 228 E	108 228 F
29,0	19,0	63,0	30,0	108 229	108 229 E	108 229 F
30,0	19,0	63,0	30,0	108 230	108 230 E	108 230 F
31,0	19,0	63,0	30,0	108 231	108 231 E	108 231 F
32,0	19,0	63,0	30,0	108 232	108 232 E	108 232 F
33,0	19,0	63,0	30,0	108 233	108 233 E	108 233 F
34,0	19,0	63,0	30,0	108 234	108 234 E	108 234 F
35,0	19,0	63,0	30,0	108 235	108 235 E	108 235 F
36,0	19,0	63,0	30,0	108 236	108 236 E	108 236 F
37,0	19,0	63,0	30,0	108 237	108 237 E	108 237 F
38,0	19,0	63,0	30,0	108 238	108 238 E	108 238 F
39,0	19,0	63,0	30,0	108 239	108 239 E	108 239 F
40,0	19,0	63,0	30,0	108 240	108 240 E	108 240 F
41,0	19,0	63,0	30,0	108 241	108 241 E	108 241 F
42,0	19,0	63,0	30,0	108 242	108 242 E	108 242 F
43,0	19,0	63,0	30,0	108 243	108 243 E	108 243 F
44,0	19,0	63,0	30,0	108 244	108 244 E	108 244 F
45,0	19,0	63,0	30,0	108 245	108 245 E	108 245 F
46,0	19,0	63,0	30,0	108 246	108 246 E	108 246 F
47,0	19,0	63,0	30,0	108 247	108 247 E	108 247 F
48,0	19,0	63,0	30,0	108 248	108 248 E	108 248 F
49,0	19,0	63,0	30,0	108 249	108 249 E	108 249 F
50,0	19,0	63,0	30,0	108 250	108 250 E	108 250 F
51,0	19,0	63,0	30,0	108 251	108 251 E	108 251 F
52,0	19,0	63,0	30,0	108 252	108 252 E	108 252 F
53,0	19,0	63,0	30,0	108 253	108 253 E	108 253 F
54,0	19,0	63,0	30,0	108 254	108 254 E	108 254 F
55,0	19,0	63,0	30,0	108 255	108 255 E	108 255 F
56,0	19,0	63,0	30,0	108 256	108 256 E	108 256 F
57,0	19,0	63,0	30,0	108 257	108 257 E	108 257 F
58,0	19,0	63,0	30,0	108 258	108 258 E	108 258 F
59,0	19,0	63,0	30,0	108 259	108 259 E	108 259 F
60,0	19,0	63,0	30,0	108 260	108 260 E	108 260 F

Set of core drills HSS and HSS Co 5 ComPact with weldon shank (3/4"), CBN ground, in plastic case

No. 108 810

No. 108 810 E

No. 108 813

Description	Article no. HSS	Article no. HSS Co 5 ComPact
10-piece set of core drills with weldon shank (3/4") 8 core drills with weldon shank (3/4") Ø 12,0 mm - 14,0 mm - 16,0 mm - 18,0 mm - 20,0 mm - 22,0 mm - 24,0 mm - 26,0 mm + 1 cutting spray 50 ml article-no. 101 010 + 1 ejector pin Ø 6,35 mm x 77,0 mm for cutting depth 30,0 mm article-no. 108 304	108 810	108 810 E
10-piece set of core drills with weldon shank (3/4") 8 core drills with weldon shank (3/4") Ø 2 x 14,0 mm - 2 x 16,0 mm - 2 x 18,0 mm - 1 x 20,0 mm - 1 x 22,0 mm + 1 cutting spray 50 ml article-no. 101 010 + 1 ejector pin Ø 6,35 mm x 77,0 mm for cutting depth 30,0 mm article-no. 108 304	108 813	—

Set of core drills HSS and HSS-TiAlN with weldon shank (3/4"), CBN ground, in steel case

No. 108 820

No. 108 820 F

Description	Article no. HSS	Article no. HSS-TiAlN
7-piece set of core drills with weldon shank (3/4") 6 core drills with weldon shank (3/4") Ø 12,0 mm - 14,0 mm - 16,0 mm - 18,0 mm - 20,0 mm - 22,0 mm + 1 ejector pin Ø 6,35 mm x 77,0 mm for cutting depth 30,0 mm article-no. 108 304	108 820	108 820 F

Core drills HSS and HSS-TiAlN with weldon shank (3/4"), CBN ground, cutting depth 55,0 mm

Cutting edges: HSS, HSS Co **5 ComPact** and HSS-TiAlN
Cutting depth: 55,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS 5*e* / RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no. **HSS**	Article no. **HSS Co 5 ComPact**	Article no. **HSS-TiAlN**
12,0	19,0	88,0	55,0	108 512	108 512 E	**108 512 F**
13,0	19,0	88,0	55,0	108 513	108 513 E	**108 513 F**
14,0	19,0	88,0	55,0	108 514	108 514 E	**108 514 F**
15,0	19,0	88,0	55,0	108 515	108 515 E	**108 515 F**
16,0	19,0	88,0	55,0	108 516	108 516 E	**108 516 F**
17,0	19,0	88,0	55,0	108 517	108 517 E	**108 517 F**
18,0	19,0	88,0	55,0	108 518	108 518 E	**108 518 F**
19,0	19,0	88,0	55,0	108 519	108 519 E	**108 519 F**
20,0	19,0	88,0	55,0	108 520	108 520 E	**108 520 F**
21,0	19,0	88,0	55,0	108 521	108 521 E	**108 521 F**
22,0	19,0	88,0	55,0	108 522	108 522 E	**108 522 F**
23,0	19,0	88,0	55,0	108 523	108 523 E	**108 523 F**
24,0	19,0	88,0	55,0	108 524	108 524 E	**108 524 F**
25,0	19,0	88,0	55,0	108 525	108 525 E	**108 525 F**
26,0	19,0	88,0	55,0	108 526	108 526 E	**108 526 F**
27,0	19,0	88,0	55,0	108 527	108 527 E	**108 527 F**
28,0	19,0	88,0	55,0	108 528	108 528 E	**108 528 F**
29,0	19,0	88,0	55,0	108 529	108 529 E	**108 529 F**
30,0	19,0	88,0	55,0	108 530	108 530 E	**108 530 F**
31,0	19,0	88,0	55,0	108 531	108 531 E	**108 531 F**
32,0	19,0	88,0	55,0	108 532	108 532 E	**108 532 F**
33,0	19,0	88,0	55,0	108 533	108 533 E	**108 533 F**
34,0	19,0	88,0	55,0	108 534	108 534 E	**108 534 F**
35,0	19,0	88,0	55,0	108 535	108 535 E	**108 535 F**
36,0	19,0	88,0	55,0	108 536	108 536 E	**108 536 F**
37,0	19,0	88,0	55,0	108 537	108 537 E	**108 537 F**
38,0	19,0	88,0	55,0	108 538	108 538 E	**108 538 F**
39,0	19,0	88,0	55,0	108 539	108 539 E	**108 539 F**
40,0	19,0	88,0	55,0	108 540	108 540 E	**108 540 F**
41,0	19,0	88,0	55,0	108 541	108 541 E	**108 541 F**
42,0	19,0	88,0	55,0	108 542	108 542 E	**108 542 F**
43,0	19,0	88,0	55,0	108 543	108 543 E	**108 543 F**
44,0	19,0	88,0	55,0	108 544	108 544 E	**108 544 F**
45,0	19,0	88,0	55,0	108 545	108 545 E	**108 545 F**
46,0	19,0	88,0	55,0	108 546	108 546 E	**108 546 F**
47,0	19,0	88,0	55,0	108 547	108 547 E	**108 547 F**
48,0	19,0	88,0	55,0	108 548	108 548 E	**108 548 F**
49,0	19,0	88,0	55,0	108 549	108 549 E	**108 549 F**
50,0	19,0	88,0	55,0	108 550	108 550 E	**108 550 F**
51,0	19,0	88,0	55,0	108 551	108 551 E	**108 551 F**
52,0	19,0	88,0	55,0	108 552	108 552 E	**108 552 F**
53,0	19,0	88,0	55,0	108 553	108 553 E	**108 553 F**
54,0	19,0	88,0	55,0	108 554	108 554 E	**108 554 F**
55,0	19,0	88,0	55,0	108 555	108 555 E	**108 555 F**
56,0	19,0	88,0	55,0	108 556	108 556 E	**108 556 F**
57,0	19,0	88,0	55,0	108 557	108 557 E	**108 557 F**
58,0	19,0	88,0	55,0	108 558	108 558 E	**108 558 F**
59,0	19,0	88,0	55,0	108 559	108 559 E	**108 559 F**
60,0	19,0	88,0	55,0	108 560	108 560 E	**108 560 F**

Core drills HSS and HSS-TiAlN with weldon shank (3/4"), CBN ground, cutting depth 110,0 mm

Cutting edges: HSS and HSS-TiAlN
Cutting depth: 110,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no: RS 10 / RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no. **HSS**	Article no. **HSS-TiAlN**
20,0	19,0	145,0	110,0	**108 2020**	**108 2020 F**
21,0	19,0	145,0	110,0	**108 2021**	**108 2021 F**
22,0	19,0	145,0	110,0	**108 2022**	**108 2022 F**
23,0	19,0	145,0	110,0	**108 2023**	**108 2023 F**
24,0	19,0	145,0	110,0	**108 2024**	**108 2024 F**
25,0	19,0	145,0	110,0	**108 2025**	**108 2025 F**
26,0	19,0	145,0	110,0	**108 2026**	**108 2026 F**
27,0	19,0	145,0	110,0	**108 2027**	**108 2027 F**
28,0	19,0	145,0	110,0	**108 2028**	**108 2028 F**
29,0	19,0	145,0	110,0	**108 2029**	**108 2029 F**
30,0	19,0	145,0	110,0	**108 2030**	**108 2030 F**
31,0	19,0	145,0	110,0	**108 2031**	**108 2031 F**
32,0	19,0	145,0	110,0	**108 2032**	**108 2032 F**
33,0	19,0	145,0	110,0	**108 2033**	**108 2033 F**
34,0	19,0	145,0	110,0	**108 2034**	**108 2034 F**
35,0	19,0	145,0	110,0	**108 2035**	**108 2035 F**
36,0	19,0	145,0	110,0	**108 2036**	**108 2036 F**
37,0	19,0	145,0	110,0	**108 2037**	**108 2037 F**
38,0	19,0	145,0	110,0	**108 2038**	**108 2038 F**
39,0	19,0	145,0	110,0	**108 2039**	**108 2039 F**
40,0	19,0	145,0	110,0	**108 2040**	**108 2040 F**
41,0	19,0	145,0	110,0	**108 2041**	**108 2041 F**
42,0	19,0	145,0	110,0	**108 2042**	**108 2042 F**
43,0	19,0	145,0	110,0	**108 2043**	**108 2043 F**
44,0	19,0	145,0	110,0	**108 2044**	**108 2044 F**
45,0	19,0	145,0	110,0	**108 2045**	**108 2045 F**
46,0	19,0	145,0	110,0	**108 2046**	**108 2046 F**
47,0	19,0	145,0	110,0	**108 2047**	**108 2047 F**
48,0	19,0	145,0	110,0	**108 2048**	**108 2048 F**
49,0	19,0	145,0	110,0	**108 2049**	**108 2049 F**
50,0	19,0	145,0	110,0	**108 2050**	**108 2050 F**

Core drills HSS Co 5 ComPact with Nitto-shank, CBN ground, cutting depth 30,0 mm / 50,0 mm

Cutting edges: HSS Co **5 ComPact**
Cutting depth: 30,0 mm / 50,0 mm
Adapter: Nitto-shank 19,0 mm
Machine no.: with Nitto-adapter
right hand cutting

Packing unit:
individual plastic pack

Cutting depth 30,0 mm

Ø mm	Ø Nitto-shank mm	Total length mm	Cutting depth mm	Article no.
12,0	19,0	62,0	30,0	108 1312
13,0	19,0	62,0	30,0	108 1313
14,0	19,0	62,0	30,0	108 1314
15,0	19,0	62,0	30,0	108 1315
16,0	19,0	62,0	30,0	108 1316
17,0	19,0	62,0	30,0	108 1317
18,0	19,0	62,0	30,0	108 1318
19,0	19,0	62,0	30,0	108 1319
20,0	19,0	65,0	30,0	108 1320
21,0	19,0	65,0	30,0	108 1321
22,0	19,0	65,0	30,0	108 1322
23,0	19,0	65,0	30,0	108 1323
24,0	19,0	65,0	30,0	108 1324
25,0	19,0	65,0	30,0	108 1325
26,0	19,0	65,0	30,0	108 1326
27,0	19,0	65,0	30,0	108 1327
28,0	19,0	65,0	30,0	108 1328
29,0	19,0	65,0	30,0	108 1329
30,0	19,0	65,0	30,0	108 1330
31,0	19,0	65,0	30,0	108 1331

Ø mm	Ø Nitto-shank mm	Total length mm	Cutting depth mm	Article no.
32,0	19,0	65,0	30,0	108 1332
33,0	19,0	65,0	30,0	108 1333
34,0	19,0	65,0	30,0	108 1334
35,0	19,0	65,0	30,0	108 1335
36,0	19,0	65,0	30,0	108 1336
37,0	19,0	65,0	30,0	108 1337
38,0	19,0	65,0	30,0	108 1338
39,0	19,0	65,0	30,0	108 1339
40,0	19,0	65,0	30,0	108 1340
41,0	19,0	65,0	30,0	108 1341
42,0	19,0	65,0	30,0	108 1342
43,0	19,0	65,0	30,0	108 1343
44,0	19,0	65,0	30,0	108 1344
45,0	19,0	65,0	30,0	108 1345
46,0	19,0	65,0	30,0	108 1346
47,0	19,0	65,0	30,0	108 1347
48,0	19,0	65,0	30,0	108 1348
49,0	19,0	65,0	30,0	108 1349
50,0	19,0	65,0	30,0	108 1350

Cutting depth 50,0 mm

Ø mm	Ø Nitto-shank mm	Total length mm	Cutting depth mm	Article no.
12,0	19,0	85,0	50,0	108 1412
13,0	19,0	85,0	50,0	108 1413
14,0	19,0	85,0	50,0	108 1414
15,0	19,0	85,0	50,0	108 1415
16,0	19,0	85,0	50,0	108 1416
17,0	19,0	85,0	50,0	108 1417
18,0	19,0	85,0	50,0	108 1418
19,0	19,0	85,0	50,0	108 1419
20,0	19,0	85,0	50,0	108 1420
21,0	19,0	85,0	50,0	108 1421
22,0	19,0	85,0	50,0	108 1422
23,0	19,0	85,0	50,0	108 1423
24,0	19,0	85,0	50,0	108 1424
25,0	19,0	85,0	50,0	108 1425
26,0	19,0	85,0	50,0	108 1426
27,0	19,0	85,0	50,0	108 1427
28,0	19,0	85,0	50,0	108 1428
29,0	19,0	85,0	50,0	108 1429
30,0	19,0	85,0	50,0	108 1430
31,0	19,0	85,0	50,0	108 1431

Ø mm	Ø Nitto-shank mm	Total length mm	Cutting depth mm	Article no.
32,0	19,0	85,0	50,0	108 1432
33,0	19,0	85,0	50,0	108 1433
34,0	19,0	85,0	50,0	108 1434
35,0	19,0	85,0	50,0	108 1435
36,0	19,0	85,0	50,0	108 1436
37,0	19,0	85,0	50,0	108 1437
38,0	19,0	85,0	50,0	108 1438
39,0	19,0	85,0	50,0	108 1439
40,0	19,0	85,0	50,0	108 1440
41,0	19,0	85,0	50,0	108 1441
42,0	19,0	85,0	50,0	108 1442
43,0	19,0	85,0	50,0	108 1443
44,0	19,0	85,0	50,0	108 1444
45,0	19,0	85,0	50,0	108 1445
46,0	19,0	85,0	50,0	108 1446
47,0	19,0	85,0	50,0	108 1447
48,0	19,0	85,0	50,0	108 1448
49,0	19,0	85,0	50,0	108 1449
50,0	19,0	85,0	50,0	108 1450

Core drills HSS Co 5 ComPact with Quick IN-shank, CBN ground, cutting depth 35,0 mm

Cutting edges: HSS Co **5 ComPact**
Cutting depth: 35,0 mm
Adapter: Quick IN-shank 18,0 mm
Machine no.: with Quick IN-adapter
right-hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Quick IN-shank mm	Total length mm	Cutting depth mm	Article no.
12,0	18,0	77,0	35,0	108 912 E
13,0	18,0	77,0	35,0	108 913 E
14,0	18,0	77,0	35,0	108 914 E
15,0	18,0	77,0	35,0	108 915 E
16,0	18,0	77,0	35,0	108 916 E
17,0	18,0	77,0	35,0	108 917 E
18,0	18,0	77,0	35,0	108 918 E
19,0	18,0	77,0	35,0	108 919 E
20,0	18,0	77,0	35,0	108 920 E
21,0	18,0	77,0	35,0	108 921 E
22,0	18,0	77,0	35,0	108 922 E
23,0	18,0	77,0	35,0	108 923 E
24,0	18,0	77,0	35,0	108 924 E
25,0	18,0	77,0	35,0	108 925 E
26,0	18,0	77,0	35,0	108 926 E
27,0	18,0	77,0	35,0	108 927 E
28,0	18,0	77,0	35,0	108 928 E
29,0	18,0	77,0	35,0	108 929 E
30,0	18,0	77,0	35,0	108 930 E
31,0	18,0	77,0	35,0	108 931 E
32,0	18,0	77,0	35,0	108 932 E
33,0	18,0	77,0	35,0	108 933 E
34,0	18,0	77,0	35,0	108 934 E
35,0	18,0	77,0	35,0	108 935 E
36,0	18,0	77,0	35,0	108 936 E

Ø mm	Ø Quick IN-shank mm	Total length mm	Cutting depth mm	Article no.
37,0	18,0	77,0	35,0	108 937 E
38,0	18,0	77,0	35,0	108 938 E
39,0	18,0	77,0	35,0	108 939 E
40,0	18,0	77,0	35,0	108 940 E
41,0	18,0	77,0	35,0	108 941 E
42,0	18,0	77,0	35,0	108 942 E
43,0	18,0	77,0	35,0	108 943 E
44,0	18,0	77,0	35,0	108 944 E
45,0	18,0	77,0	35,0	108 945 E
46,0	18,0	77,0	35,0	108 946 E
47,0	18,0	77,0	35,0	108 947 E
48,0	18,0	77,0	35,0	108 948 E
49,0	18,0	77,0	35,0	108 949 E
50,0	18,0	77,0	35,0	108 950 E
51,0	18,0	77,0	35,0	108 951 E
52,0	18,0	77,0	35,0	108 952 E
53,0	18,0	77,0	35,0	108 953 E
54,0	18,0	77,0	35,0	108 954 E
55,0	18,0	77,0	35,0	108 955 E
56,0	18,0	77,0	35,0	108 956 E
57,0	18,0	77,0	35,0	108 957 E
58,0	18,0	77,0	35,0	108 958 E
59,0	18,0	77,0	35,0	108 959 E
60,0	18,0	77,0	35,0	108 960 E

Set of core drills HSS HSS Co 5 ComPact with Quick IN-shank, CBN ground, in plastic case

Description	Article no.
10-piece set of core drills HSS Co **5 ComPact** with Quick IN-shank 8 core drills HSS Co **5 ComPact** Ø 12,0 mm - 14,0 mm - 16,0 mm - 18,0 mm 20,0 mm - 22,0 mm - 24,0 mm - 26,0 mm + 1 cutting spray 50 ml article no. 101 010 + 1 ejector pin Ø 6,35 x 87,0 mm for cutting depth 35,0 mm article no. 108 306	108 811 E

Core drills with tungsten-carbide and Quick IN-shank, CBN ground, cutting depth 50,0 mm

Ø 12,0 mm up to Ø 32,0 mm with fixed shank.
Ø 33,0 mm up to Ø 80,0 mm including Quick IN-adapter No. 108 111.

Cutting edges: tungsten-carbide
Cutting depth: 50,0 mm
Adapter: Quick IN-shank 18,0 mm
Machine no.: with Quick IN-adapter
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Quick IN-shank mm	Total length mm	Cutting depth mm	Article no.
12,0	18,0	78,0	50,0	108 1112
13,0	18,0	78,0	50,0	108 1113
14,0	18,0	78,0	50,0	108 1114
15,0	18,0	78,0	50,0	108 1115
16,0	18,0	78,0	50,0	108 1116
17,0	18,0	78,0	50,0	108 1117
18,0	18,0	78,0	50,0	108 1118
19,0	18,0	78,0	50,0	108 1119
20,0	18,0	78,0	50,0	108 1120
21,0	18,0	78,0	50,0	108 1121
22,0	18,0	78,0	50,0	108 1122
23,0	18,0	78,0	50,0	108 1123
24,0	18,0	78,0	50,0	108 1124
25,0	18,0	78,0	50,0	108 1125
26,0	18,0	78,0	50,0	108 1126
27,0	18,0	78,0	50,0	108 1127
28,0	18,0	78,0	50,0	108 1128
29,0	18,0	78,0	50,0	108 1129
30,0	18,0	78,0	50,0	108 1130
31,0	18,0	78,0	50,0	108 1131
32,0	18,0	78,0	50,0	108 1132
33,0	18,0	112,0	50,0	108 1133
34,0	18,0	112,0	50,0	108 1134
35,0	18,0	112,0	50,0	108 1135
36,0	18,0	112,0	50,0	108 1136
37,0	18,0	112,0	50,0	108 1137
38,0	18,0	112,0	50,0	108 1138

Ø mm	Ø Quick IN-shank mm	Total length mm	Cutting depth mm	Article no.
39,0	18,0	112,0	50,0	108 1139
40,0	18,0	112,0	50,0	108 1140
41,0	18,0	112,0	50,0	108 1141
42,0	18,0	112,0	50,0	108 1142
43,0	18,0	112,0	50,0	108 1143
44,0	18,0	112,0	50,0	108 1144
45,0	18,0	112,0	50,0	108 1145
46,0	18,0	112,0	50,0	108 1146
47,0	18,0	112,0	50,0	108 1147
48,0	18,0	112,0	50,0	108 1148
49,0	18,0	112,0	50,0	108 1149
50,0	18,0	112,0	50,0	108 1150
51,0	18,0	112,0	50,0	108 1151
52,0	18,0	112,0	50,0	108 1152
53,0	18,0	112,0	50,0	108 1153
54,0	18,0	112,0	50,0	108 1154
55,0	18,0	112,0	50,0	108 1155
60,0	18,0	112,0	50,0	108 1160
61,0	18,0	112,0	50,0	108 1161
63,0	18,0	112,0	50,0	108 1163
65,0	18,0	112,0	50,0	108 1165
68,0	18,0	112,0	50,0	108 1168
70,0	18,0	112,0	50,0	108 1170
71,0	18,0	112,0	50,0	108 1171
75,0	18,0	112,0	50,0	108 1175
80,0	18,0	112,0	50,0	108 1180

Set of core drills with tungsten-carbide cutting edges and Quick IN-shank, CBN ground, in plastic case

Description	Article no.
10-piece set of core drills with tungsten-carbide cutting edges 8 core drills with tungsten-carbide cutting edges and Quick IN-shank Ø 12,0 mm - 14,0 mm - 16,0 mm - 18,0 mm 20,0 mm - 22,0 mm - 24,0 mm - 26,0 mm + 1 cutting spray 50 ml article no. 101 010 + 1 ejector pin Ø 6,35 x 87,0 mm for cutting depth 35,0 mm article no. 108 306	108 822

Core drills with tungsten-carbide cutting edges and weldon shank (3/4"), for Hardox / Weldox steel, cutting depth 50,0 mm

Suitable for Hardox / Weldox 400 steel

Cutting edges: tungsten-carbide
Cutting depth: 50,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS10 / RS20 / RS25*e* / RS30*e* / RS40*e*
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
12,0	19,0	84,0	50,0	108 712
13,0	19,0	84,0	50,0	108 713
14,0	19,0	84,0	50,0	108 714
15,0	19,0	84,0	50,0	108 715
16,0	19,0	84,0	50,0	108 716
17,0	19,0	84,0	50,0	108 717
18,0	19,0	84,0	50,0	108 718
19,0	19,0	84,0	50,0	108 719
20,0	19,0	84,0	50,0	108 720
21,0	19,0	84,0	50,0	108 721
22,0	19,0	84,0	50,0	108 722
23,0	19,0	84,0	50,0	108 723
24,0	19,0	84,0	50,0	108 724
25,0	19,0	84,0	50,0	108 725
26,0	19,0	84,0	50,0	108 726
27,0	19,0	84,0	50,0	108 727
28,0	19,0	84,0	50,0	108 728
29,0	19,0	84,0	50,0	108 729
30,0	19,0	84,0	50,0	108 730
31,0	19,0	84,0	50,0	108 731

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
32,0	19,0	84,0	50,0	108 732
33,0	19,0	84,0	50,0	108 733
34,0	19,0	84,0	50,0	108 734
35,0	19,0	84,0	50,0	108 735
36,0	19,0	84,0	50,0	108 736
37,0	19,0	84,0	50,0	108 737
38,0	19,0	84,0	50,0	108 738
39,0	19,0	84,0	50,0	108 739
40,0	19,0	84,0	50,0	108 740
41,0	19,0	84,0	50,0	108 741
42,0	19,0	84,0	50,0	108 742
43,0	19,0	84,0	50,0	108 743
44,0	19,0	84,0	50,0	108 744
45,0	19,0	84,0	50,0	108 745
46,0	19,0	84,0	50,0	108 746
47,0	19,0	84,0	50,0	108 747
48,0	19,0	84,0	50,0	108 748
49,0	19,0	84,0	50,0	108 749
50,0	19,0	84,0	50,0	108 750

Core drills with tungsten-carbide cutting edges and Weldon shank (3/4"), for railway tracks, cutting depth 30,0 mm

Can be used on all track drilling machines. The cutting geometry has been specially optimized for heavy duty chip removal from railway tracks, thus makes efficient use possible.

Cutting edges: tungsten-carbide
Cutting depth: 25,0 mm
Adapter: 19,0 mm weldon shank (3/4")
Machine no.: RS5*e* / RS10 / RS20 / RS25*e* / RS30*e* / RS40*e*
right hand cutting

Packing unit:
individual plastic pack

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
19,0	19,0	63,0	30,0	108 1519
20,0	19,0	63,0	30,0	108 1520
21,0	19,0	63,0	30,0	108 1521
22,0	19,0	63,0	30,0	108 1522
23,0	19,0	63,0	30,0	108 1523
24,0	19,0	63,0	30,0	108 1524
25,0	19,0	63,0	30,0	108 1525
26,0	19,0	63,0	30,0	108 1526
26,5	19,0	63,0	30,0	108 15265
27,0	19,0	63,0	30,0	108 1527

Ø mm	Ø Weldon shank mm	Total length mm	Cutting depth mm	Article no.
27,5	19,0	63,0	30,0	108 15275
28,0	19,0	63,0	30,0	108 1528
29,0	19,0	63,0	30,0	108 1529
30,0	19,0	63,0	30,0	108 1530
31,0	19,0	63,0	30,0	108 1531
32,0	19,0	63,0	30,0	108 1532
33,0	19,0	63,0	30,0	108 1533
34,0	19,0	63,0	30,0	108 1534
36,0	19,0	63,0	30,0	108 1536

Core drills with tungsten-carbide cutting edges and threaded retainer, cutting depth 50,0 mm

Cutting edges: tungsten-carbide
Cutting depth: 50,0 mm
Adapter: thread M18 x 6 P1,5
Machine no.: RS 20 / RS 25*e* / RS 30*e* / RS 40*e*
right hand cutting

Packing unit:
individual plastic pack

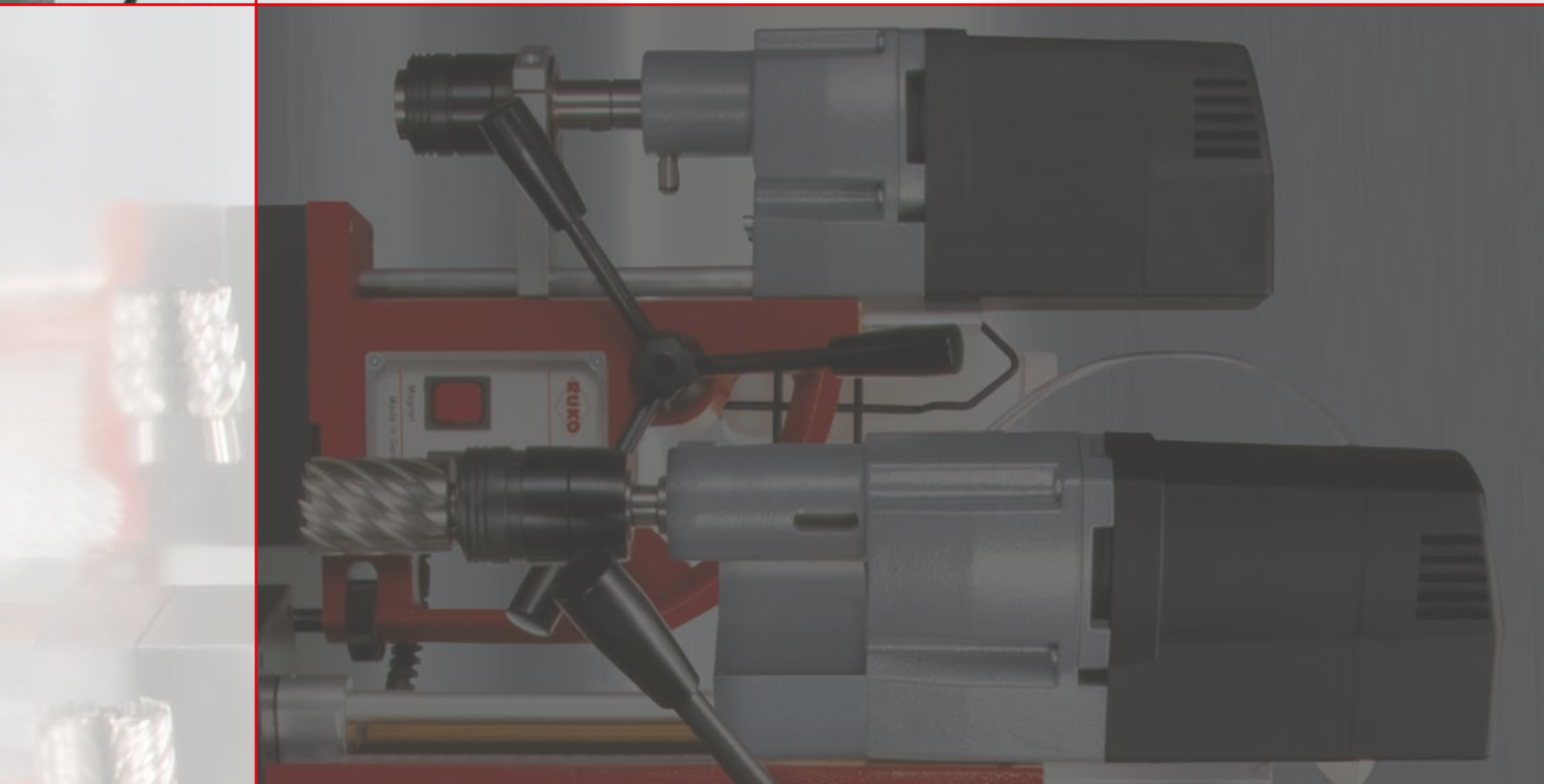
Ø mm	For arbor holders	Total length mm	Cutting depth mm	Article no.
12,0	MT 2 / MT 3	84,0	50,0	108 012
13,0	MT 2 / MT 3	84,0	50,0	108 013
14,0	MT 2 / MT 3	84,0	50,0	108 014
15,0	MT 2 / MT 3	84,0	50,0	108 015
16,0	MT 2 / MT 3	84,0	50,0	108 016
17,0	MT 2 / MT 3	84,0	50,0	108 017
18,0	MT 2 / MT 3	84,0	50,0	108 018
19,0	MT 2 / MT 3	84,0	50,0	108 019
20,0	MT 2 / MT 3	84,0	50,0	108 020
21,0	MT 2 / MT 3	84,0	50,0	108 021
22,0	MT 2 / MT 3	84,0	50,0	108 022
23,0	MT 2 / MT 3	84,0	50,0	108 023
24,0	MT 2 / MT 3	84,0	50,0	108 024
25,0	MT 2 / MT 3	84,0	50,0	108 025
26,0	MT 2 / MT 3	84,0	50,0	108 026
27,0	MT 2 / MT 3	84,0	50,0	108 027
28,0	MT 2 / MT 3	84,0	50,0	108 028
29,0	MT 2 / MT 3	84,0	50,0	108 029
30,0	MT 2 / MT 3	84,0	50,0	108 030
31,0	MT 2 / MT 3	84,0	50,0	108 031
32,0	MT 2 / MT 3	84,0	50,0	108 032
33,0	MT 2 / MT 3	84,0	50,0	108 033
34,0	MT 2 / MT 3	84,0	50,0	108 034
35,0	MT 2 / MT 3	84,0	50,0	108 035
36,0	MT 2 / MT 3	84,0	50,0	108 036
37,0	MT 2 / MT 3	84,0	50,0	108 037
38,0	MT 2 / MT 3	84,0	50,0	108 038

Ø mm	For arbor holders	Total length mm	Cutting depth mm	Article no.
39,0	MT 2 / MT 3	84,0	50,0	108 039
40,0	MT 2 / MT 3	84,0	50,0	108 040
41,0	MT 2 / MT 3	84,0	50,0	108 041
42,0	MT 2 / MT 3	84,0	50,0	108 042
43,0	MT 2 / MT 3	84,0	50,0	108 043
44,0	MT 2 / MT 3	84,0	50,0	108 044
45,0	MT 2 / MT 3	84,0	50,0	108 045
46,0	MT 2 / MT 3	84,0	50,0	108 046
47,0	MT 2 / MT 3	84,0	50,0	108 047
48,0	MT 2 / MT 3	84,0	50,0	108 048
49,0	MT 2 / MT 3	84,0	50,0	108 049
50,0	MT 2 / MT 3	84,0	50,0	108 050
51,0	MT 2 / MT 3	84,0	50,0	108 051
52,0	MT 2 / MT 3	84,0	50,0	108 052
53,0	MT 2 / MT 3	84,0	50,0	108 053
54,0	MT 2 / MT 3	84,0	50,0	108 054
55,0	MT 2 / MT 3	84,0	50,0	108 055
60,0	MT 2 / MT 3	84,0	50,0	108 060
61,0	MT 2 / MT 3	84,0	50,0	108 061
63,0	MT 2 / MT 3	84,0	50,0	108 063
65,0	MT 2 / MT 3	84,0	50,0	108 065
68,0	MT 2 / MT 3	84,0	50,0	108 068
70,0	MT 2 / MT 3	84,0	50,0	108 070
71,0	MT 2 / MT 3	84,0	50,0	108 071
75,0	MT 2 / MT 3	84,0	50,0	108 075
80,0	MT 2 / MT 3	84,0	50,0	108 080

Set of core drills with tungsten-carbide cutting edges and threaded retainer, in plastic case

Description	Article no.
8-piece set of core drills with tungsten-carbide cutting edges 8 core drills with tungsten-carbide and threaded retainer Ø 12,0 mm - 14,0 mm - 16,0 mm - 18,0 mm 20,0 mm - 22,0 mm - 24,0 mm - 26,0 mm	108 823

MAGNETIC-STAND DRILLING MACHINES



Comparison of technical data RS4 - RS40e - The New „RS“ GENERATION!




RS20 / RSM20


Technical data	RS4	RS5e	RS10	RS20	RSM20
Mag. clamping force:	10.000 N	10.000 N	10.000 N	13.000 N	20.800 N
Power consumption:	1.120 Watt	1.200 Watt	1.120 Watt	1.200 Watt	1.200 Watt
Gears:	1 gear	1 gear	1 gear	2 gear	2 gear
Rotation speeds r.p.m.:	450 r.p.m.	140 - 350 r.p.m.	450 r.p.m.	250 / 450 r.p.m.	250 / 450 r.p.m.
Electrical rotation controller:	No	Yes	No	No	No
Torque controller:	No	No	No	No	No
Right-left-handed rotation:	No	No	No	No	No
Height:	182,0 mm	182,0 mm	413,0 - 548,0 mm	408,0 - 598,0 mm	408,0 - 598,0 mm
Width:	160,0 x 80,0 mm	160,0 x 80,0 mm	160,0 x 80,0 mm	190,0 x 90,0 mm	220,0 x 110,0 mm
Weight:	11,0 kg	11,0 kg	13,0 kg	18,0 kg	26,0 kg
Lift:	38,0 mm	38,0 mm	135,0 mm	190,0 mm	190,0 mm
Adapter:	Weldon shank 19,0 mm	Weldon shank 19,0 mm	Weldon shank 19,0 mm	Morse taper MT 2	Morse taper MT 2
Core drills:	Ø 12,0 - 25,0 mm	Ø 12,0 - 35,0 mm	Ø 12,0 - 35,0 mm	Ø 12,0 - 60,0 mm	Ø 12,0 - 60,0 mm
Drill chuck:	–	–	1,0 - 13,0 mm	3,0 - 16,0 mm	3,0 - 16,0 mm
Twist drills DIN 338:	–	–	max. Ø 10,0 mm	max. Ø 13,0 mm	max. Ø 13,0 mm
Twist drills DIN 1897:	–	–	max. Ø 13,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm
Twist drills DIN 345:	–	–	–	max. Ø 20,0 mm	max. Ø 20,0 mm
Cutting depth core drills:	30,0 mm	30,0 mm	30,0 mm	30,0 / 50,0 mm	30,0 / 50,0 mm
Input voltage:	220 – 240 V	220 – 240 V	220 – 240 V	220 – 240 V	220 – 240 V
Conformity with:	VDE, CEE	VDE, CEE	VDE, CEE	VDE, CEE	VDE, CEE
Moveable field:	No	No	No	No	No
Turn field:	No	No	No	No	No
Thread cutting:	No	No	No	No	No
Extra support:	No	No	Yes	Yes	Yes

Accessories:	RS4	RS5e	RS10	RS20	RSM20
	Carrying bag incl. 2 plastic boxes	Carrying bag incl. 2 plastic boxes	Plastic tool case	Plastic tool case	Plastic tool case
	Allen key	Allen key	Allen key	Drill drift	Drill drift
	Safety belt	Safety belt	Safety belt	Safety belt	Safety belt
	–	–	Drill chuck 1,0 - 13,0 mm	Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm
	–	–	Drill chuck adapter	Spike cone MT 2 / B16	Spike cone MT 2 / B16
	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder
	Operating instructions	Operating instructions	Operating instructions	Operating instructions	Operating instructions

Article no.	108 007 RS	108 006 RS	108 001 RS	108 002 RS	108 002 RSM

RS25e / RSM25e

RS30e / RSM30e

RS40e / RSM40e

RS25e	RSM25e	RS30e	RSM30e	RS40e	RSM40e
13.000 N	20.800 N	13.000 N	20.800 N	13.000 N	20.800 N
1.200 Watt	1.200 Watt	1.840 Watt	1.840 Watt	1.840 Watt	1.840 Watt
2 gear	2 gear	2 gear	2 gear	2 gear	2 gear
100-250 / 180-450 r.p.m.	100-250 / 180-450 r.p.m.	60-140 / 200-470 r.p.m.	60-140 / 200-470 r.p.m.	60-140 / 200-470 r.p.m.	60-140 / 200-470 r.p.m.
Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	Yes	Yes
Yes	Yes	No	No	Yes	Yes
408,0 - 598,0 mm	408,0 - 598,0 mm	450,0 - 640,0 mm	450,0 - 640,0 mm	450,0 - 640,0 mm	450,0 - 640,0 mm
190,0 x 90,0 mm	220,0 x 110,0 mm	190,0 x 90,0 mm	220,0 x 110,0 mm	190,0 x 90,0 mm	220,0 x 110,0 mm
18 kg	26 kg	24 kg	30 kg	24 kg	30 kg
190,0 mm	190,0 mm	190,0 mm	190,0 mm	190,0 mm	190,0 mm
Morse taper MT 2	Morse taper MT 2	Morse taper MT 3	Morse taper MT 3	Morse taper MT 3	Morse taper MT 3
Ø 12,0 - 60,0 mm	Ø 12,0 - 60,0 mm	Ø 12,0 - 100,0 mm	Ø 12,0 - 100,0 mm	Ø 12,0 - 100,0 mm	Ø 12,0 - 100,0 mm
3,0 - 16,0 mm	3,0 - 16,0 mm	3,0 - 16,0 mm	3,0 - 16,0 mm	3,0 - 16,0 mm	3,0 - 16,0 mm
max. Ø 13,0 mm	max. Ø 13,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm
max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm	max. Ø 16,0 mm
max. Ø 20,0 mm	max. Ø 20,0 mm	max. Ø 31,5 mm	max. Ø 31,5 mm	max. Ø 31,5 mm	max. Ø 31,5 mm
30,0 / 50,0 mm	30,0 / 50,0 mm	30,0 / 50,0 mm	30,0 / 50,0 mm	30,0 / 50,0 mm	30,0 / 50,0 mm
220 – 240 V	220 – 240 V	220 – 240 V	220 – 240 V	220 – 240 V	220 – 240 V
VDE, CEE	VDE, CEE	VDE, CEE	VDE, CEE	VDE, CEE	VDE, CEE
No	No	+/- 7,5 mm	+/- 7,5 mm	+/- 7,5 mm	+/- 7,5 mm
No	No	+/- 20°	+/- 20°	+/- 20°	+/- 20°
Yes	Yes	No	No	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes

RS25e	RSM25e	RS30e	RSM30e	RS40e	RSM40e
Plastic tool case	Plastic tool case	Plastic tool case	Plastic tool case	Plastic tool case	Plastic tool case
Drill drift	Drill drift	Drill drift	Drill drift	Drill drift	Drill drift
Safety belt	Safety belt	Safety belt	Safety belt	Safety belt	Safety belt
Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm	Drill chuck 3,0 - 16,0 mm
Spike cone MT 2 / B16	Spike cone MT 2 / B16	Spike cone MT 3 / B16	Spike cone MT 3 / B16	Spike cone MT 3 / B16	Spike cone MT 3 / B16
Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder	Cooling bottle + holder
Operating instructions	Operating instructions	Operating instructions	Operating instructions	Operating instructions	Operating instructions

108 005 RS	108 005 RSM	108 003 RS	108 003 RSM	108 004 RS	108 004 RSM

Angle core drilling machine RS4

Technical data:	
Magnetic clamping force:	**10.000 N**
Total Power consumption:	**1.120 Watt**
Rotation speeds:	**450 r.p.m.**
Height:	**182,0 mm**
Lift:	**38,0 mm**
Length and width:	**160,0 x 80,0 mm**
Weight:	**11,0 kg**
Adapter: (3/4")	**Weldon shank 19,0 mm (3/4")**
Drilling range:	
Core drills:	**up to Ø 25,0 mm**
Cutting depth core drills:	**30,0 mm**
Input voltage:	**230 Volt**
Conformity with:	**VDE, CEE**

Accessories per machine:
1 Carrying bag incl. 2 plastic boxes 1 Ejector pin Ø 6,35 x 70,0 mm article no. 108 344 1 Cooling bottle article no. 108 101 1 Safety belt 1 Operating instructions

Description	Article no.
Angle core drilling machine **RS4**	**108 007 RS**

Angle core drilling machine RS5e

Technical data:	
Magnetic clamping force:	**10.000 N**
Total Power consumption:	**1.200 Watt**
Rotation speeds:	**140 - 350 r.p.m.**
Height:	**182,0 mm**
Lift:	**38,0 mm**
Length and width:	**160,0 x 80,0 mm**
Weight:	**11,0 kg**
Adapter: (3/4")	**Weldon shank 19,0 mm (3/4")**
Drilling range:	
Core drills:	**up to Ø 35,0 mm**
Cutting depth core drills:	**30,0 mm**
Input voltage:	**230 Volt**
Conformity with:	**VDE, CEE**

Accessories per machine:
1 Carrying bag incl. 2 plastic boxes 1 Ejector pin Ø 6,35 x 70,0 mm article no. 108 344 1 Cooling bottle article no. 108 101 1 Safety belt 1 Operating instructions

Description	Article no.
Angle core drilling machine **RS5e**	**108 006 RS**

without arbor

RS 4 / RS 5e

The magnetic-stand makes horizontal, vertical or overhead work possible.

The machine‘s compact, light construction makes it extremely versatile and easily portable.

An electronic protective switch prevents inadvertent operation until the magnet has been switched on. The machine is equipped with a safety cutoff if the magnet fails due to outside influences.

Ideal for use in steel construction, industrial building, engineering, terotechnology, shipbuilding, bridge construction, crane building and assembly work in metalworking shops.

ULTRA compact, light and super-powerful!

The "new angle core drilling machine RS 4" by RUKO ensures optimal use in very cramped spaces, allowing it to be employed e.g. in iron girders, narrow steel structures or lorry frames.

The light weight of just 10,0 kg and the ergonomically formed handle make it easier to work with the machine and to transport it.

The "RS5e" in summary:

- despite its small overall height it is possible to use core drills with a cutting depth of 30,0 mm.
- the robust structure of the machine ensures good durability.
- the cast aluminium gearbox casing contributes to the light weight whilst ensuring the necessary stability.
- the conical gear wheels with helical tooth pattern, which are used in the angular gear, ensure smooth operation and good durability.
- the high precision bearings are generously sized so that the axial and radial forces can be securely absorbed by the work spindle with its 5 bearings.
- the precise spline duct of the work spindle guarantee continuing good load transmission to the drilling tool.
- the interior tool cooling system ensures optimal cooling of the tool and thus long service life.
- the engine speed electronics allow the user to adjust the speed to the tool diameter.

Defined feed of cooling lubricant:

Internal cooling guarantees a clean cut and long service life of the tools.

High-performance motor:

For core drills up to Ø 35,0 mm. (RS 5e)

Magnet:

10.000 N

Optimal for use in cramped spaces.

Speed controller:

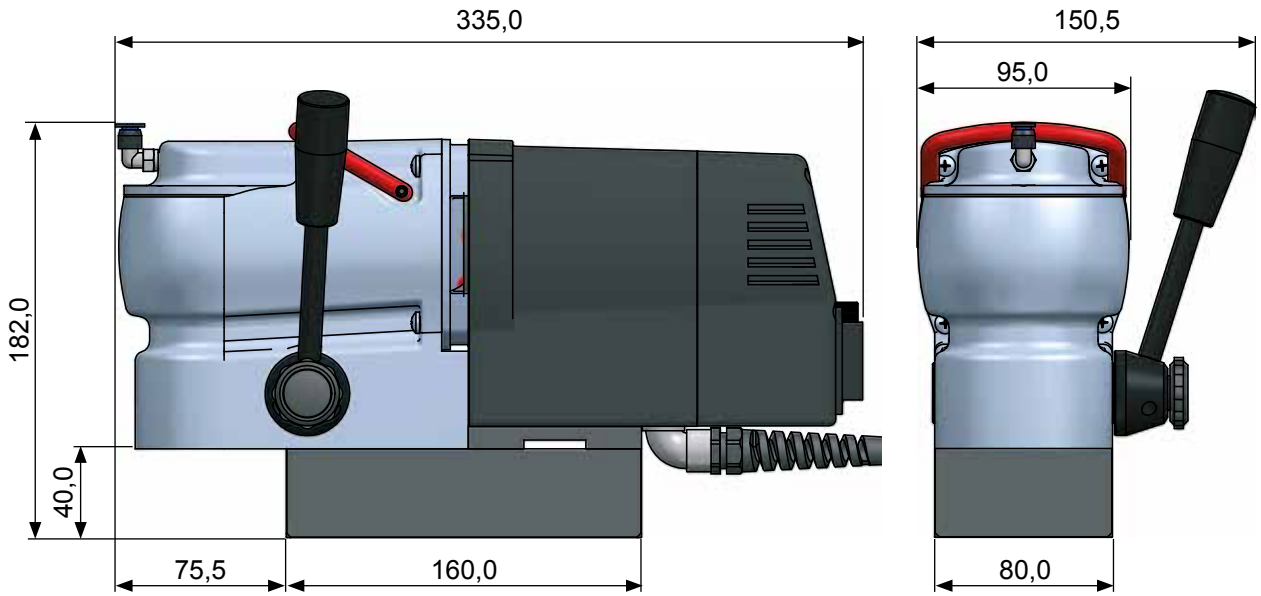
Continuously variable **speed controller** for optimum adjustment of cutting speed. (only RS 5e)

Handle:

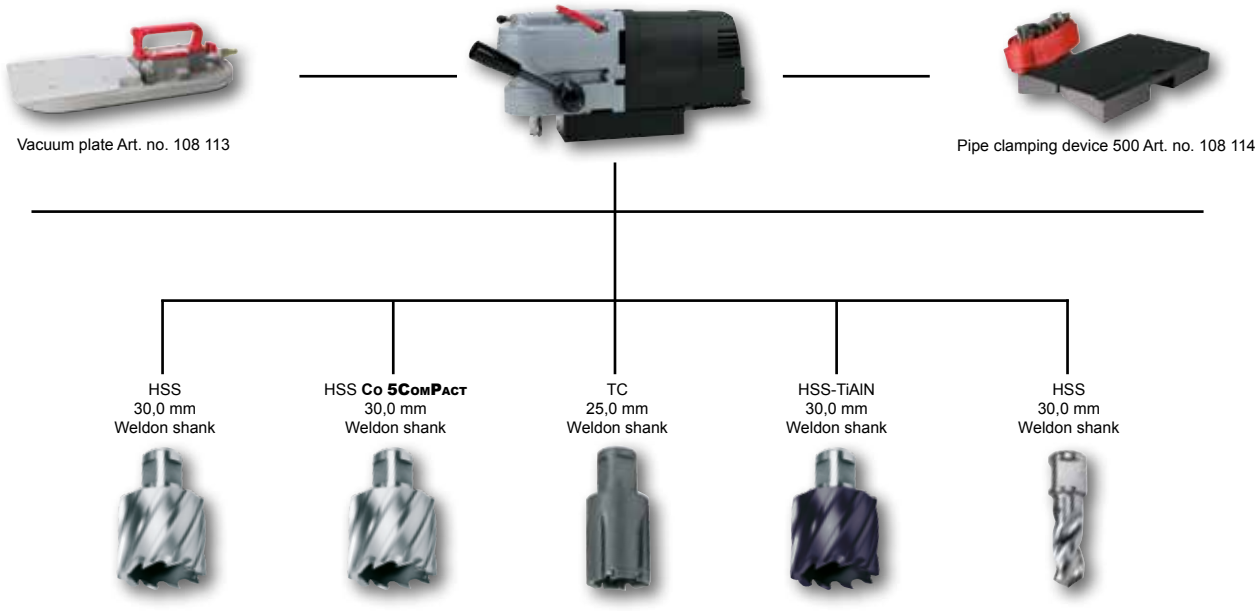
Suitable for left or right hand operation. **Handle** can be mounted easily on the right or the left.

Technical Measures

RS 4 / RS 5e



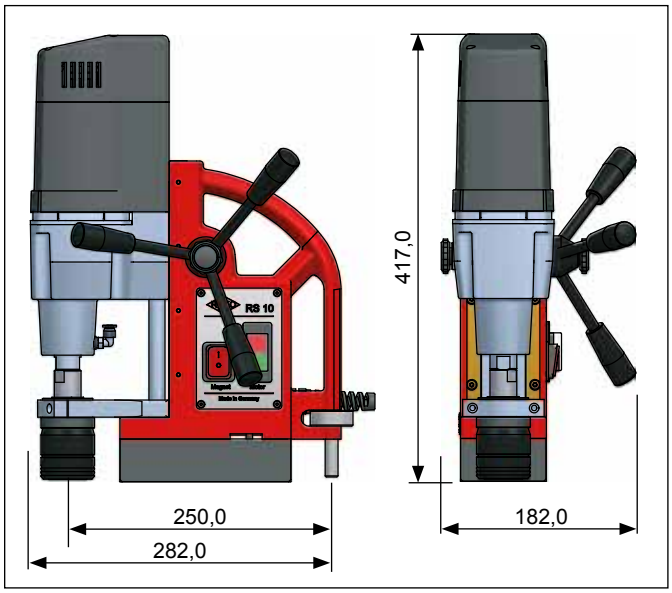
RS 4 / RS 5e




NEW
1 arbor holder
included!
RUKO
RS10
Magnet
Motor
Made in Germany

Magnetic-stand drilling machine RS 10

Technical data:	
Magnetic clamping force:	**10.000 N**
Total Power consumption:	**1.120 Watt**
Rotation speeds:	**450 r.p.m**
Height:	**413,0 - 548,0 mm**
Lift:	**135,0 mm**
Length and width:	**160,0 x 80,0 mm**
Weight:	**13,0 kg**
Adapter:	**Weldon shank 19,0 mm (3/4")**
Transmission opening:	**M14**
Drill chuck:	**1,0 - 13,0 mm with adapter**
Drilling range:	
Twist drills (DIN 338):	**max. Ø 10,0 mm**
Twist drills (DIN 1897):	**max. Ø 13,0 mm**
Core drills:	**up to Ø 35,0 mm**
Cutting depth core drills:	**30,0 mm**
Input voltage:	**230 V**
Conformity with:	**VDE, CEE**



Accessories:
1 Plastic tool case 1 Drill chuck 1,0 - 13,0 mm article no. 108 116 1 Adapter for drill chuck article no. 108 115 1 Cooling bottle including holding device article no. 108 101 1 Allen key for Weldon shank 1 Safety belt 1 Operating instructions 1 With arbor article no. 108 159 for core drills with Weldon shank

Description	Article no.
Magnetic-stand drilling machine **RS 10**	**108 001 RS**

Magnetic-stand drilling machines RS 10, RS 20, RS 25e, RS 30e, RS 40e

The magnetic-stand makes horizontal, vertical or overhead work possible.

The machine's compact, light construction makes it extremely versatile and easily portable. The core drills in the machine can easily be replaced by twist drills, thus allowing bottoming.

An electronic protective switch prevents inadvertent operation until the magnet has been switched on. The machine is equipped with a safety cutoff if the magnet fails due to outside influences.

Ideal for use in steel construction, industrial building, engineering, terotechnology, shipbuilding, bridge construction, crane building and assembly work in metalworking shops.

Speeds and cutting speeds are ideally matched to our machines. Torque control in the RS40e.

Very rugged

plastic housing.

High-performance motor:

For core drills up to Ø 35,0 mm.

Transmission:

hardened precision gear teeth.

Ergonomic handles

for easy portability.

Suitable for left or right hand operation.

Handle can be mounted easily on the right or the left.

Removable device

enables the use of further arbors.

Built-in **electronics**

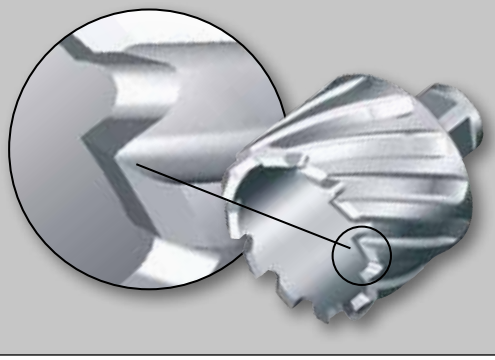
impervious to supply voltage fluctuations and other disturbing influences.

Magnetic-stand drilling machines - OVERVIEW WITHIN A SHORT TIME !

- Motor performance was the most powerful in the field of core drilling technology.
- Robust electronics, high-quality gearbox with hardened precision gear teeth.
- Handle can be mounted on either side for left or right hand operation.
- The manually adjustable extra support boosts the attraction of the magnet, so that a greater drilling force can be used to drill into the material.
- Fully brass dovetail design.
- A precision rack and pinion drive delivers an immediate drilling response – direct transfer from the handle over the gearing to the stroking motion of the machine.
- The increased cutting performance with optimized attraction of the magnet is especially advantageous for thinner materials (from 5,0 mm).
- Inner cable routing – contamination or damage is no longer possible.
- Safety cutoff of the motor in case the magnet fails due to external influences.

The cutting edge is the important thing ...

1. Optimised cutting edge geometry for in-creased cutting performances and reduced cutting forces.
2. The effective cutting angles are designed for universal use in various sorts of steel.
3. Improved removal of chips thanks to U-shaped recesses. The specific geometry of the recess reduces the thermal load on the HSS core drill as the heat created in cutting is removed with the chips to a very great extent.
4. Reduction of the friction between the HSS core drill and the workpiece thanks to optimised spiral-shaped guide chamfers.



RS 10

Vacuum plate Art. no. 108 113

Pipe clamping device 500 Art. no. 108 114

EasyLock RS 10 threaded retainer M14 for core drills with Weldon shank

TC 50,0 mm Threaded retainer

Adapter Art. no. 108 108

Adapter Art. no. 108 115

Drill chuck Art. no. 108 116

Adapter Art. no. 108 126

HSS Co 5ComPact 30,0 mm Weldon shank

HSS-TiAlN 30,0 mm Weldon shank

HSS 30,0 / 50,0 mm Weldon shank

TC 50,0 mm Weldon shank

HSS 15,0 mm/step Weldon shank

TC 50,0 mm Quick IN-shank

HSS Co 5ComPact 50,0 mm Quick IN-shank

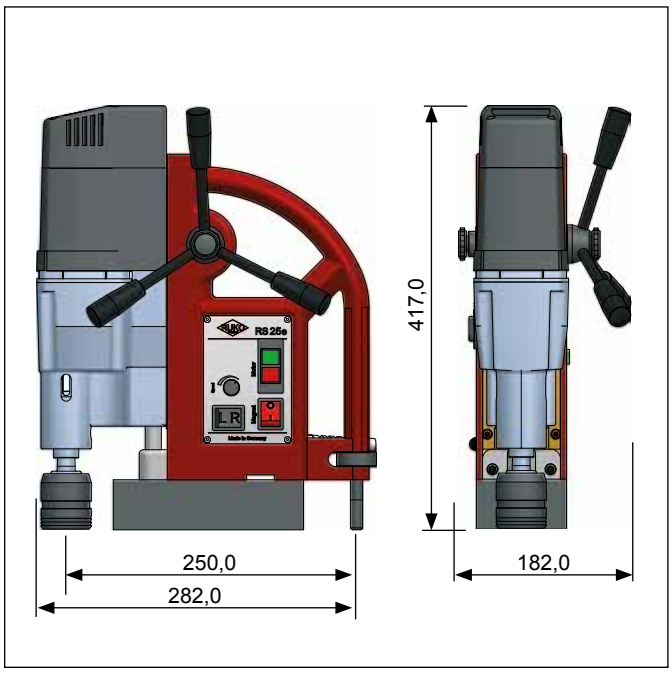
HSS 15,0 mm/step Quick IN-shank

HSS 30,0 mm Quick IN-shank


NEW
1 arbor holder
included!
RUKO
RS 20
Motor
Magnet
Made in Germany

Magnetic-stand drilling machine RS 20 / RSM 20

Technical data:	
Magnetic clamping force RS 20:	**13.000 N**
Magnetic clamping force RSM 20:	**20.800 N**
Total Power consumption:	**1.200 Watt**
Rotation speeds:	**1st gear: 250 r.p.m.**
	2nd gear: 450 r.p.m.
Height:	**408,0 - 598,0 mm**
Lift:	**190,0 mm**
Length and width RS 20:	**190,0 x 90,0 mm**
Length and width RSM 20:	**220,0 x 110,0 mm**
Weight RS 20:	**18,0 kg**
Weight RSM 20:	**26,0 kg**
Adapter:	**Morse taper MT 2**
Drill chuck:	**3,0 - 16,0 mm**
Drilling range:	
Twist drills (DIN 338):	**max. Ø 13,0 mm**
Twist drills (DIN 1897):	**max. Ø 16,0 mm**
Twist drills (DIN 345):	**max. Ø 20,0 mm**
Core drills:	**up to Ø 60,0 mm**
Cutting depth core drills:	**30,0 / 50,0 mm**
Input voltage:	**230 V**
Conformity with:	**VDE, CEE**



Accessories:
1 Plastic tool case 1 Drill drift 1 Drill chuck 3,0 - 16,0 mm article no. 108 117 1 Spike cone MT 2 / B 16 article no. 108 120 1 Cooling bottle including holding device article no. 108 101 1 Safety belt 1 Operating instructions 1 With arbor article no. 108 315 for core drills with Weldon shank

Description	Article no.
Magnetic-stand drilling machine **RS 20**	**108 002 RS**
Magnetic-stand drilling machine **RSM 20**	**108 002 RSM**

Everything from a single source – naturally, from RUKO.

RUKO offers an impressive line of metal core drillers. Our newest generation core drilling machines and our internally developed and produced assortment of core drills gives you ideally coordinated systems.

RUKO – everything from a single source !

Our core drill assortment in TC, HSS and HSS Co**5ComPact** will impress you. RUKO covers a diameter range of Ø 12,0 - 60,0 mm and in certain models even up to Ø 80,0 mm.

Our core drills are available with 19,0 mm Weldon shank, M18 x 6 P1.5 threaded tool holder, 18,0 mm Quick IN-shank and 19,0 mm Nitto-shank. And as always, it's the little things that really round out a very good program.

High-performance motor:

For core drills up to Ø 60,0 mm.

2-speed gearbox

with **hardened precision gear teeth** can be operated with **ergonomic rotary switch.**

Extra support:

The manually adjustable **extra support** boosts the attraction of the magnet.

Ergonomic positioning

of the **motor and the solenoid switch.**

Robust, durable, and lighted

quality switches.

Magnet:

Available with 2 versions of magnet.

Magnetic-stand drilling machine RS 20 / RSM 20

Vacuum plate Art. No. 108 113

Pipe clamping device 500 Art. No. 108 114

Arbor holder
MT 2
Art. no. 108 315

Arbor holder
EasyLock
Art. no. 108 317

Arbor holder
MT 2
Art. no. 108 104

Spike cone
MT 2
Art. no. 108 120

Adapter
Art. no. 108 108

Core drills
HSS / HSS Co 5 / TC
with Weldon shank

Adapter
Art. no. 108 126

Twist drills
DIN 345 HSS
with MT2 shank

Drill chuck
Art. no. 108 117

TC
50,0 mm
Thread retainer

TC
50,0 mm
Quick IN-shank

HSS Co 5COMPACT
50,0 mm
Quick IN-shank

HSS
15,0 mm/step
Quick IN-shank

HSS
30,0 mm
Quick IN-shank

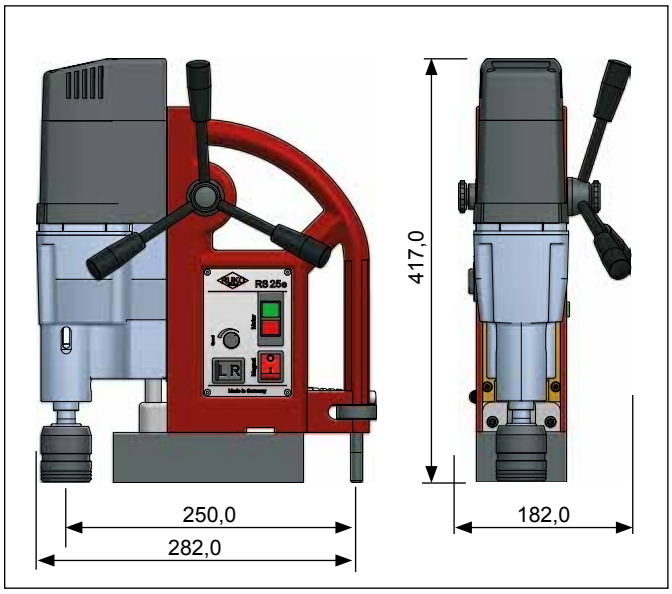
Core drills
HSS / TC
with threaded retainer


NEW
1 arbor holder
included!
RUKO
RS25e
Speed
Motor
LR
Magnet

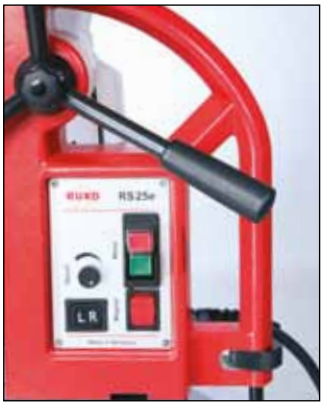
Magnetic-stand drilling machine RS 25e / RSM 25e

Like Magnetic-stand drilling machine RS20 in additional it works clockwise and counter-clockwise and with electronic controlled speed.

Technical data:	
Magnetic clamping force RS 25e:	**13.000 N**
Magnetic clamping force RSM 25e:	**20.800 N**
Total Power consumption:	**1.200 Watt**
Rotation speeds:	**1st gear: 100 - 250 r.p.m.**
	2nd gear: 180 - 450 r.p.m.
Height:	**408,0 - 598,0 mm**
Lift:	**190,0 mm**
Length and width RS 25e:	**190,0 x 90,0 mm**
Length and width RSM 25e:	**220,0 x 110,0 mm**
Weight RS 25e:	**18,0 kg**
Weight RSM 25e:	**26,0 kg**
Adapter:	**Morse taper MT 2**
Drill chuck:	**3,0 - 16,0 mm**
Drilling range:	
Twist drills (DIN 338):	**max. Ø 13,0 mm**
Twist drills (DIN 1897):	**max. Ø 16,0 mm**
Twist drills (DIN 345):	**max. Ø 20,0 mm**
Core drills:	**up to Ø 60,0 mm**
Cutting depth core drills:	**30,0 / 50,0 mm**
Thread cutting:	**up to M 20**
Input voltage:	**230 V**
Conformity with:	**VDE, CEE**



Accessories:
1 Plastic tool case 1 Drill drift 1 Drill chuck 3,0 - 16,0 mm article no. 108 117 1 Spike cone MT 2 / B 16 article no. 108 120 1 Cooling bottle including holding device article no. 108 101 1 Safety belt 1 Operating instructions 1 With arbor article no. 108 315 for core drills with Weldon shank



Description	Article no.
Magnetic-stand drilling machine **RS 25e**	**108 005 RS**
Magnetic-stand drilling machine **RSM 25e**	**108 005 RSM**

The little „e“ that makes a big difference!

With our RS 5*e*, RS 25*e*, RS 30*e* and RS 40*e*, we offer you the most powerful machines in the RUKO line of core drilling machines. These strong motors achieve maximum performance for all applications in this area.

The „e“- models offer you:

- a powerful motor with full wave electronics for speed control.
- electronic control of motor torque (only the RS 40*e*).
- a “soft start” of the machine – easier on machine and tools (only the RS 30*e* + RS 40*e*).
- mechanical slip clutch for overload protection of motor and gearbox (only the RS 30*e* + RS 40*e*).

Extremely long service life due to

internal cable routing.
Contamination or damage is no longer possible!

High-performance motor:

For core drills up to Ø 60,0 mm.

Extra support:

The manually adjustable **extra support** boosts the attraction of the magnet.

2-speed gearbox

with **hardened precision gear teeth** can be operated with **ergonomic rotary switch.**

Ergonomic positioning

of the **motor and the solenoid switch.**

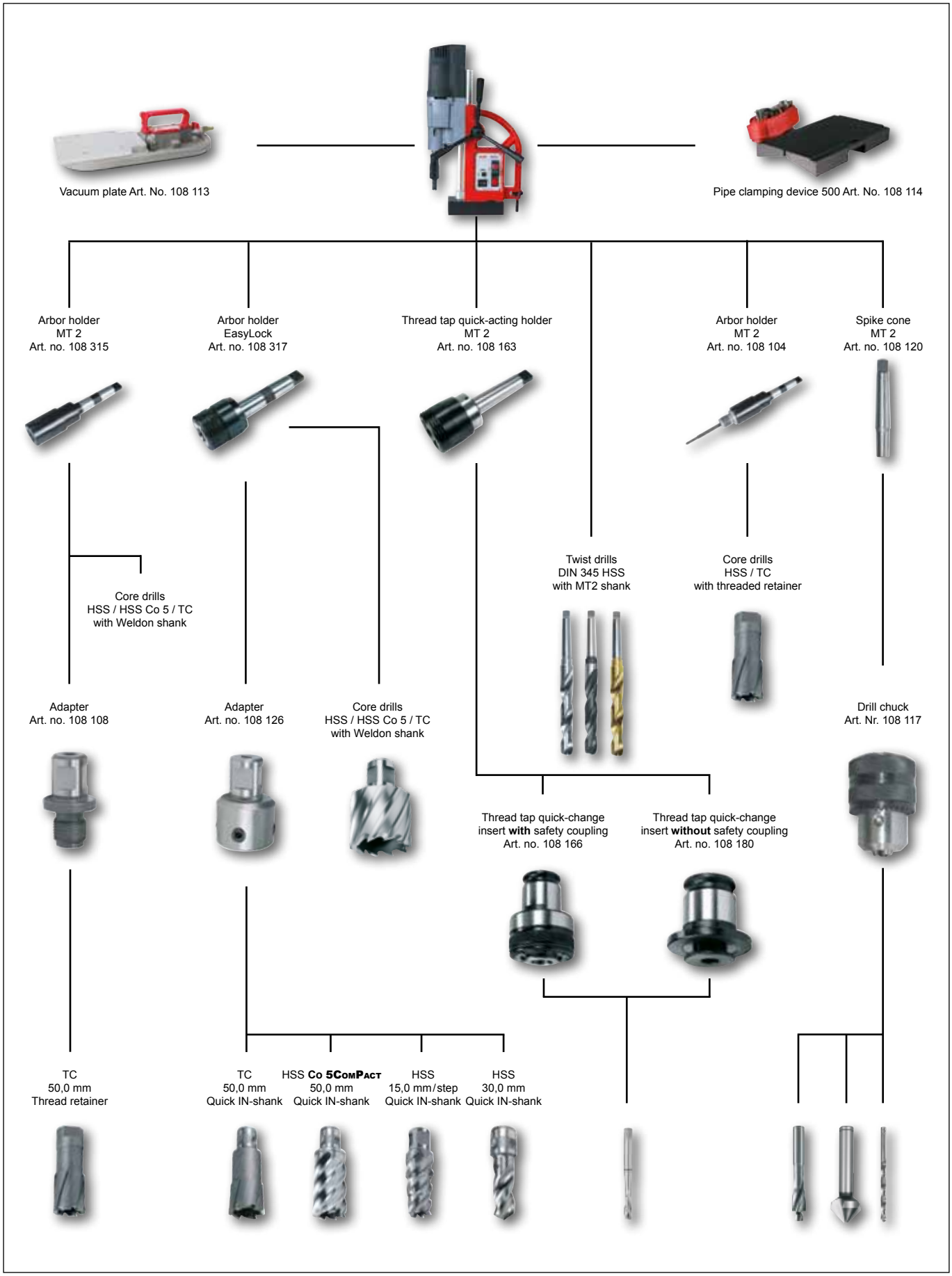
Speed controller:

Continuously variable **speed controller** for optimum adjustment of cutting speed.

Right-/ left-handed rotation:

reversible for threaded cutters up to M 30.

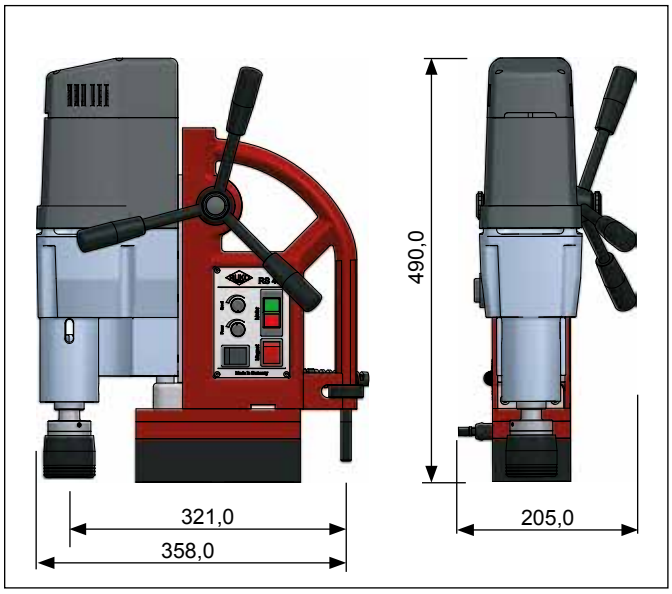
Magnetic-stand drilling machine RS 25e / RSM 25e

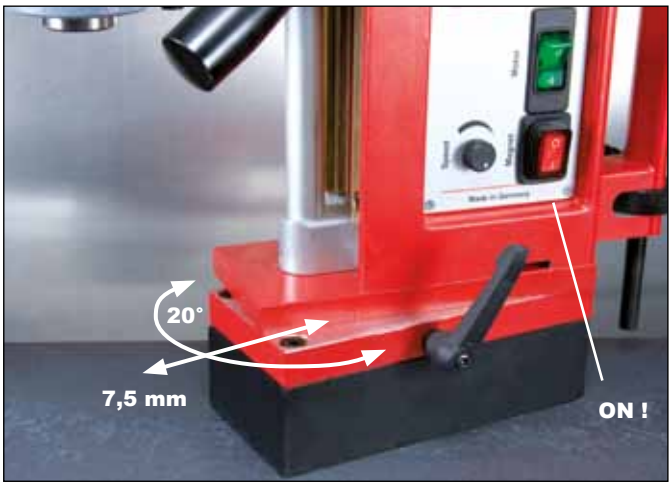



NEW
1 arbor holder
included!
RUKO
RS 30e

Magnetic-stand drilling machine RS30e / RSM30e

Technical data:	
Magnetic clamping force RS30e:	**13.000 N**
Magnetic clamping force RSM30e:	**20.800 N**
Total Power consumption:	**1.840 Watt**
Rotation speeds:	**1st gear: 60 - 140 r.p.m.**
	2nd gear: 200 - 470 r.p.m
Height:	**450,0 - 640,0 mm**
Lift:	**190,0 mm**
Length and width RS30e:	**190,0 x 90,0 mm**
Length and width RSM30e:	**220,0 x 110,0 mm**
Weight RS30e:	**24,0 kg**
Weight RSM30e:	**30,0 kg**
Adapter:	**Morse taper MT 3**
Drill chuck:	**3,0 - 16,0 mm**
Drilling range:	
Twist drills (DIN 338):	**max. Ø 16,0 mm**
Twist drills (DIN 345):	**max. Ø 31,5 mm**
Core drills:	**up to Ø 100,0 mm**
Cutting depth core drills:	**30,0 / 50,0 mm**
Auxiliary controller:	
Turn field:	**+/- 20°**
Moveable field:	**+/- 7,5 mm**
Input voltage:	**230 V**
Conformity with:	**VDE, CEE**





Accessories:
1 Plastic tool case 1 Drill drift 1 Drill chuck 3,0 - 16,0 mm article no. 108 117 1 Spike cone MT 3 / B16 article no. 108 121 1 Cooling bottle including holding device article no. 108 101 1 Safety belt 1 Operating instructions 1 With arbor article no. 108 316 for core drills with Weldon shank

Description	Article no.
Magnetic-stand drilling machine **RS30e**	**108 003 RS**
Magnetic-stand drilling machine **RSM30e**	**108 003 RSM**

Save in the right places:

As a manufacturer of core drilling machines, we know what is important to our customers. The RUKO core drills offer huge savings in both cost and time.

Since the core drills cut only a ring and not the entire inner diameter, like twist drills do, they are much faster. Compared to twist drills, core drills have a drilling time that is up to 10 times shorter.

Core drills do not just cut the face width, but eject the inner core. Reduced energy consumption and less wear result in long service life. Centering, pre-drilling and drilling out are eliminated.

Full wave electronics:

for speed and torque control.

High-performance motor:

For core drills up to Ø 100,0 mm.

2-speed gearbox

with **hardened precision gear teeth** can be operated with **ergonomic rotary switch.**

Extra support:

The manually adjustable **extra support** boosts the attraction of the magnet.

Built-in **electronics**

impervious to supply voltage fluctuations and other disturbing influences.

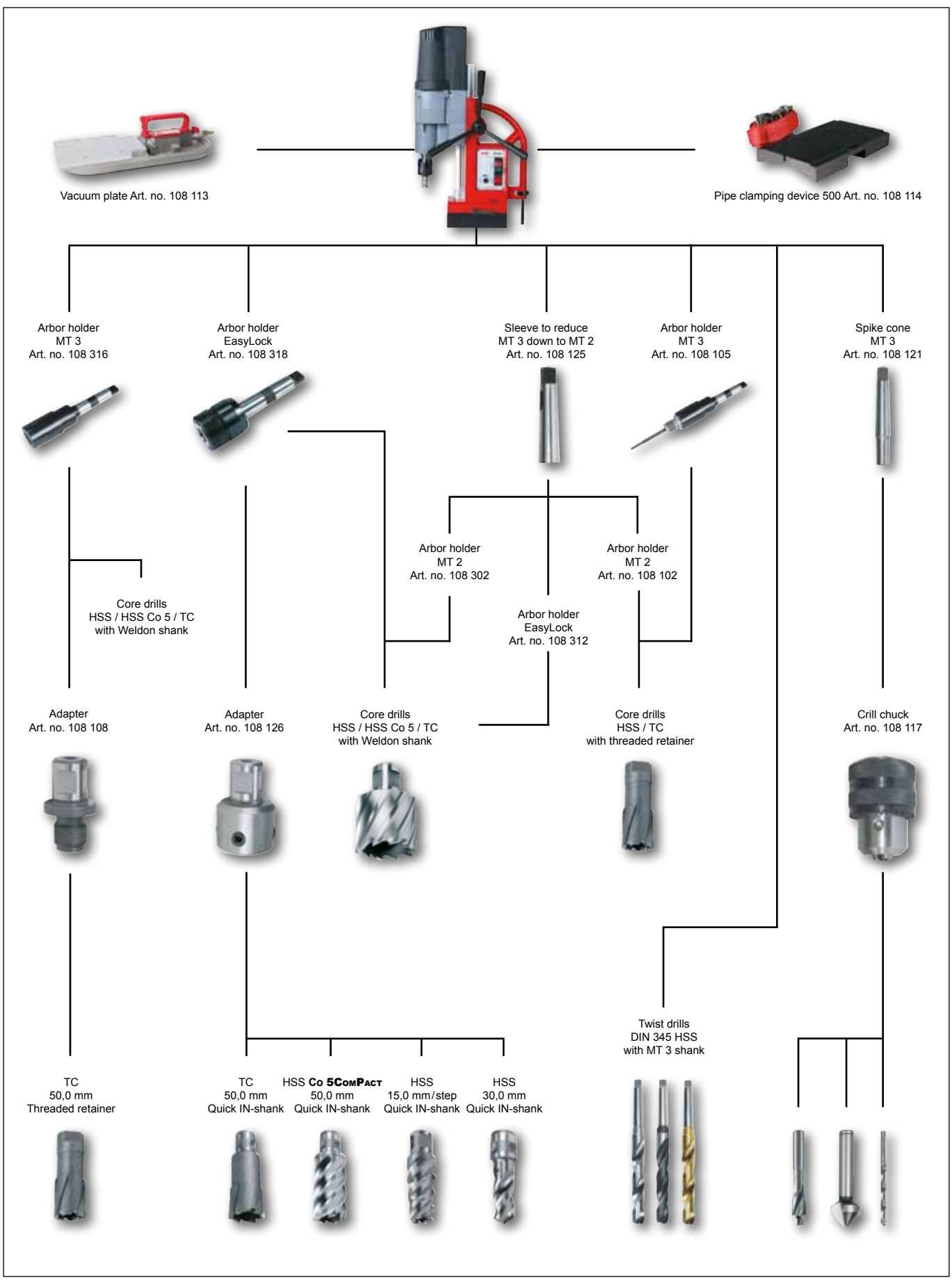
Speed controller:

Continuously variable **speed controller** for optimum adjustment of cutting speed.

Auxiliary controller:

The RUKO **auxiliary controller** enables positioning of 20° and 15,0 mm length with a fixed magnet. Advantage: no tilting of the machine on the magnet. The auxiliary controller is not necessary from an attraction of 20.800 N.

Magnetic-stand drilling machine RS 30e / RSM 30e

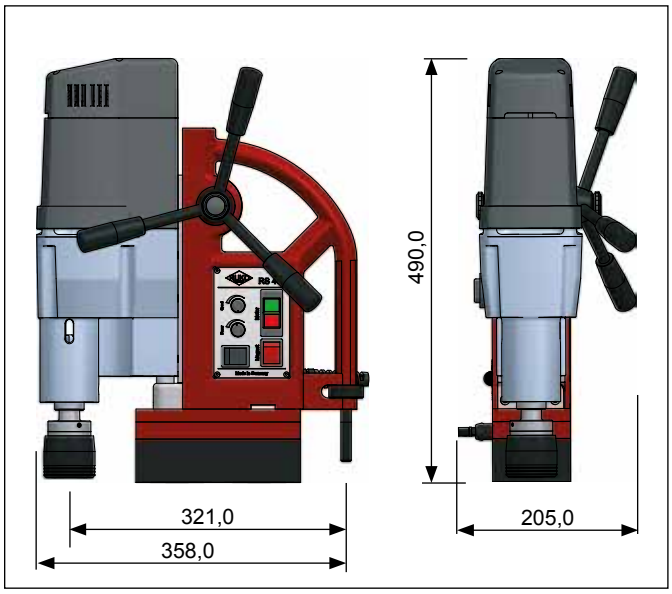



NEW
1 arbor holder
included!
RUKO
RS 40e
LR

Magnetic-stand drilling machine RS40e / RSM40e

Like Magnetic-stand drilling machine RS30e in additional it works clockwise and counter-clockwise and with electronic controlled speed.

Technical data:	
Magnetic clamping force RS40e:	**13.000 N**
Magnetic clamping force RSM40e:	**20.800 N**
Total Power consumption:	**1.840 Watt**
Rotation speeds:	**1st gear: 60 - 140 r.p.m.**
	2nd gear: 200 - 470 r.p.m
Height:	**450,0 - 640,0 mm**
Lift:	**190,0 mm**
Length and width RS40e:	**190,0 x 90,0 mm**
Length and width RSM40e:	**220,0 x 110,0 mm**
Weight RS40e:	**24,0 kg**
Weight RSM40e:	**30,0 kg**
Adapter:	**Morse taper MT 3**
Drill chuck:	**3,0 - 16,0 mm**
Drilling range:	
Twist drills (DIN 338):	**max. Ø 16,0 mm**
Twist drills (DIN 345):	**max. Ø 31,5 mm**
Core drills:	**up to Ø 100,0 mm**
Cutting depth core drills:	**30,0 / 50,0 mm**
Thread cutting:	**up to M 30**
Auxiliary controller:	
Turn field:	**+/- 20°**
Moveable field:	**+/- 7,5 mm**
Input voltage:	**230 V**
Conformity with:	**VDE, CEE**



Accessories:
1 Plastic tool case 1 Drill drift 1 Drill chuck 3,0 - 16,0 mm article no. 108 117 1 Spike cone MT 3 / B16 article no. 108 121 1 Cooling bottle including holding device article no. 108 101 1 Safety belt 1 Operating instructions 1 with arbor article no. 108 316 for core drills with Weldon shank

Description	Article no.
Magnetic-stand drilling machine **RS40e**	**108 004 RS**
Magnetic-stand drilling machine **RSM40e**	**108 004 RSM**

Development and Design

The newest generation of RUKO core drilling machines was developed and manufactured with attention to a variety of considerations, such as ergonomics, design and quality drive systems for high performance.

We do all this to ensure that we can offer our customers the most up-to-date devices with maximum cost-effectiveness.

The magnet was developed based on the latest technological advances. The housing was designed and optimized using simulation of mechanical and dynamic stresses (FEA = Finite Element Analysis).

The result was a new, weight-optimized all-aluminum housing with an ergonomic, compact and modern design that ensures maximum portability for any use.

During the development process our main focus was on achieving a long service life of our machines, as well as the greatest possible benefits for the user.

Full wave electronics:

for speed and torque control.

High-performance motor:

For core drills up to Ø 100,0 mm.

2-speed gearbox

with **hardened precision gear teeth** can be operated with **ergonomic rotary switch.**

Extra support:

The manually adjustable **extra support** boosts the attraction of the magnet.

Speed controller:

Continuously variable **speed controller** for optimum adjustment of cutting speed.

Power-Controller :

Continuously variable **Power-Controller** for adjustment of torque.

Right-/ left-handed rotation:

reversible for threaded cutters up to M 30.

Auxiliary controller :

The RUKO **auxiliary controller** enables positioning of 20° and 15,0 mm length with a fixed magnet. Advantage: no tilting of the machine on the magnet. The auxiliary controller is not necessary from an attraction of 20.800 N.

Magnetic-stand drilling machine RS 40e / RSM 40e

Vacuum plate Art. no. 108 113

Pipe clamping device 500 Art. no. 108 114

Arbor holder
MT 3
Art. no. 108 316

Arbor holder
EasyLock
Art. no. 108 318

Sleeve to reduce
MT 3 down to MT 2
Art. no. 108 125

Arbor holder
MT 3
Art. no. 108 105

Spike cone
MT 3
Art. no. 108 121

Twist drills
DIN 345 HSS
with MT 3 shank

Core drills
HSS / HSS Co 5 / TC
with Weldon shank

Arbor holder
MT 2
Art. no. 108 302

Arbor holder
MT 2
Art. no. 108 102

Arbor holder
EasyLock
Art. no. 108 312

Adapter
Art. no. 108 108

Adapter
Art. no. 108 126

Core drills
HSS / HSS Co 5 / TC
with Weldon shank

Core drills
HSS / TC
with threaded retainer

Thread tap quick-acting
holder MT 3
Art. no. 108 160

Drill chuck
Art. no. 108 117

Thread tap quick-change
insert **with** safety
coupling
Art. no. 108 166

Thread tap quick-change
insert **without** safety
coupling
Art. no. 108 180

TC
50,0 mm
with threaded retainer

TC
50,0 mm
Quick IN-shank

HSS **Co 5ComPact**
50,0 mm
Quick IN-shank

HSS
15,0 mm/step
Quick IN-shank

HSS
30,0 mm
Quick IN-shank

Vacuum clamping plate with compressed air connection for magnetic-stand drilling machine

Length:	400,0 mm (16")
Width:	153,0 mm (6")
Height:	100,0 mm (4")
Weight:	4,6 kg (10.1 lbs)
Pressure at work min.:	4,5 bar (65 PSI)
Pressure at work max.:	8 bar (120 PSI)
Air consumption:	0,06 m³ 2 CFM at 6 bar (85 PSI)

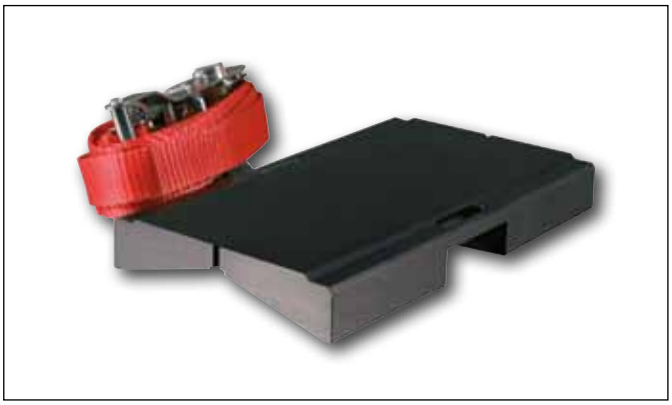
The vacuum clamping plate enables the use of magnetic stand drills on non-magnetic surfaces. In order to achieve the highest possible adhesive force, the application surface should be as free as possible of dust, scale, loose rust and filler. For safety reasons, the vacuum plate should only be used horizontally.

Packing unit:
individual carton

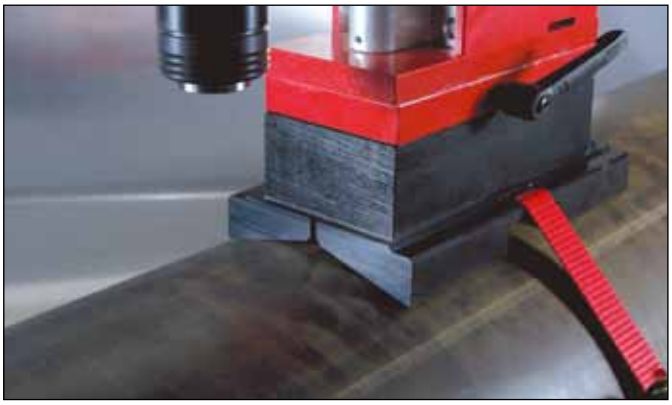
Description	Article no.
Vacuum clamping plate with compressed air connection for magnetic-stand drilling machine	108 113

Pipe clamping device 500 for magnetic-stand drilling machine

Length:	220,0 mm (8.7")
Width:	130,0 mm (5.1")
Height:	28,0 mm (1.1")
Safety belt:	2,0 m (78.7")
Weight:	4,4 kg (9.7 lbs)
Clamping agent:	ratchet



The pipe clamping device enables the use of magnetic stand drills on pipes 50,0 to 500,0 mm in diameter. For saftey reasons, the pipe clamping device should only be used horizontally.



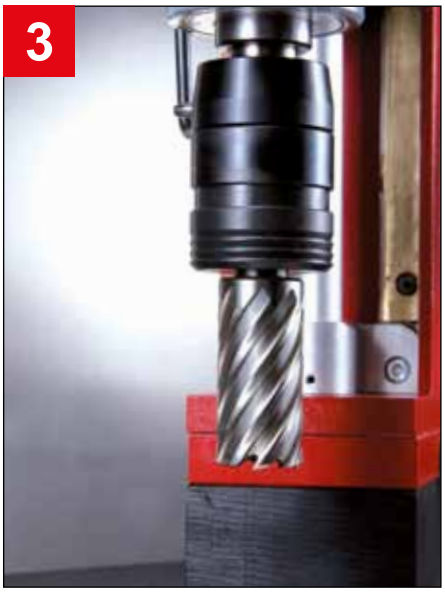
Packing unit:
individual carton

Description	Article no.
Pipe clamping device 500 for magnetic-stand drilling machine	108 114

Automatic EasyLock quick-in arbor for core drills with Weldon shank

The EasyLock quick-in arbor enables a very quick tool change without additional tools.

Can be operated with one hand.



Picture 1: Push the ring spanner up until it sits tight.

Picture 2: Insert the core drill in the EasyLock. This locks in with a loud “click.” The ring spanner snaps down.

Picture 3: The core drill is fixed securely in the EasyLock. The machine is now ready for operation.

Picture 4: To release the core drill, push the ring spanner up.

Picture 5: Caution! The core drill will fall out of the EasyLock.

Automatic EasyLock quick-in arbor for core drills with Weldon shank (3/4")

Packing unit: individual carton

No. 108 314

No. 108 313

No. 108 318

Description	Magnetic-stand drilling machine	Ø Core drills mm	Core drills cutting depth mm	Article no.
EasyLock with thread M 14 and interior cooling	RS 10	10,0 - 35,0	30,0	108 314
EasyLock with morse taper no. 2 shank and cooling bottle article no. 108 101	RS 20 / RS 25*e*	10,0 - 60,0	30,0 / 50,0	108 312
EasyLock with morse taper no. 2 shank and interior cooling	RS 20 / RS 25*e*	10,0 - 60,0	30,0 / 50,0	108 317
EasyLock with morse taper no. 3 shank and cooling bottle article no. 108 101	RS 30*e* / RS 40*e*	10,0 - 60,0	30,0 / 50,0	108 313
EasyLock with morse taper no. 3 shank and interior cooling	RS 30*e* / RS 40*e*	10,0 - 60,0	30,0 / 50,0	108 318

Arbor holders for core drills with Weldon shank (3/4")

Packing unit: individual carton

No. 108 159

No. 108 303

No. 108 316

Description	Magnetic-stand drilling machine	Ø Core drills mm	Core drills cutting depth mm	Article no.
Arbor holder with thread M 14	RS 10	10,0 - 35,0	30,0	108 159
Arbor holder with morse taper no. 2 shank and cooling bottle article no. 108 101	RS 20 / RS 25*e*	10,0 - 60,0	30,0 / 50,0	108 302
Arbor holder with morse taper no. 2 shank and interior cooling	RS 20 / RS 25*e*	10,0 - 60,0	30,0 / 50,0	108 315
Arbor holder with morse taper no. 3 shank and cooling bottle article no. 108 101	RS 30*e* / RS 40*e*	10,0 - 60,0	30,0 / 50,0	108 303
Arbor holder with morse taper no. 3 shank and interior cooling	RS 30*e* / RS 40*e*	10,0 - 60,0	30,0 / 50,0	108 316

Arbor holders for core drills with threaded retainer M18 x 6 P1,5

Packing unit: individual carton

No. 108 103

No. 108 105

Description	Magnetic-stand drilling machine	Ø Core drills mm	Core drills cutting depth mm	Article no.
Arbor holder with morse taper no. 2 shank including cooling bottle article no. 108 101, adapter article no. 108 108 and ejector pin article no. 108 110	RS20 / RS25*e*	12,0 - 80,0	50,0	108 102
Arbor holder with morse taper no. 2 shank and interior cooling including adapter article no. 108 108 and ejector pin article no. 108 110	RS20 / RS25*e*	12,0 - 80,0	50,0	108 104
Arbor holder with morse taper no. 3 shank including cooling bottle article no. 108 101, adapter article no. 108 108 and ejector pin article no. 108 110	RS30*e* / RS40*e*	12,0 - 80,0	50,0	108 103
Arbor holder with morse taper no. 3 shank and interior cooling including adapter article no. 108 108 and ejector pin article no. 108 110	RS30*e* / RS40*e*	12,0 - 80,0	50,0	108 105

Ejector pins for core drills

Packing unit: individual plastic pack

Description	Core drills cutting depth mm	Article no.
Ejector pin Ø 6,35 x 95,0 mm for step core drills HSS with Weldon- (¾") and Quick IN-shank	15,0	108 310
Ejector pin Ø 8,0 x 81,0 mm for core drills TC with Weldon shank (¾") for railway tracks	25,0	108 1510
Ejector pin Ø 6,35 x 77,0 mm for core drills HSS with Weldon shank (¾")	30,0	108 304
Ejector pin Ø 6,35 x 70,0 mm for angle core drilling machine RS5*e* und core drills HSS with Weldon shank (¾")	30,0	108 344
Ejector pin Ø 6,35 x 87,0 mm for core drills HSS / TC with Quick IN-shank	35,0	108 306
Ejector pin Ø 6,35 x 102,0 mm for core drills HSS with Weldon shank (¾")	50,0	108 305
Ejector pin Ø 6,35 x 123,0 mm for core drills HSS / TC with Weldon- (¾") and Quick IN-shank	50,0 + adapter	108 110
Ejector pin Ø 8,0 x 112,0 mm for core drills TC with Weldon shank (¾")	50,0	108 701
Ejector pin Ø 8,0 x 160,0 mm for core drills HSS with Weldon shank (¾")	**110,0**	**108 2000**

Adapter for magnetic-stand drilling machine

Packing unit: individual plastic pack

No. 108 108

No. 108 126

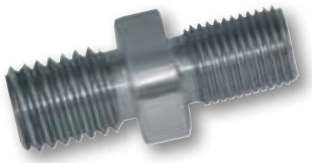
No. 108 111

No. 108 118

Description	Magnetic-stand drilling machine	Article no.
Adapter with thread retainer M18 x 6 P1,5 for core drills with Weldon shank 3/4"	RS10 / RS20 / RS25e / RS30e / RS40e	108 107
Adapter with Weldon shank 3/4" for core drills with thread retainer M18 x 6 P1,5	RS10 / RS20 / RS25e / RS30e / RS40e	108 108
Adapter with Weldon shank 3/4" for core drills with Quick IN-shank	RS10 / RS20 / RS25e / RS30e / RS40e	108 126
Adapter with Quick IN-shank for core drills with thread retainer M18 x 6 P1,5	with Quick IN-retainer	108 111
Adapter with Quick IN-shank for core drills with Weldon shank 3/4"	with Quick IN-retainer	108 118
Adapter with Nitto-shank for core drills with Weldon shank 3/4"	with Nitto-retainer	108 190
Adapter with Weldon shank 3/4" for core drills with Nitto-shank	RS10 / RS20 / RS25e / RS30e / RS40e	108191

Drill chuck and accessories for magnetic-stand drilling machine

Packing unit: individual plastic pack



No. 108 115

No. 108 109

No. 108 120

Description	Magnetic-stand drilling machine	Article no.
Drill chuck with thread retainer 1/2" UNF for clamp field Ø 1,5 - 13,0 mm	RS10	108 116
Drill chuck with B16 cone for clamp field Ø 3,0 - 16,0 mm	RS20 / RS25e / RS30e / RS40e	108 117
Adapter with Weldon shank 3/4" for drill chuck article no. 108 116	RS10	108 109
Adapter with thread M14 for drill chuck article no. 108 116	RS10	108 115
Spike cone with morse taper no. 2 shank for drill chuck article no. 108 117	RS20 / RS25e	108 120
Spike cone with morse taper no. 3 shank for drill chuck article no. 108 117	RS30e / RS40e	108 121
Sleeve to reduce morse taper 3 down to morse taper 2	RS30e / RS40e	108 125
Sleeve to reduce morse taper 3 down to morse taper 1	RS30e / RS40e	108 124

Thread tap quick-acting holder and quick-change inserts for magnetic-stand drilling machine

Packing unit: individual plastic pack

Description	Magnetic-stand drilling machine	Article no.
Quick-acting holder with morse taper no. 2 shank and - 5,0 / + 10,0 mm length compensation for thread taps	RS 25e	108 163
Quick-acting holder with morse taper no. 3 shank and + / - 10,0 mm length compensation for thread taps	RS 40e	108 160

No. 108 163

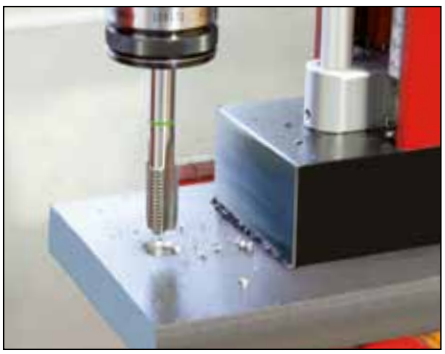
Description	For thread tap Ø-shank mm	Article no. **with** safety coupling	Article no. **without** safety coupling
Quick-change insert	6,0	108 166	108 180
Quick-change insert	7,0	108 167	108 181
Quick-change insert	8,0	108 168	108 182
Quick-change insert	9,0	108 169	108 183
Quick-change insert	10,0	108 170	108 184
Quick-change insert	11,0	108 171	108 185
Quick-change insert	12,0	108 172	108 186
Quick-change insert	14,0	108 173	108 187
Quick-change insert	16,0	108 174	108 188
Quick-change insert	18,0	108 175	108 189

No. 108 166

No. 108 180

Overview of thread tap shaft diameters

Ø-shank mm	DIN 352 Nominal thread size	DIN 357 / DIN 376 Nominal thread size	DIN 371 Nominal thread size	UNC / UNF ≈ DIN 371 Nominal thread size
6,0	M 4,5 - M 8	M 8	M 5 / M 6	No. 10 / No. 12 / 1/4"
7,0	M 9 / M 10	M 9 / M 10	M 7	
8,0	M 11	M 11	M 8	5/16"
9,0	M 12	M 12	M 9	
10,0			M 10	3/8"
11,0	M 14	M 14		
12,0	M 16	M 16		
14,0	M 18	M 18		
16,0	M 20	M 20		
18,0	M 22 / M 24	M 22 / M 24		



Ø-shank mm	DIN 374 Nominal thread size	UNC / UNF ≈ DIN 376 Nominal thread size	DIN 5156 Nominal thread size	DIN 40433 Nominal thread size
6,0	MF 8		G 1/8"	PG 7
7,0	MF 10			
8,0		7/16"		
9,0	MF 12	1/2"		PG 9
10,0				
11,0	MF 14	9/16"	G 1/4"	PG 11
12,0	MF 16	5/8"	G 3/8"	PG 13,5
14,0	MF 18	3/4"		
16,0	MF 20		G 1/2"	
18,0	MF 22 / MF 24	7/8" / 1"		PG 21

Magnetic chip lifter

The RUKO magnetic chip lifter attracts metal chips thanks to its strong magnet. Pulling back the magnet into its housing simply allows the chips to drop off again. Ideal for removing the chips on magnetic-stand drilling machines and difficult to reach areas.

Packing unit: individual plastic pack

Description	Article no.
Magnetic chip lifter, 400 mm	**108 202**

Ratchet for RS 4 / RS 5e

Suitable instead of star grip in cramped space conditions.

Packing unit: individual plastic pack

Description	Article no.
Ratchet for RS4 / RS5e 3/8" square	**108 205**

Adapter for magnetic-stand drilling machines as an addition to using a ratchet

Packing unit: individual plastic pack

Description	Article no.
Adapter small, fits magnetic-stand drilling machines RS4 / RS5e / RS10	**108 164**
Adapter large, fits magnetic-stand drilling machines RS20 / RS25e / RS30e / RS40e	**108 165**

Adapter for thread taps with Weldon shank (3/4") in magnetic-stand drilling machines RS25e and RS40e

Packing unit: individual plastic pack

Thread tap	DIN	For thread tap Ø-shank mm	Square mm	Article no.
M 8	DIN 376	6,0		**108 192**
M 10	DIN 376	7,0	5,5	**108 193**
M 12	DIN 376	9,0	7,0	**108 194**
M 14	DIN 376	11,0	9,0	**108 195**
M 16	DIN 376	12,0	9,0	**108 196**

Thread tap	DIN	For thread tap Ø-shank mm	Square mm	Article no.
M 18	DIN 376	14,0	11,0	**108 197**
M 20	DIN 376	16,0	12,0	**108 198**
M 22 / M 24	DIN 376	18,0	14,5	**108 199**
M 27	DIN 376	20,0	16,0	**108 200**
M 30	DIN 376	22,0	18,0	**108 201**

Splash guard for magnetic-stand drilling machines

Packing unit: individual plastic pack

Description	Article no.
Splash guard large, fits magnetic-stand drilling machines RS30e and RS40e	**108 203**
Splash guard small, fits magnetic-stand drilling machines RS4 / RS5e / RS10 / RS20 /RS25e	**108 204**

Cooling bottles

Packing unit: individual carton

Description	Article no.
Cooling-spray bottle, 500 ml	108 101
Cooling bottle with regulating tap, 500 ml	108 122

No. 108 101

No. 108 122

Arbor holders for M 27 and M 30 thread taps in magnetic-stand drilling machine RS40e

Packing unit: individual plastic pack

Description	Article no.
MT 3 arbor holder for M 27 thread taps	108 161
MT 3 arbor holder for M 30 thread taps	108 162

No. 108 161

Coolants and lubricants

The RUKO coolants and lubricants provide an outstanding separation and cooling effect. They generate a high surface quality and increase the service life of the tools, even with hard and brittle materials.

Suitably aligned to our product range, you will find the new series of coolants and lubricants in our new section 4.01 from page 293.

Grinding machine for core drills 1250 for subsequent grinding of core drills

Length:	410,0 mm (16.14")	Travel	
Width:	412,0 mm (16.22")	Motor block:	75,0 mm (2.95")
Height without optics:	390,0 mm (15.35")	Travel	
Height with optics:	460,0 mm (18.11")	Pilot block:	215,0 mm (8.46")
Weight:	ca. 29,0 kg (64 lbs)	Noise emission:	<70 dBa
Connection:	230 volt 50/60 Hz	Starting time	
Motor:	230 volt, 0,12 kW, 2.800 rpm	grinding wheel:	about 10 sec.
		Adapter:	weldon 19,0 mm ($^3/_4$")

- ✓ Quick and simple handling
- ✓ Grinding angle infinitely adjustable
- ✓ For core drills from Ø 12,0 to 100,0 mm
- ✓ For core drills of HSS
- ✓ Adjustable for core drills with 4 - 5 - 6 - 7 - 8 - 9 - 10 - 12 cutting edges
- ✓ With laser adjustment aid

Packing unit: individual carton

Description	Article no.
Grinding machine for core drills 1250 + 1 diamond grinding wheel, 3-sided, with radius for faces + 1 diamond grinding wheel, 2-sided, for tooth back + 1 optical system with neon light + 1 T 8 part disk for core drill with 4 or 8 cutting edges + 1 T 10 part disk for core drills with 5 or 10 cutting edges	104 080

Accessories for core drill grinding machine 1250

Packing unit: individual carton

Description	Article no.
Optical system with neon light	104 081
Diamond grinding wheel, 3-sided, with radius for faces	104 082
Diamond grinding wheel, 2-sided, for tooth back	104 083
T 6 part disk for core drill with 6 cutting edges	104 084
T 7 part disk for core drill with 7 cutting edges	104 085
T 8 part disk for core drill with 4 or 8 cutting edges	104 086
T 9 part disk for core drill with 9 cutting edges	104 087
T 10 part disk for core drills with 5 or 10 cutting edges	104 088
T 12 part disk for core drills with 6 or 12 cutting edges	104 089

No. 104 081

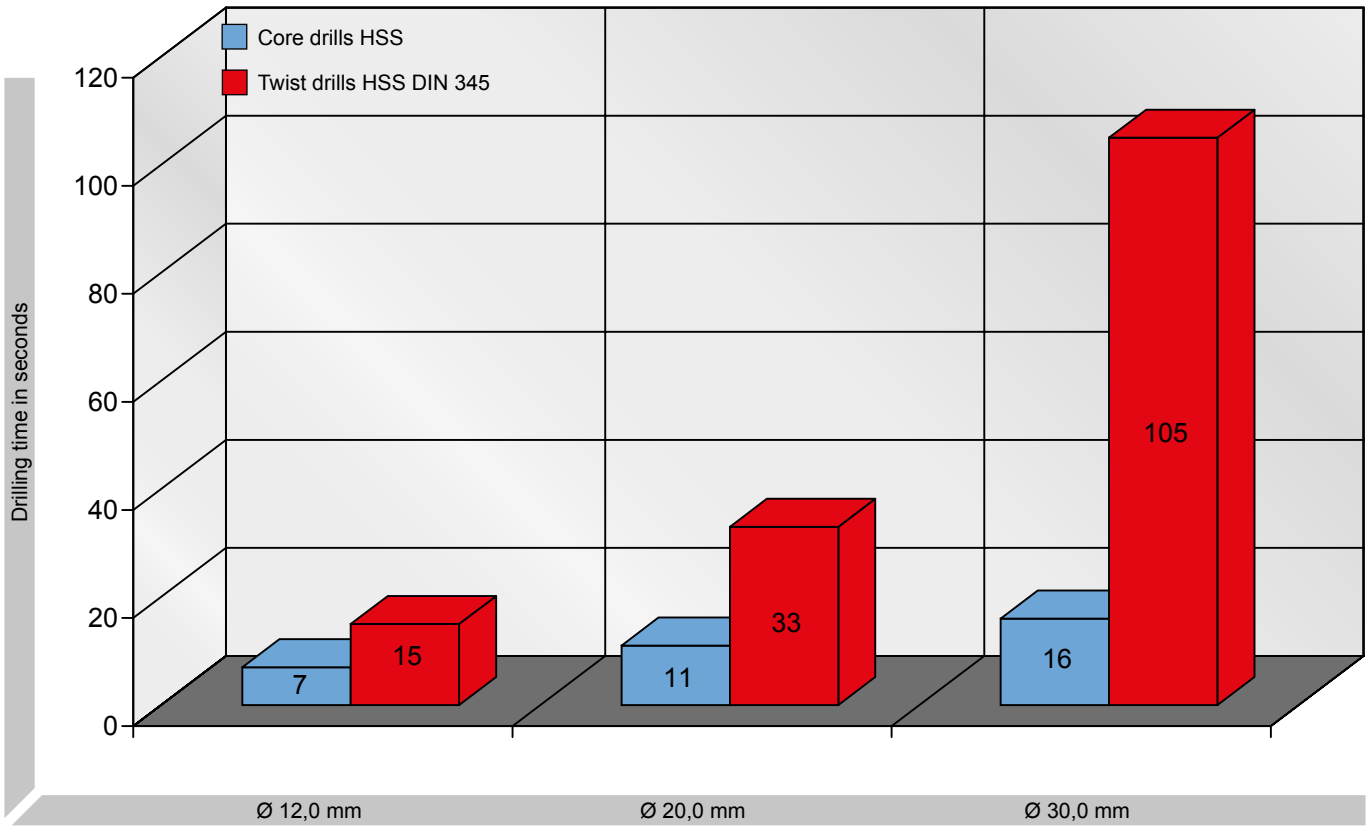
No. 104 082

No. 104 087

Comparison cutting times core drills HSS - twist drills HSS DIN 345

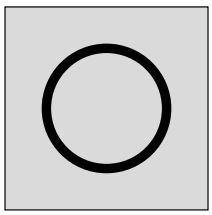
Work piece: steel girder
Material: construction steel St 37 - 2
Cutting depth: 12,0 mm

Machine: RUKO Magnetic-stand drilling machine R 30
Cutting with twist drills has been made without pilot drilling directly into the material.
No cooling or lubrication has been used.

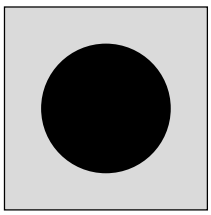


RUKO core drills will save you costs and time. As core drills only cut the width of the teeth and as twist drills cut the entire diameter of the hole, core drills are many times faster (see diagram). Centering and pilot drilling are not necessary anymore.

Cutting volume with:



Core drills



Twist drills

Core drills cut up to ten timesfaster than twist drills. Core drills only cut the width of the teeth. The core is ejected. Lower energy requirements and less wear result in a longer working life.

Twist drills have to machine the entire diameter of the hole. This calls for considerable downward pressure and high driving power.

Recommended cutting speeds for tungsten-carbide core drills

Material:		High carbon struc. steel up to 700 N/mm²	Alloyed steel up to 1000 N/mm²	Cast iron over 250 N/mm²	CuZn-alloy brittle	CuZn-alloy tough	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics
Vc = m/min		50	35	40	60	40	60	45	40
Coolant:		Cutting spray	Cutting spray	Compressed air	Compressed air	Compressed air	Cutting spray	Water	Compressed air
Ø mm	Ø inch	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
12,0	15/32	1327	929	1062	1592	265	1592	1194	1062
13,0	33/64	1225	857	980	1470	245	1470	1102	980
14,0	35/64	1137	796	910	1365	227	1365	1024	910
15,0	19/32	1062	743	849	1274	212	1274	955	849
16,0	5/8	995	697	796	1194	199	1194	896	796
17,0	34/64	937	656	749	1124	187	1124	843	749
18,0	45/64	885	619	708	1062	177	1062	796	708
19,0	3/4	838	587	670	1006	168	1006	754	670
20,0	25/32	796	557	637	955	159	955	717	637
21,0	3/4	758	531	607	910	152	910	682	607
22,0	7/8	724	507	579	869	145	869	651	579
23,0	13/16	692	485	554	831	138	831	623	554
24,0	15/16	663	464	531	796	133	796	597	531
25,0	63/64	637	446	510	764	127	764	573	510
26,0	1 1/32	612	429	490	735	122	735	551	490
27,0	1 1/16	590	413	472	708	118	708	531	472
28,0	1 3/32	569	398	455	682	114	682	512	455
29,0	1 9/64	549	384	439	659	110	659	494	439
30,0	1 3/16	531	372	425	637	106	637	478	425
31,0	1 7/32	514	360	411	616	103	616	462	411
32,0	1 17/64	498	348	398	597	100	597	448	398
33,0	1 19/64	483	338	386	579	97	579	434	386
34,0	1 11/32	468	328	375	562	94	562	422	375
35,0	1 3/8	455	318	364	546	91	546	409	364
36,0	1 27/64	442	310	354	531	88	531	398	354
37,0	1 29/64	430	301	344	516	86	516	387	344
38,0	1 1/2	419	293	335	503	84	503	377	335
39,0	1 17/32	408	286	327	490	82	490	367	327
40,0	1 37/64	398	279	318	478	80	478	358	318
41,0	1 39/64	388	272	311	466	78	466	350	311
42,0	1 21/32	379	265	303	455	76	455	341	303
43,0	1 11/16	370	259	296	444	74	444	333	296
44,0	1 47/64	362	253	290	434	72	434	326	290
45,0	1 25/32	354	248	283	425	71	425	318	283
46,0	1 13/16	346	242	277	415	69	415	312	277
47,0	1 55/64	339	237	271	407	68	407	305	271
48,0	1 57/64	332	232	265	398	66	398	299	265
49,0	1 15/16	325	227	260	390	65	390	292	260
50,0	1 31/32	318	223	255	382	64	382	287	255
51,0	2	312	219	250	375	62	375	281	250
52,0	2 3/64	306	214	245	367	61	367	276	245
53,0	2 3/32	300	210	240	361	60	361	270	240
54,0	2 1/8	295	206	236	354	59	354	265	236
55,0	2 5/32	290	203	232	347	58	347	261	232
60,0	2 3/8	265	186	212	318	53	318	239	212
61,0	2 13/32	261	183	209	313	52	313	235	209
65,0	2 9/16	245	171	196	294	49	294	220	196
68,0	2 43/64	234	164	187	281	47	281	211	187
70,0	2 3/4	227	159	182	273	45	273	205	182
71,0	2 51/64	224	157	179	269	45	269	202	179
75,0	2 61/64	212	149	170	255	42	255	191	170
80,0	3 5/32	199	139	159	239	40	239	179	159
85,0	3 11/32	187	131	150	225	37	225	169	150
90,0	3 35/64	177	124	142	212	35	212	159	142
95,0	3 47/64	168	117	134	201	34	201	151	134
100,0	3 15/16	159	111	127	191	32	191	143	127

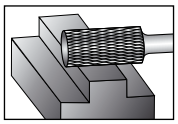
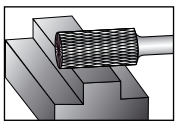
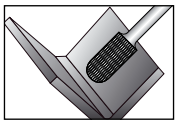
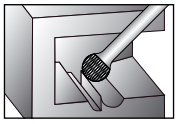
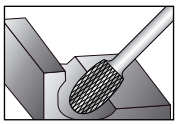
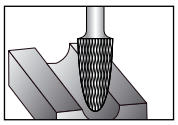
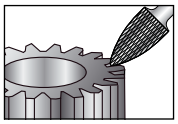
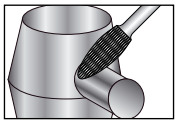
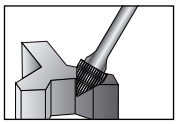
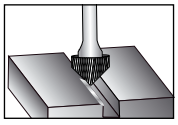
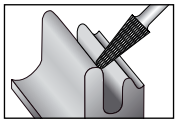
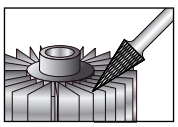
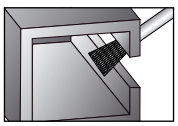
Recommended cutting speeds for HSS core drills

Material:		High carbon struc. steel up to 700 N/mm²	Alloyed steel up to 1000 N/mm²	Cast iron over 250 N/mm²	CuZn-alloy brittle	CuZn-alloy tough	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics
Vc = m/min		30	20	10	60	35	30	20	15
Coolant:		Cutting spray	Cutting spray	Compressed air	Compressed air	Compressed air	Cutting spray	Water	Compressed air
Ø mm	Ø inch	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
12,0	15/32	796	531	265	1592	929	796	531	398
13,0	33/64	735	490	245	1470	857	735	490	367
14,0	35/64	682	455	227	1365	796	682	455	341
15,0	19/32	637	425	212	1274	743	637	425	318
16,0	5/8	597	398	199	1194	697	597	398	299
17,0	43/64	562	375	187	1124	656	562	375	281
18,0	45/64	531	354	177	1062	619	531	354	265
19,0	3/4	503	335	168	1006	587	503	335	251
20,0	25/32	478	318	159	955	557	478	318	239
21,0	53/64	455	303	152	910	531	455	303	227
22,0	7/8	434	290	145	869	507	434	290	217
23,0	29/32	415	277	138	831	485	415	277	208
24,0	15/16	398	265	133	796	464	398	265	199
25,0	63/64	382	255	127	764	446	382	255	191
26,0	1 1/32	367	245	122	735	429	367	245	184
27,0	1 1/16	354	236	118	708	413	354	236	177
28,0	1 3/32	341	227	114	682	398	341	227	171
29,0	1 9/64	329	220	110	659	384	329	220	165
30,0	1 3/16	318	212	106	637	372	318	212	159
31,0	1 7/32	308	205	103	616	360	308	205	154
32,0	1 17/64	299	199	100	597	348	299	199	149
33,0	1 19/64	290	193	97	579	338	290	193	145
34,0	1 11/32	281	187	94	562	328	281	187	141
35,0	1 3/8	273	182	91	546	318	273	182	136
36,0	1 27/64	265	177	88	531	310	265	177	133
37,0	1 29/64	258	172	86	516	301	258	172	129
38,0	1 1/2	251	168	84	503	293	251	168	126
39,0	1 17/32	245	163	82	490	286	245	163	122
40,0	1 37/64	239	159	80	478	279	239	159	119
41,0	1 39/64	233	155	78	466	272	233	155	117
42,0	1 21/32	227	152	76	455	265	227	152	114
43,0	1 11/16	222	148	74	444	259	222	148	111
44,0	1 47/64	217	145	72	434	253	217	145	109
45,0	1 25/32	212	142	71	425	248	212	142	106
46,0	1 13/16	208	138	69	415	242	208	138	104
47,0	1 55/64	203	136	68	407	237	203	136	102
48,0	1 57/64	199	133	66	398	232	199	133	100
49,0	1 15/16	195	130	65	390	227	195	130	97
50,0	1 31/32	191	127	64	382	223	191	127	96
51,0	2	187	125	62	375	219	187	125	94
52,0	2 3/64	184	122	61	367	214	184	122	92
53,0	2 3/32	180	120	60	361	210	180	120	90
54,0	2 1/8	177	118	59	354	206	177	118	88
55,0	2 5/32	174	116	58	347	203	174	116	87
60,0	2 3/8	159	106	53	318	186	159	106	80

RUKO

ROTARY BURRS

Product information

DIN 8033 ZYA	A		Shape A cylinder (ZYA) without end toothing	
DIN 8033 ZYA	A		Shape A cylinder (ZYA) with end toothing	
DIN 8033 WCR	C		Shape C oval (WRC)	
DIN 8033 KUD	D		Shape D ball type (KUD)	
DIN 8033 TRE	E		Shape E tear drop (TRE)	
DIN 8033 RBF	F		Shape F ball nose tree (RBF)	
DIN 8033 SPG	G		Shape G tree (SPG)	
DIN 8033 FLH	H		Shape H flame (FLH)	
DIN 8033 KSJ	J		Shape J cone 60° (KSJ)	
DIN 8033 KSK	K		Shape K cone 90° (KSK)	
DIN 8033 KEL	L		Shape L round cone (KEL)	
DIN 8033 SKM	M		Shape M cone (SKM)	
DIN 8033 WKN	N		Shape N angle (WKN)	

Product information

The high-performance tungsten carbide rotary burrs provide maximum cutting edge stability with a simultaneous high tenacity of the cutting edge.

Tungsten carbide rotary burrs Alu

High-performance tungsten carbide rotary burrs with aluminium toothing.

Fields of application: non-ferrous metals, aluminium, brass, copper, zinc, diecasts and plastics. To debur, break edges, trim and surface processing.

Tungsten carbide rotary burrs TC

High-performance tungsten carbide rotary burrs with cross toothing.

The cross toothing provides a higher cutting capacity compared with the simple toothing. This particularly has a positive effect on materials which are difficult to cut.

Fields of application: for high-alloy steels, non-rusting steels, acid-resistant steels, heat-resistant steels, diecasts and plastics. To debur, break edges, trim, process welding seams, surface processing.

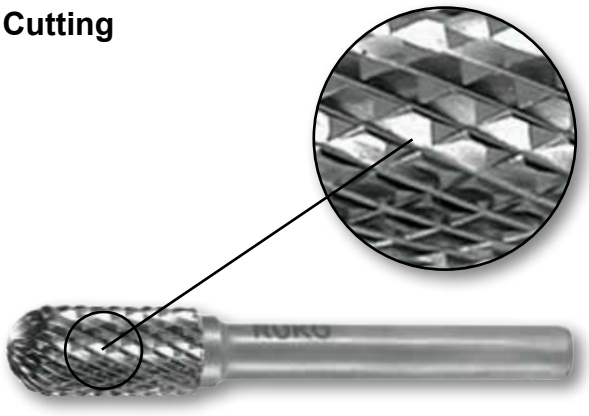
Tungsten carbide rotary burrs TiCN

Like tungsten carbide rotary burrs TC with titanium carbon nitride coating.

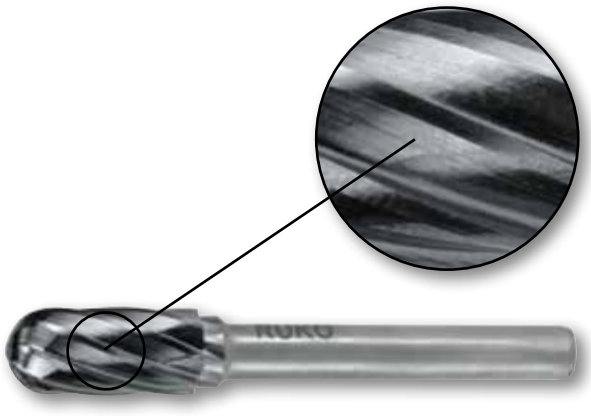
The TiCN wear-resistant coating increases the surface hardness of the tool to approx. 3,000 HV / micro-hardness and the heat resistance to 400° C.
This increases service life and productivity.

Fields of application: for high-alloy steels, non-rusting steels, acid-resistant steels, heat-resistant steels, diecasts and plastics. To debur, break edges, trim, process welding seams, surface processing.

Cutting



With cross toothing

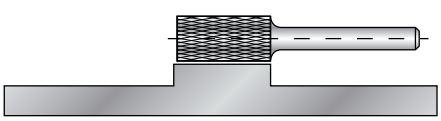


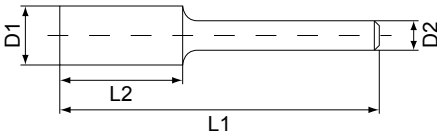
With aluminium toothing

Tungsten carbide rotary burrs TC / TiCN
shape A cylinder (ZYA) without end toothing

Finish: shape A cylinder (ZYA) without end toothing
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating

Packing unit:
each in plastic packaging



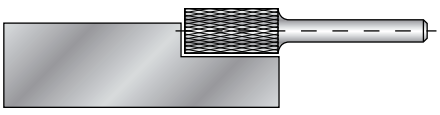


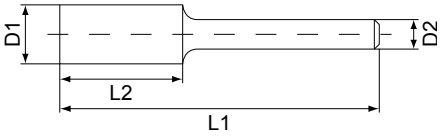
Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	14,0	38,0	3,0	—	116 046	—
6,0	18,0	58,0	6,0	—	116 010	116 010 TC
8,0	18,0	60,0	6,0	—	116 011	116 011 TC
10,0	20,0	60,0	6,0	—	116 012	116 012 TC
12,0	25,0	65,0	6,0	—	116 013	116 013 TC
16,0	25,0	65,0	6,0	—	116 014	116 014 TC

Tungsten carbide rotary burrs Alu / TC / TiCN
shape A cylinder (ZYA) with end toothing

Finish: shape A cylinder (ZYA) with end toothing
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating

Packing unit:
each in plastic packaging

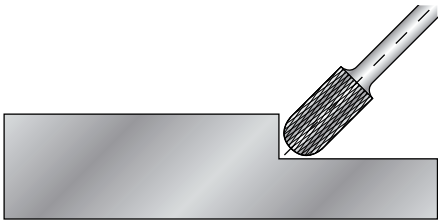


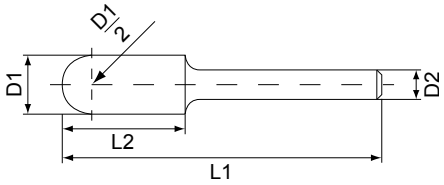


Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	14,0	38,0	3,0	—	116 047	—
6,0	18,0	58,0	6,0	116 015 A	116 015	116 015 TC
8,0	18,0	60,0	6,0	—	116 016	116 016 TC
10,0	20,0	60,0	6,0	—	116 017	116 017 TC
12,0	25,0	65,0	6,0	116 018 A	116 018	116 018 TC
16,0	25,0	65,0	6,0	—	116 019	116 019 TC

Tungsten carbide rotary burrs Alu / TC / TiCN shape C oval (WRC)

Finish: shape C oval (WRC)
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating



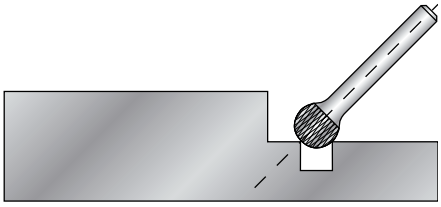


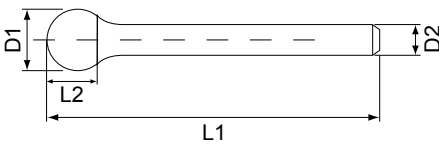
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	14,0	38,0	3,0	—	116 048	—
6,0	18,0	56,0	6,0	116 020 A	116 020	116 020 TC
8,0	18,0	60,0	6,0	—	116 021	116 021 TC
10,0	20,0	60,0	6,0	—	116 022	116 022 TC
12,0	25,0	65,0	6,0	116 023 A	116 023	116 023 TC
16,0	25,0	65,0	6,0	—	116 024	116 024 TC

Tungsten carbide rotary burrs Alu / TC / TiCN shape D ball type (KUD)

Finish: shape D ball type (KUD)
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating





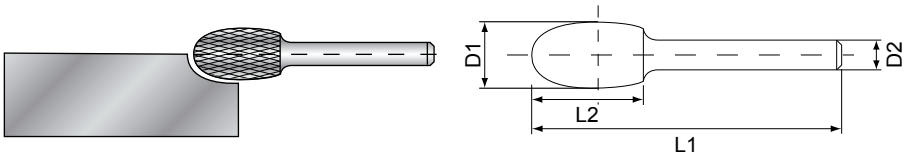
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	2,7	38,0	3,0	—	116 052	—
6,0	5,0	56,0	6,0	116 041 A	116 041	116 041 TC
8,0	7,0	47,0	6,0	—	116 042	116 042 TC
10,0	9,0	49,0	6,0	—	116 043	116 043 TC
12,0	11,0	51,0	6,0	116 044 A	116 044	116 044 TC
16,0	15,0	54,0	6,0	—	116 045	116 045 TC

Tungsten carbide rotary burrs TC / TiCN shape E tear drop (TRE)

Finish: shape E tear drop (TRE)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating

Packing unit:
each in plastic packaging

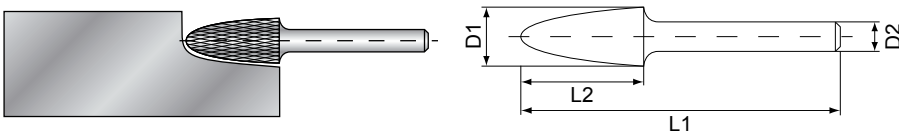


Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	6,0	38,0	3,0	—	116 210	—
6,0	10,0	50,0	6,0	—	116 211	116 211 TC
8,0	15,0	60,0	6,0	—	116 212	116 212 TC
10,0	16,0	60,0	6,0	—	116 213	116 213 TC
12,0	22,0	67,0	6,0	—	116 214	116 214 TC
16,0	25,0	70,0	6,0	—	116 215	116 215 TC

Tungsten carbide rotary burrs Alu / TC / TiCN shape F ball nose tree (RBF)

Finish: shape F ball nose tree (RBF)
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating

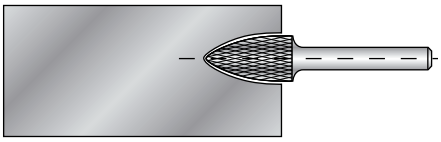
Packing unit:
each in plastic packaging

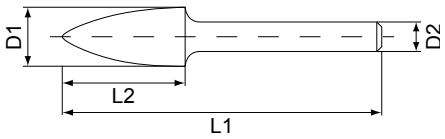


Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	13,0	38,0	3,0	—	116 050	—
6,0	18,0	58,0	6,0	116 030 A	116 030	116 030 TC
8,0	18,0	60,0	6,0	—	116 031	116 031 TC
10,0	20,0	60,0	6,0	—	116 032	116 032 TC
12,0	25,0	65,0	6,0	116 033 A	116 033	116 033 TC
16,0	25,0	70,0	6,0	—	116 034	116 034 TC

Tungsten carbide rotary burrs Alu / TC / TiCN shape G tree (SPG)

Finish: shape G tree (SPG)
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating



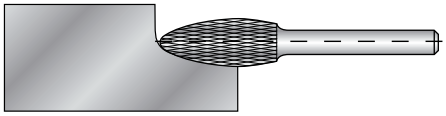


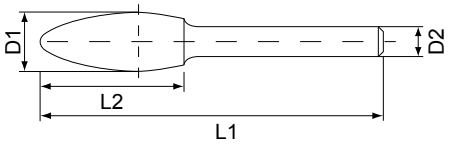
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	13,0	38,0	3,0	—	116 049	—
6,0	18,0	58,0	6,0	116 025 A	116 025	116 025 TC
8,0	18,0	60,0	6,0	—	116 026	116 026 TC
10,0	20,0	60,0	6,0	—	116 027	116 027 TC
12,0	25,0	65,0	6,0	116 028 A	116 028	116 028 TC
16,0	25,0	70,0	6,0	—	116 029	116 029 TC

Tungsten carbide rotary burrs TC / TiCN shape H flame (FLH)

Finish: shape H flame (FLH)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating



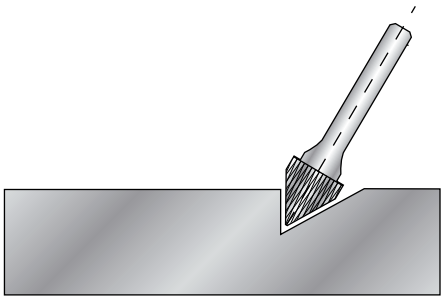


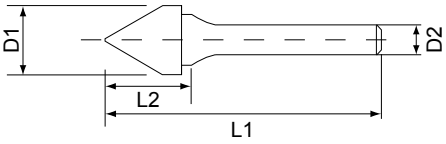
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	6,0	38,0	3,0	—	116 216	—
6,0	14,0	50,0	6,0	—	116 217	116 217 TC
8,0	20,0	65,0	6,0	—	116 218	116 218 TC
10,0	20,0	65,0	6,0	—	116 219	116 219 TC
12,0	32,0	77,0	6,0	—	116 220	116 220 TC
16,0	36,0	82,0	6,0	—	116 221	116 221 TC

Tungsten carbide rotary burrs TC / TiCN shape J cone 60° (KSJ)

Finish: shape J cone 60° (KSJ)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating



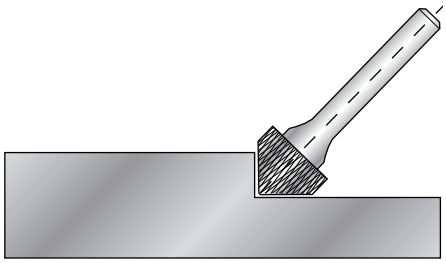


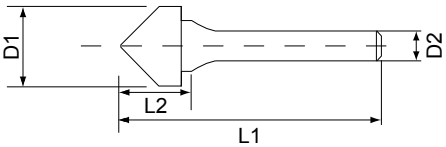
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	3,0	38,0	3,0	—	116 222	—
6,0	6,0	50,0	6,0	—	116 223	116 223 TC
10,0	8,0	56,0	6,0	—	116 224	116 224 TC
12,0	11,0	60,0	6,0	—	116 225	116 225 TC
16,0	14,5	62,0	6,0	—	116 226	116 226 TC

Tungsten carbide rotary burrs TC / TiCN shape K cone 90° (KSK)

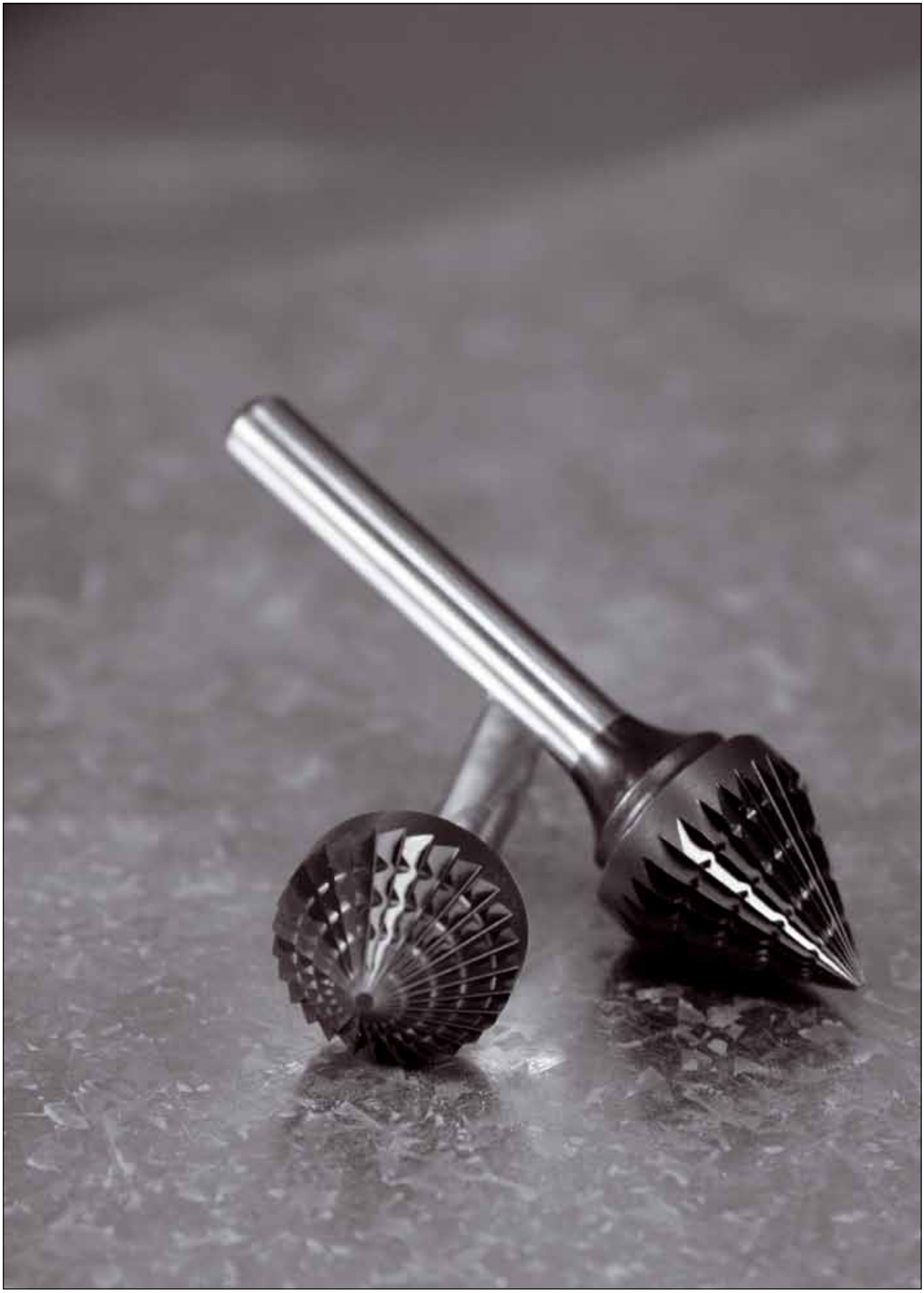
Finish: shape K cone 90° (KSK)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating





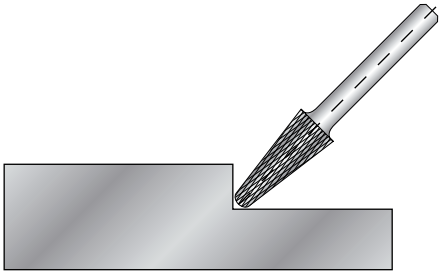
Packing unit:
each in plastic packaging

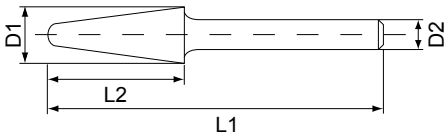
Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	3,0	38,0	3,0	—	116 227	—
6,0	3,0	50,0	6,0	—	116 228	116 228 TC
10,0	5,0	53,0	6,0	—	116 229	116 229 TC
12,0	7,0	55,0	6,0	—	116 230	116 230 TC
16,0	8,0	57,0	6,0	—	116 231	116 231 TC



Tungsten carbide rotary burrs Alu / TC / TiCN shape L round cone (KEL)

Finish: shape L round cone (KEL)
Cutting: cross toothing / aluminium toothing
Toothing: CT 4 / aluminium
Surface: bright / titanium carbon nitride coating



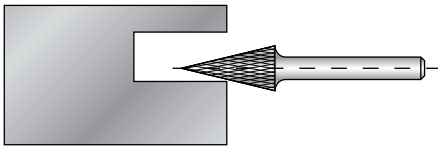


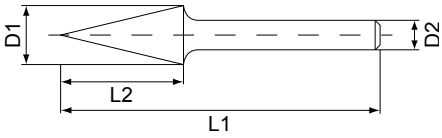
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	14,0	38,0	3,0	—	116 232	—
6,0	18,0	50,0	6,0	116 233 A	116 233	116 233 TC
8,0	25,0	70,0	6,0	—	116 234	116 234 TC
10,0	20,0	65,0	6,0	116 235 A	116 235	116 235 TC
12,0	32,0	77,0	6,0	116 236 A	116 236	116 236 TC
16,0	33,0	78,0	6,0	116 237 A	116 237	116 237 TC

Tungsten carbide rotary burrs TC / TiCN shape M cone (SKM)

Finish: shape M cone (SKM)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating





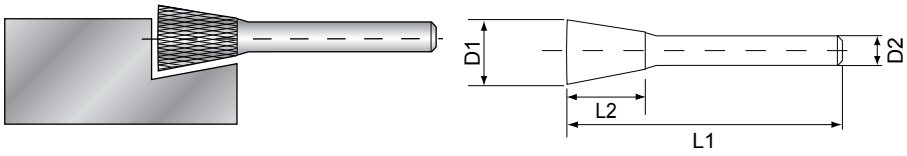
Packing unit:
each in plastic packaging

Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	11,0	38,0	3,0	—	116 051	—
6,0	18,0	58,0	6,0	—	116 035	116 035 TC
8,0	18,0	60,0	6,0	—	116 036	116 036 TC
10,0	20,0	60,0	6,0	—	116 037	116 037 TC
12,0	25,0	65,0	6,0	—	116 038	116 038 TC
16,0	25,0	70,0	6,0	—	116 039	116 039 TC

Tungsten carbide rotary burrs TC / TiCN shape N angle (WKN)

Finish: shape N angle (WKN)
Cutting: cross toothing
Toothing: CT 4
Surface: bright / titanium carbon nitride coating

Packing unit:
each in plastic packaging



Ø-D1 mm	L2 mm	Total length L1 min. mm	Shank-Ø D2 mm	Article no. **Alu**	Article no. **TC**	Article no. **TiCN**
3,0	5,0	38,0	3,0	—	116 238	—
6,0	8,0	50,0	6,0	—	116 239	116 239 TC
10,0	10,0	55,0	6,0	—	116 240	116 240 TC
12,0	13,0	58,0	6,0	—	116 241	116 241 TC
16,0	19,0	64,0	6,0	—	116 242	116 242 TC

Sets of tungsten carbide rotary burrs Alu / TC / TiCN in steel case

Description	Article no.
10-piece set of tungsten carbide rotary burrs **TC** 2 x shape A, cylinder (ZYA) without end toothing Ø D1 10,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 10,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 10,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 10,0 / 12,0 mm 1 x shape M, cone (SKM) Ø D1 12,0 mm 1 x shape D, ball type (KUD) Ø D1 12,0 mm	116 003
10-piece set of tungsten carbide rotary burrs **TiCN** 2 x shape A, cylinder (ZYA) without end toothing Ø D1 10,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 10,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 10,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 10,0 / 12,0 mm 1 x shape M, cone (SKM) Ø D1 12,0 mm 1 x shape D, ball type (KUD) Ø D1 12,0 mm	116 003 TC
10-piece set of tungsten carbide rotary burrs **ALU** 2 x shape A, cylinder (ZYA) with end toothing Ø D1 6,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 6,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 6,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 6,0 / 12,0 mm 2 x shape D, ball type (KUD) Ø D1 6,0 / 12,0 mm	116 103 A

No. 116 003

No. 116 003 TC

Sets of tungsten carbide rotary burrs Alu / TC / TiCN in polystyrene case

Description	Article no.
10-piece set of tungsten carbide rotary burrs **TC** 2 x shape A, cylinder (ZYA) without end toothing Ø D1 10,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 10,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 10,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 10,0 / 12,0 mm 1 x shape M, cone (SKM) Ø D1 12,0 mm 1 x shape D, ball type (KUD) Ø D1 12,0 mm	116 003 RO
10-piece set of tungsten carbide rotary burrs **TiCN** 2 x shape A, cylinder (ZYA) without end toothing Ø D1 10,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 10,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 10,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 10,0 / 12,0 mm 1 x shape M, cone (SKM) Ø D1 12,0 mm 1 x shape D, ball type (KUD) Ø D1 12,0 mm	116 003 TCRO
10-piece set of tungsten carbide rotary burrs **ALU** 2 x shape A, cylinder (ZYA) with end toothing Ø D1 6,0 / 12,0 mm 2 x shape C, oval (WRC) Ø D1 6,0 / 12,0 mm 2 x shape G, tree (SPG) Ø D1 6,0 / 12,0 mm 2 x shape F, ball nose tree (RBF) Ø D1 6,0 / 12,0 mm 2 x shape D, ball type (KUD) Ø D1 6,0 / 12,0 mm	116 103 ARO

No. 116 003 RO

No. 116 003 TCRO

Sets of tungsten carbide rotary burrs TC / TiCN in a convenient table display

Description	Article no.
35-piece set of tungsten carbide rotary burrs **TC** in a convenient table display each 1 x Ø D1 6,0 mm + 8,0 mm + 10,0 mm + 12,0 mm + 16,0 mm 5 TC rotary burrs shape A, cylinder (ZYA) with end toothing 5 TC rotary burrs shape A, cylinder (ZYA) without end toothing 5 TC rotary burrs shape C, oval (WRC) 5 TC rotary burrs shape G, tree (SPG) 5 TC rotary burrs shape F, ball nose tree (RBF) 5 TC rotary burrs shape M, cone (SKM) 5 TC rotary burrs shape D, ball type (KUD)	116 008
35-piece set of tungsten carbide rotary burrs **TiCN** in a convenient table display each 1 x Ø D1 6,0 mm + 8,0 mm + 10,0 mm + 12,0 mm + 16,0 mm 5 TC rotary burrs shape A, cylinder (ZYA) with end toothing 5 TC rotary burrs shape A, cylinder (ZYA) without end toothing 5 TC rotary burrs shape C, oval (WRC) 5 TC rotary burrs shape G, tree (SPG) 5 TC rotary burrs shape F, ball nose tree (RBF) 5 TC rotary burrs shape M, cone (SKM) 5 TC rotary burrs shape D, ball type (KUD)	116 008 TC

No. 116 103 ARO

No. 116 008

Product information

Compressed air grinder

- Handle 360° air exhaust
- Cushion rubber grip
- Power regulator

Compressed air grinder – short version

Rotation speed:	25.000 r.p.m.	Noise level:	77 dBA
Ø- Air consumption:	113 L/Min	Rec. air pressure:	6,2 bar
Total length:	156,0 mm	Compressed air tool holder:	G 1/4"
Weight:	0,57 kg	Collet size rotary burrs:	Ø 6,0 mm

Packing unit:
each in plastic packaging

Description	Article no.
Compressed air grinder – short version	**116 100 L**

Compressed air grinder with 90° angled head

Rotation speed:	20.000 r.p.m.	Noise level:	77 dBA
Ø- air consumption:	113 L/Min	Rec. air pressure:	6,2 bar
Total length:	170,0 mm	Compressed air tool holder:	G 1/4"
Weight:	0,60 kg	Collet size rotary burrs:	Ø 6,0 mm

Packing unit:
each in plastic packaging

Description	Article no.
Compressed air grinder with 90° angled head	**116 110 L**

Compressed air grinder with 115° angled head

Rotation speed:	20.000 r.p.m.	Noise level:	77 dBA
Ø- air consumption:	113 L/Min	Rec. air pressure:	6,2 bar
Total length:	201,0 mm	Compressed air tool holder:	G 1/4"
Weight:	0,70 kg	Collet size rotary burrs:	Ø 6,0 mm

Packing unit:
each in plastic packaging

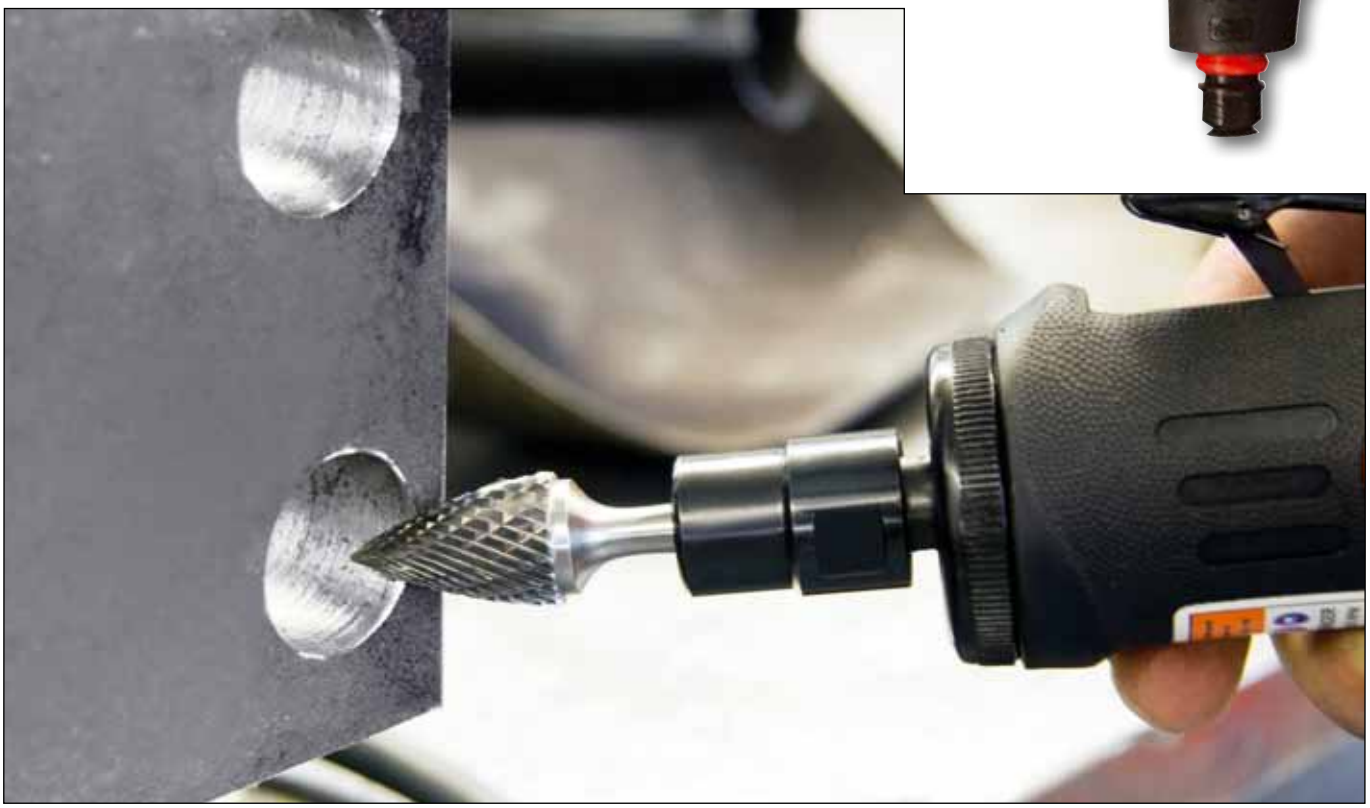
Description	Article no.
Compressed air grinder with 115° angled head	**116 120 L**

Compressed air grinder – long version

Rotation speed:	25.000 r.p.m.	Noise level:	77 dBA
Ø- air consumption:	113 L/Min	Rec. air pressure:	6,2 bar
Total length:	251,0 mm	Compressed air tool holder:	G 1/4"
Weight:	0,90 kg	Collet size rotary burrs:	Ø 6,0 mm

Packing unit:
each in plastic packaging

Description	Article no.
Compressed air grinder - long version	**116 130 L**



Compressed air grinder set with coupling plug incl. set of rotary burrs TC in plastic case

Description	Article no.
12-piece set of compressed air grinder 1 Compressed air grinder + Set of tungsten carbide rotary burrs in mini-box, 10 pcs. each 1x Ø D1 6,0 + 12,0 mm 2 TC rotary burrs shape A, cylinder (ZYA) with end toothing 2 TC rotary burrs shape C, oval (WRC) 2 TC rotary burrs shape G, tree (SPG) 2 TC rotary burrs shape F, ball nose tree (RBF) 2 TC rotary burrs shape D, ball type (KUD) + Coupling plug for compressed air grinder	116 100
5-piece set of compressed air grinder 1 Compressed air grinder + Set of tungsten carbide rotary burrs in mini-box, 3 pcs. each 1x Ø D1 6,0 + 12,0 mm 1 TC rotary burr shape A, cylinder (ZYA) with end toothing 1 TC rotary burr shape G, pionted arch (SPG) 1 TC rotary burr shape D, cone (KUD) + Coupling plug for compressed air grinder	116 113

No. 116 100

Set of tungsten carbide rotary burrs in mini-box

3-piece set of tungsten carbide rotary burrs in mini-box each 1 x Ø D1 10,0 mm 1 TC rotary burr shape A, cylinder (ZYA) with end toothing 1 TC rotary burr shape G, pionted arch (SPG) 1 TC rotary burr shape D, cone (KUD)	116 001
10-piece set of tungsten carbide rotary burrs in mini-box each 1 x Ø D1 6,0 mm + Ø D1 12,0 mm 2 TC rotary burrs shape A, cylinder (ZYA) with end toothing 2 TC rotary burrs shape C, oval (WRC) 2 TC rotary burrs shape G, tree (SPG) 2 TC rotary burrs shape F, ball nose tree (RBF) 2 TC rotary burrs shape D, ball type (KUD)	116 002

No. 116 002

No. 116 100-1

Accessories for compressed air grinder set

Packing unit:
each in plastic packaging

Description	Article no.
Compressed air grinder solo 116 100 L + Coupling plug 116 101 L	116 100 S
Rotor replacement for compressed air grinder	116 100-1
Coupling plug, nominal size 7,2 mm, external thread G 1/4"	116 101 L
Collet 3,0 mm for compressed air grinder	**116 121**
Collet 1/4" for compressed air grinder	**116 119**

Emphasised articles are new additions.

No. 116 121

No. 116 101 L

RUKO

END MILL CUTTERS

Product Information

The new RUKO finest grain high-performance end mill cutters in combination with a TiAlN wear-protection coating offer maximum cutting edge stability and a high thermal load capacity of the cutting at the same time.

The TiAlN coating increases the surface hardness of the cutter to about 3000 HV and the surface heat resistance to about 900°.

Compared to the HSS end mill cutter, the cutting speed is two to four times higher.
An essentially smoother cutting process is obtained and a better surface finish of the workpiece at the same feed rate.

The productivity clearly increases through the distinctly higher service life and the higher cutting speed of the universal solid tungsten carbide end mill cutter.

Solid tungsten carbide end mill cutter, two flute, short, without slot.

Solid tungsten carbide end mill cutter, three flute, short, without slot.

Solid tungsten carbide end mill cutter, four flute, short, without slot.

Product Application

Suitable for milling or drilling of steel, steel casting up to 1200 N/mm², gray cast iron, chilled casting, malleable cast iron, CrNi steels, bronze, brass, copper, aluminum with high silica content and abrasive plastics.

The TiAlN coating increases durability and cutting values by 50%.

DIN 6535 HA = cylindrical shaft without slot.
DIN 6535 HB = cylindrical shaft with slot.

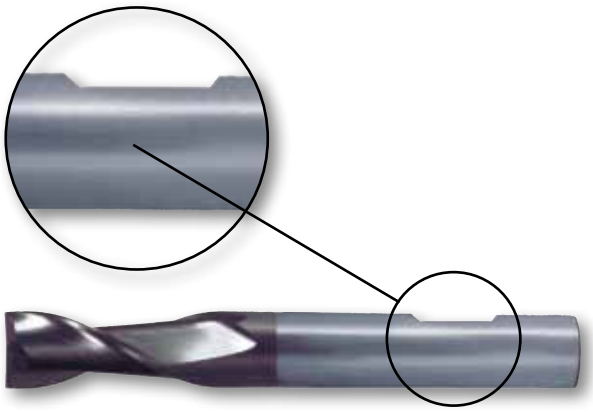
Shank according to DIN 6535 HA
DIN 6528* = only in Ø 5,0 mm.

Solid tungsten carbide end mill cutter, two flute, long, with slot.

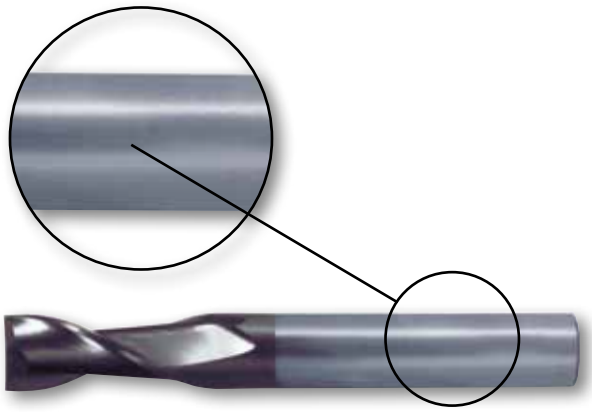
Solid tungsten carbide end mill cutter, three flute, long, with slot.

Solid tungsten carbide end mill cutter, four flute, long, with slot.

Shank design



Long design with slot



Long design without slot

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 K *two edge cutter,* short model with / without slot

Stable universal end mill cutter, with large flutes for optimal chip removal.
Suitable for dipping. For finish milling and flute milling.

Finish: short, with and without slot
Spiral angle: 30°
Cutting edges: 2
Surface: TiAlN coating
Micrograin TC
right hand cutting

Packing unit:
in plastic box of 1

MCM - 2S001

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0	54,0	6,0	6,0	2	820 050 HM	821 050 HM
6,0	54,0	7,0	6,0	2	820 060 HM	821 060 HM
8,0	58,0	9,0	8,0	2	820 080 HM	821 080 HM
10,0	66,0	11,0	10,0	2	820 100 HM	821 100 HM
12,0	73,0	12,0	12,0	2	820 120 HM	821 120 HM
14,0	75,0	14,0	14,0	2	820 140 HM	821 140 HM
16,0	82,0	16,0	16,0	2	820 160 HM	821 160 HM
18,0	84,0	18,0	18,0	2	820 180 HM	821 180 HM
20,0	92,0	20,0	20,0	2	820 200 HM	821 200 HM

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 L / 6528* *two edge cutter,* long model with / without slot

Universal end mill cutter, with large flutes for optimal chip removal.
Suitable for dipping. For finish milling and flute milling with higher cutting depth.

Finish: long, with and without slot
Spiral angle: 30°
Cutting edges: 2
Surface: TiAlN coating
Micrograin TC
right hand cutting

Packing unit:
in plastic box of 1

MCM - 2S003

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0*	50,0	10,0	5,0	2	822 050 HM	–
6,0	57,0	10,0	6,0	2	822 060 HM	823 060 HM
8,0	63,0	16,0	8,0	2	822 080 HM	823 080 HM
10,0	72,0	19,0	10,0	2	822 100 HM	823 100 HM
12,0	83,0	22,0	12,0	2	822 120 HM	823 120 HM
14,0	83,0	22,0	14,0	2	822 140 HM	823 140 HM
16,0	92,0	26,0	16,0	2	822 160 HM	823 160 HM
18,0	92,0	26,0	18,0	2	822 180 HM	823 180 HM
20,0	104,0	32,0	20,0	2	822 200 HM	823 200 HM

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 K *three edge cutter*, short model with / without slot

More stable and smoother universal end mill cutter, with higher removal rate compared to the two flute.
Suitable for dipping. For finish milling and flute milling.

Finish: short, with and without slot
Spiral angle: 30°
Cutting edges: 3
Surface: TiAlN coating
Micrograin TC

right hand cutting

Packing unit:
in plastic box of 1

MCM - 3S001

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0	54,0	6,0	6,0	3	830 050 HM	831 050 HM
6,0	54,0	7,0	6,0	3	830 060 HM	831 060 HM
8,0	58,0	9,0	8,0	3	830 080 HM	831 080 HM
10,0	66,0	11,0	10,0	3	830 100 HM	831 100 HM
12,0	73,0	12,0	12,0	3	830 120 HM	831 120 HM
14,0	75,0	14,0	14,0	3	830 140 HM	831 140 HM
16,0	82,0	16,0	16,0	3	830 160 HM	831 160 HM
18,0	84,0	18,0	18,0	3	830 180 HM	831 180 HM
20,0	92,0	20,0	20,0	3	830 200 HM	831 200 HM

1.09

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 L / 6528* *three edge cutter*, long model with / without slot

Smoother universal end mill cutter, with higher removal rate compared to the two flute.
Suitable for dipping. For finish milling and flute milling with higher cutting depth.

Finish: long, with and without slot
Spiral angle: 30°
Cutting edges: 3
Surface: TiAlN coating
Micrograin TC

right hand cutting

Packing unit:
in plastic box of 1

MCM - 3S003

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0*	50,0	10,0	5,0	3	832 050 HM	–
6,0	57,0	10,0	6,0	3	832 060 HM	833 060 HM
8,0	63,0	16,0	8,0	3	832 080 HM	833 080 HM
10,0	72,0	19,0	10,0	3	832 100 HM	833 100 HM
12,0	83,0	22,0	12,0	3	832 120 HM	833 120 HM
14,0	83,0	22,0	14,0	3	832 140 HM	833 140 HM
16,0	92,0	26,0	16,0	3	832 160 HM	833 160 HM
18,0	92,0	26,0	18,0	3	832 180 HM	833 180 HM
20,0	104,0	32,0	20,0	3	832 200 HM	833 200 HM

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 K *four edge cutter*, short model with / without slot

More stable and very smooth universal end mill cutter, with extraordinarily high removal rate compared to the two flute. Suitable for dipping. For finish milling and flute milling.

Finish: short, with and without slot
Spiral angle: 30°
Cutting edges: 4
Surface: TiAlN coating
Micrograin TC
right hand cutting

Packing unit:
in plastic box of 1

MCM - 4S001

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0	54,0	9,0	6,0	4	840 050 HM	841 050 HM
6,0	54,0	10,0	6,0	4	840 060 HM	841 060 HM
8,0	58,0	11,0	8,0	4	840 080 HM	841 080 HM
10,0	66,0	14,0	10,0	4	840 100 HM	841 100 HM
12,0	73,0	16,0	12,0	4	840 120 HM	841 120 HM
14,0	75,0	18,0	14,0	4	840 140 HM	841 140 HM
16,0	82,0	22,0	16,0	4	840 160 HM	841 160 HM
18,0	84,0	24,0	18,0	4	840 180 HM	841 180 HM
20,0	92,0	26,0	20,0	4	840 200 HM	841 200 HM

Universal solid tungsten carbide end mill cutter type N TiAlN coated, DIN 6527 L / 6528* *four edge cutter*, long model with / without slot

Very smooth universal end mill cutter, with extraordinarily high removal rate compared to the two flute. Suitable for dipping. For finish milling and flute milling with higher cutting depth.

Finish: long, with and without slot
Spiral angle: 30°
Cutting edges: 4
Surface: TiAlN coating
Micrograin TC
right hand cutting

Packing unit:
in plastic box of 1

MCM - 4S003

Ø mm	Total length mm	Lenght cutting edges mm	Shank Ø mm	Cutting edges	Article no. **DIN 6535 HA**	Article no. **DIN 6535 HB**
5,0*	50,0	13,0	5,0	4	842 050 HM	–
6,0	57,0	13,0	6,0	4	842 060 HM	843 060 HM
8,0	63,0	19,0	8,0	4	842 080 HM	843 080 HM
10,0	72,0	22,0	10,0	4	842 100 HM	843 100 HM
12,0	83,0	26,0	12,0	4	842 120 HM	843 120 HM
14,0	83,0	26,0	14,0	4	842 140 HM	843 140 HM
16,0	92,0	32,0	16,0	4	842 160 HM	843 160 HM
18,0	92,0	32,0	18,0	4	842 180 HM	843 180 HM
20,0	104,0	38,0	20,0	4	842 200 HM	843 200 HM

Standard rotary speed values
for universal solid tungsten carbide end mill cutter – two flute

Vc = m/min n = r.p.m. fz = Feed / Tooth		Material group 1: construction steel up to 700 N/mm²			Material group 2: heat-resistant alloyed steels up to 1000 N/mm²			Material group 3: alloyed steel up to 1400 N/mm²			Material group 4: good free-machining, chemically resistant steels up to 700 N/mm²		
Coolant:		Dry / Emulsion			Dry / Emulsion			Dry / Emulsion			Dry / Emulsion		
Ø mm	Ø inch	n	Vc	fz	n	Vc	fz	n	Vc	fz	n	Vc	fz
4,0	5/32	9550	290	0,015	7170	140	0,010	6370	130	0,010	6370	130	0,010
6,0	15/64	6370	250	0,020	4780	140	0,015	4250	130	0,015	4250	130	0,015
8,0	5/16	4780	330	0,035	3580	180	0,025	3180	140	0,022	3180	130	0,020
10,0	25/64	3820	310	0,040	2870	170	0,030	2550	140	0,028	2550	150	0,030
12,0	15/32	3180	320	0,050	2390	190	0,040	2120	140	0,034	2120	170	0,040
16,0	5/8	2390	380	0,080	1790	210	0,060	1590	160	0,050	1590	160	0,050
18,0	45/64	2150	380	0,090	1610	205	0,065	1430	155	0,055	1430	155	0,055
20,0	25/32	1910	380	0,100	1430	200	0,070	1270	150	0,060	1270	150	0,060

Standard rotary speed values
for universal solid tungsten carbide end mill cutter – three flute

Vc = m/min n = r.p.m. fz = Feed / Tooth		Material group 1: construction steel up to 700 N/mm²			Material group 2: heat-resistant alloyed steels up to 1000 N/mm²			Material group 3: alloyed steel up to 1400 N/mm²			Material group 4: good free-machining, chemically resistant steels up to 700 N/mm²		
Coolant:		Dry / Emulsion			Dry / Emulsion			Dry / Emulsion			Dry / Emulsion		
Ø mm	Ø inch	n	Vc	fz	n	Vc	fz	n	Vc	fz	n	Vc	fz
4,0	5/32	9550	430	0,015	7170	220	0,010	6370	190	0,010	6370	190	0,010
6,0	15/64	6370	380	0,020	4780	220	0,015	4250	190	0,015	4250	190	0,015
8,0	5/16	4780	500	0,035	3580	270	0,025	3180	210	0,022	3180	190	0,020
10,0	25/64	3820	460	0,040	2870	260	0,030	2550	210	0,028	2550	230	0,030
12,0	15/32	3180	480	0,050	2390	290	0,040	2120	220	0,034	2120	250	0,040
16,0	5/8	2390	570	0,080	1790	320	0,060	1590	240	0,050	1590	240	0,050
18,0	45/64	2150	570	0,090	1610	310	0,065	1430	235	0,055	1430	235	0,055
20,0	25/32	1910	570	0,100	1430	300	0,070	1270	230	0,060	1270	230	0,060

Standard rotary speed values
for universal solid tungsten carbide end mill cutter – four flute

Vc = m/min n = r.p.m. fz = Feed / Tooth		Material group 1: construction steel up to 700 N/mm²			Material group 2: heat-resistant alloyed steels up to 1000 N/mm²			Material group 3: alloyed steel up to 1400 N/mm²			Material group 4: good free-machining, chemically resistant steels up to 700 N/mm²		
Coolant:		Dry / Emulsion			Dry / Emulsion			Dry / Emulsion			Dry / Emulsion		
Ø mm	Ø inch	n	Vc	fz	n	Vc	fz	n	Vc	fz	n	Vc	fz
4,0	5/32	12000	2500	0,040	7500	1000	0,020	6500	640	0,020	6500	800	0,025
6,0	15/64	10620	2290	0,054	6370	920	0,036	5310	640	0,030	5310	760	0,036
8,0	5/16	7960	2010	0,063	4780	860	0,045	3980	640	0,040	3980	720	0,045
10,0	25/64	6370	1830	0,072	3820	830	0,054	3180	640	0,050	3180	690	0,054
12,0	15/32	5310	1700	0,080	3180	800	0,063	2650	640	0,060	2650	670	0,063
16,0	5/8	3980	1420	0,089	2390	760	0,080	1990	560	0,070	1990	680	0,085
18,0	45/64	3580	1390	0,095	2150	760	0,090	1790	530	0,075	1790	705	0,100
20,0	25/32	3180	1360	0,107	1910	760	0,100	1590	510	0,080	1590	730	0,115

HOLE SAWS

HSS-G hole saws

The new RUKO HSS-G hole saws can be used in hand and pillar drills. When employing pillar drills, use manual advance only.

Suitable for steel (up to 800 N/mm² strength) and cast steel, non-ferrous and light metals, plastics, reinforced fabrics, plasterboard and light building boards.

Characteristics:
- Pilot drill HSS Co 5
- High rotational precision
- Sturdy construction
- Triangular shank
- Exchangeable centring drill
- Regrindable
- Chip breaker
- The side cutting edge ensures a simple machining, high efficiency and precision when cutting holes

User instructions:
- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds
- Use prescribed cooling agents

Tungsten carbide hole saws, shallow cut

The RUKO tungsten-carbide-tipped hole saws can be used in hand and pillar drills. When employing pillar drills, use manual advance only.

Suitable for high-alloyed steels such as stainless and acidresistant steel (up to 2,0 mm), steel and cast steel, non-ferrous and light metals, plastics, reinforced fabrics, plasterboard and light building boards, wood.

Characteristics:
- Pilot drill HSS Co 5
- High rotational precision
- Sturdy construction
- Hole saw and shank in one piece
- Triangular shank
- With cutting-depth limiter
- Positive chipping angle with specially ground cutting edge
- Good chip removal
- Exchangeable centring drill
- Regrindable tungsten-carbide blades

User instructions:
- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds
- Use prescribed cooling agents

Tungsten carbide multigrade hole saws MHS

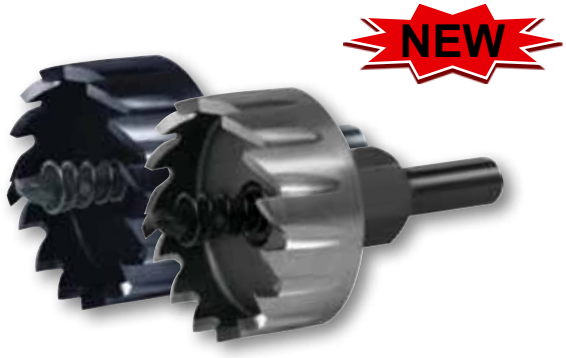
The RUKO tungsten-carbide-multigrade hole saws MHS can be used in magnetic and standard drills to a maximum of 20,0 mm in steel. For hand drills up to 6,0 mm in steel.

Suitable for high-alloyed steels such as stainless and acidresistant steel, steel and cast steel (up to 20,0 mm), non-ferrous and light metals, plastics (up to 28,0 mm). Applications: drills flat materials, tubes, vaulted surfaces, overlapped holes possible.

Characteristics:
- Pilot pin HSS Co 5
- High rotational precision
- Sturdy construction
- Adapter with triangular shank
- Exchangeable pilot pin
- Regrindable tungsten-carbide blades

User instructions:
- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds (see also tungsten carbide core drill speed table)
- Use prescribed cooling agents

HSS-G and HSS-TiAlN hole saws



Material thickness: up to 2,5, mm
Cutting depth: up to max. 5,0 mm
Cutting angle: works standard
Surface: bright / TiAlN coated
right hand cutting

Packing unit:
individual plastic pack

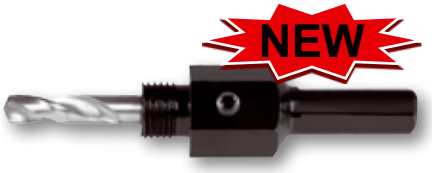
Ø mm	Ø inch	Tube dimensions inch	Shank Ø mm	Article no. **HSS**	Article no. **HSS-TiAlN**
12,0	15/32		8,0	**128 012**	**128 012 F**
13,0			8,0	**128 013**	**128 013 F**
14,0	9/16		8,0	**128 014**	**128 014 F**
15,0			10,0	**128 015**	**128 015 F**
16,0	5/8		10,0	**128 016**	**128 016 F**
17,0			10,0	**128 017**	**128 017 F**
18,0			10,0	**128 018**	**128 018 F**
19,0	3/4	3/8	10,0	**128 019**	**128 019 F**
20,0			10,0	**128 020**	**128 020 F**
21,0			10,0	**128 021**	**128 021 F**
22,0		1/2	10,0	**128 022**	**128 022 F**
23,0			10,0	**128 023**	**128 023 F**
24,0	15/16		10,0	**128 024**	**128 024 F**
25,0			10,0	**128 025**	**128 025 F**
26,0			10,0	**128 026**	**128 026 F**
27,0	1 1/16		10,0	**128 027**	**128 027 F**
28,0	1 3/32		10,0	**128 028**	**128 028 F**
29,0		3/4	10,0	**128 029**	**128 029 F**
30,0	1 3/16		10,0	**128 030**	**128 030 F**
31,0	1 7/32		10,0	**128 031**	**128 031 F**
32,0	1 1/4		10,0	**128 032**	**128 032 F**
33,0			10,0	**128 033**	**128 033 F**
34,0			10,0	**128 034**	**128 034 F**
35,0	1 3/8	1	10,0	**128 035**	**128 035 F**
36,0			10,0	**128 036**	**128 036 F**
37,0	1 7/16		10,0	**128 037**	**128 037 F**
38,0	1 1/2		10,0	**128 038**	**128 038 F**
39,0			10,0	**128 039**	**128 039 F**
40,0	1 9/16		10,0	**128 040**	**128 040 F**

Ø mm	Through dimensions PG
16,0	PG 9
37,0	PG 29
47,0	PG 36

Ø mm	Ø inch	Tube dimensions inch	Shank Ø mm	Article no. **HSS**	Article no. **HSS-TiAlN**
41,0	1 5/8		10,0	**128 041**	**128 041 F**
42,0			10,0	**128 042**	**128 042 F**
43,0	1 11/16		10,0	**128 043**	**128 043 F**
44,0	1 3/4	1 1/4	10,0	**128 044**	**128 044 F**
45,0			10,0	**128 045**	**128 045 F**
46,0			10,0	**128 046**	**128 046 F**
47,0	1 7/8		10,0	**128 047**	**128 047 F**
48,0			10,0	**128 048**	**128 048 F**
49,0			10,0	**128 049**	**128 049 F**
50,0	1 31/32		10,0	**128 050**	**128 050 F**
51,0	2	1 1/2	12,0	**128 051**	**128 051 F**
52,0			12,0	**128 052**	**128 052 F**
53,0			12,0	**128 053**	**128 053 F**
54,0	2 1/8		12,0	**128 054**	**128 054 F**
55,0			12,0	**128 055**	**128 055 F**
56,0			12,0	**128 056**	**128 056 F**
57,0	2 1/4		12,0	**128 057**	**128 057 F**
58,0			12,0	**128 058**	**128 058 F**
59,0			12,0	**128 059**	**128 059 F**
60,0	2 3/8		12,0	**128 060**	**128 060 F**
65,0			12,0	**128 065**	**128 065 F**
70,0	2 3/4		12,0	**128 070**	**128 070 F**
75,0			12,0	**128 075**	**128 075 F**
80,0			12,0	**128 080**	**128 080 F**
85,0			12,0	**128 085**	**128 085 F**
90,0			12,0	**128 090**	**128 090 F**
95,0	3 3/4		12,0	**128 095**	**128 095 F**
100,0			12,0	**128 100**	**128 100 F**

Ø mm	Through dimensions PG
54,0	PG 42
60,0	PG 48

Accessories for HSS-G and HSS-TiAlN hole saw



Packing unit: individual plastic pack

Description	For hole saws Ø mm	Shank	Magnetic-stand drilling machine	Article no.
Arbor holder including pilot drill M 10 x 1,25 mm	12,0 - 14,0	Ø 8,0 mm	RS 10	**128 211**
Arbor holder including pilot drill M 12 x 1,25 mm	15,0 - 34,0	Ø 10,0 mm	RS 10	**128 212**
Arbor holder including pilot drill M 14 x 1,50 mm	35,0 - 50,0	Ø 10,0 mm	RS 20 - RS 40e	**128 213**
Arbor holder including pilot drill M 16 x 1,50 mm	51,0 - 100,0	Ø 12,0 mm	RS 20 - RS 40e	**128 214**
Pilot pin Ø 6,0 x 52,0 mm	12,0 - 100,0	-	-	**128 215**
Ejector spring	Ø > 20,0	-	-	**128 216**

Tungsten carbide hole saws, shallow cut

Cutting edges: tungsten carbide
Material thickness: up to 4,0 mm
Cutting depth: up to max. 10,0 mm
Cutting angle: works standard
right hand cutting

Packing unit:
individual carton

Ø mm	Ø inch	Through dimensions M + PG	Tube dimensions inch	Shank Ø mm	Article no.
16,0	5/8	~ PG 9		10,0	105 016
16,5		M 16		10,0	105 165
17,0				10,0	105 017
18,0				10,0	105 018
18,6		PG 11		10,0	105 186
19,0	3/4		3/8	10,0	105 019
20,0				10,0	105 020
20,4	13/16	M 20 / PG 13,5		10,0	105 204
21,0				10,0	105 021
22,0			1/2	10,0	105 022
22,5	7/8	PG 16		10,0	105 225
23,0				10,0	105 023
24,0	15/16			10,0	105 024
25,0				10,0	105 025
25,5	1	M 25		10,0	105 255
26,0				10,0	105 026
27,0	1 1/16			10,0	105 027
28,0	1 3/32			10,0	105 028
28,3	1 1/8	PG 21		10,0	105 283
29,0			3/4	10,0	105 029
30,0	1 3/16			10,0	105 030
31,0	1 7/32			10,0	105 031
32,0	1 1/4			10,0	105 032
32,5		M 32		10,0	105 325
33,0				10,0	105 033
34,0				10,0	105 034
35,0	1 3/8		1	10,0	105 035
36,0				10,0	105 036
37,0	1 7/16	PG 29		10,0	105 037
38,0	1 1/2			10,0	105 038
39,0				10,0	105 039
40,0	1 9/16			10,0	105 040
40,5		M 40		10,0	105 405
41,0	1 5/8			10,0	105 041
42,0				10,0	105 042

Ø mm	Ø inch	Through dimensions M + PG	Tube dimensions inch	Shank Ø mm	Article no.
43,0	1 11/16			10,0	105 043
44,0	1 3/4		1 1/4	10,0	105 044
45,0				10,0	105 045
46,0				10,0	105 046
47,0	1 7/8	PG 36		10,0	105 047
48,0				10,0	105 048
49,0				10,0	105 049
50,0	1 31/32			10,0	105 050
50,5		M 50		10,0	105 505
51,0	2		1 1/2	13,0	105 051
52,0				13,0	105 052
53,0				13,0	105 053
54,0	2 1/8	PG 42		13,0	105 054
55,0				13,0	105 055
56,0				13,0	105 056
57,0	2 1/4			13,0	105 057
58,0				13,0	105 058
59,0				13,0	105 059
60,0	2 3/8	~ PG 48		13,0	105 060
63,5	2 1/2	M 63	2	13,0	105 635
65,0				13,0	105 065
68,0				13,0	105 068
70,0	2 3/4			13,0	105 070
75,0				13,0	105 075
80,0				13,0	105 080
85,0				13,0	105 085
90,0				13,0	105 090
95,0	3 3/4			13,0	105 095
100,0				13,0	105 100
110,0				13,0	105 110
120,0				13,0	105 120
130,0	5 1/8			13,0	105 130
140,0	5 1/2			13,0	105 140
150,0				13,0	105 150

Pilot drills for tungsten carbide hole saws, shallow cut

Version:
- HSS Co 5 ground blade split point in accordance with DIN 1412 C
- tungsten carbide blade

right hand cutting

No. 105 171

No. 105 173

No. 105 174

Packing unit:
individual carton

Ø mm	Length mm	For hole saws Ø mm	For hole saws cutting depth	Article no. **HSS Co 5**	Article no. **tungsten carbide**
6,0	52,0	16,0 - 70,0	shallow	105 170	105 172
8,0	52,0	75,0 - 150,0	shallow	105 171	105 173
Ejector spring				105 174	

Set of tungsten carbide hole saws, shallow cut in plastic case

No. 105 300

No. 105 302

Description	Article no.
7-piece set of tungsten carbide hole saws with 5 tungsten carbide hole saws, shallow cut Ø 20,0 mm - 22,0 mm - 25,0 mm - 32,0 mm - 35,0 mm 1 cutting spray 50 ml article no. 101 010 1 extra pilot drill 6,0 mm HSS Co 5 article no. 105 170	105 300
6-piece set of tungsten carbide hole saws with 4 tungsten carbide hole saws, shallow cut Ø 16,5 mm ≈ M 16, Ø 20,4 mm ≈ M 20 / PG 13,5 Ø 25,5 mm ≈ M 25, Ø 32,5 mm ≈ M 32 1 cutting spray 50 ml article no. 101 010 1 extra pilot drill 6,0 mm HSS Co 5 article no. 105 170	105 302

Tungsten carbide multigrade hole saws MHS

Ø 15,0 up to 30,0 mm hole saw MHS and shank in one piece. Complete with pilot pin and wrench.
Ø 31,0 up to 100,0 mm hole saws MHS without arbor.
Ø 65,0 up to 100,0 mm on we recommend to use our morse taper holder article no. 113 203, 108 102 - 108 105.

Cutting edge: tungsten carbide
Material thickness: 2,0 to 28,0 mm
Cutting depth: up to 28,0 mm
Cutting angle: work's standard
Adapter: thread M 18 x 6 P1,5
right hand cutting

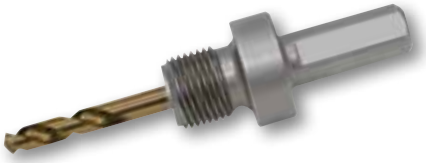
Packing unit:
individual plastic pack

Ø mm	Ø inch	Tube dimensions inch	Shank-Ø	Article no.
15,0			13,0 mm	113 015
16,0	5/8		13,0 mm	113 016
17,0			13,0 mm	113 017
18,0			13,0 mm	113 018
19,0	3/4	3/8	13,0 mm	113 019
20,0			13,0 mm	113 020
21,0			13,0 mm	113 021
22,0	7/8	1/2	13,0 mm	113 022
23,0			13,0 mm	113 023
24,0	15/16		13,0 mm	113 024
25,0	1		13,0 mm	113 025
26,0			13,0 mm	113 026
27,0	1 1/16		13,0 mm	113 027
28,0	1 3/32		13,0 mm	113 028
29,0	1 1/8	3/4	13,0 mm	113 029
30,0	1 3/16		13,0 mm	113 030
31,0			13,0 mm / MT 2 / 3	113 031
32,0	1 1/4		13,0 mm / MT 2 / 3	113 032
33,0			13,0 mm / MT 2 / 3	113 033
34,0			13,0 mm / MT 2 / 3	113 034
35,0	1 3/8	1	13,0 mm / MT 2 / 3	113 035
36,0			13,0 mm / MT 2 / 3	113 036
37,0			13,0 mm / MT 2 / 3	113 037
38,0	1 1/2		13,0 mm / MT 2 / 3	113 038
39,0			13,0 mm / MT 2 / 3	113 039
40,0			13,0 mm / MT 2 / 3	113 040
41,0	1 5/8		13,0 mm / MT 2 / 3	113 041
42,0			13,0 mm / MT 2 / 3	113 042

Ø mm	Ø inch	Tube dimensions inch	Shank-Ø	Article no.
43,0	1 11/16		13,0 mm / MT 2 / 3	113 043
44,0	1 3/4	1 1/4	13,0 mm / MT 2 / 3	113 044
45,0			13,0 mm / MT 2 / 3	113 045
46,0			13,0 mm / MT 2 / 3	113 046
47,0			13,0 mm / MT 2 / 3	113 047
48,0	1 7/8		13,0 mm / MT 2 / 3	113 048
49,0			13,0 mm / MT 2 / 3	113 049
50,0			13,0 mm / MT 2 / 3	113 050
51,0	2	1 1/2	13,0 mm / MT 2 / 3	113 051
52,0			13,0 mm / MT 2 / 3	113 052
53,0			13,0 mm / MT 2 / 3	113 053
54,0	2 1/8		13,0 mm / MT 2 / 3	113 054
55,0			13,0 mm / MT 2 / 3	113 055
56,0			13,0 mm / MT 2 / 3	113 056
57,0	2 1/4		13,0 mm / MT 2 / 3	113 057
58,0			13,0 mm / MT 2 / 3	113 058
59,0			13,0 mm / MT 2 / 3	113 059
60,0	2 3/8		13,0 mm / MT 2 / 3	113 060
65,0			13,0 mm / MT 2 / 3	113 065
68,0			13,0 mm / MT 2 / 3	113 068
70,0	2 3/4		13,0 mm / MT 2 / 3	113 070
75,0			13,0 mm / MT 2 / 3	113 075
80,0			13,0 mm / MT 2 / 3	113 080
85,0			13,0 mm / MT 2 / 3	113 085
90,0			13,0 mm / MT 2 / 3	113 090
95,0	3 3/4		13,0 mm / MT 2 / 3	113 095
100,0			13,0 mm / MT 2 / 3	113 100

Arbor holders for tungsten carbide multigrade hole saws MHS with threaded retainer M18 x 6 P1,5

Packing unit: individual plastic pack



No. 113 201

No. 113 203

Description	For hole saws MHS Ø mm	Shank	Magnetic-stand drilling machine	Article no.
Arbor holder including pilot drill article no. 113 216	31,0 - 100,0	Ø 13,0 mm	RS 10	113 201
Arbor holder including pilot drill article no. 113 216	31,0 - 100,0	MT 2	RS 20 / RS 25e	113 203

Arbor holders for tungsten carbide multigrade hole saws MHS with threaded retainer M18 x 6 P1,5

Packing unit: individual carton

No. 108 103

No. 108 105

Description	For hole saws MHS Ø mm	Shank morse taper	Magnetic-stand drilling machine	Article no.
Arbor holder including adapter article no. 108 108, pilot pin article no. 108 110 and cooling bottle article no. 108 101	31,0 - 100,0	MT 2	RS20 / RS25*e*	108 102
Arbor holder with interior cooling including adapter article no. 108 108 and pilot pin article no. 108 110	31,0 - 100,0	MT 2	RS20 / RS25*e*	108 104
Arbor holder including adapter article no. 108 108, pilot pin article no. 108 110 and cooling bottle article no. 108 101	31,0 - 100,0	MT 3	RS30*e* / RS40*e*	108 103
Arbor holder with interior cooling including adapter article no. 108 108 and pilot pin article no. 108 110	31,0 - 100,0	MT 3	RS30*e* / RS40*e*	108 105

Pilot drills for tungsten carbide multigrade hole saws MHS

Version:
- HSS Co 5 ground blade split point in accordance with DIN 1412 C
- tungsten carbide blade

right hand cutting

No. 113 216

Packing unit:
individual plastic pack

Ø mm	Length mm	For hole saws MHS Ø mm	Article no. **HSS Co 5**	Article no. **tungsten carbide**
6,0	71,0	15,0 - 100,0	113 216	113 217
Ejector spring			113 218	

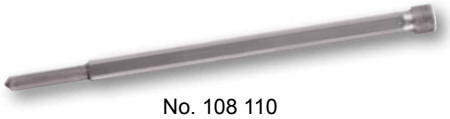
No. 113 218

Adapter for tungsten carbide multigrade hole saws MHS with threaded retainer M18 x 6 P1,5

Packing unit: individual plastic pack

Description	For hole saws MHS Ø mm	Article no.
Adapter with Weldon shank 3/4"	31,0 - 100,0	108 108
Ejector pin Ø 6,35 x 123,0 mm	31,0 - 100,0	108 110

No. 108 108



No. 108 110

Recommended cutting speeds for tungsten carbide hole saws

Material:		High carbon struc. steel up to 700 N/mm²	Alloyed steel up to 1000 N/mm²	Cast iron over 250 N/mm²	CuZn alloy	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics	Wood
Vc = m/min		30	20	10	60	35	30	20	15
Coolant:		Cutting spray	Cutting spray	Compressed air	Compressed air	Cutting spray	Water	Compressed air	Compressed air
Ø mm	Ø inch	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
16,0	5/8	995	697	796	1194	1194	896	796	995
16,5		965	676	772	1158	1158	869	772	965
17,0		937	656	749	1124	1124	843	749	937
18,0		885	619	708	1062	1062	796	708	885
18,6		856	599	685	1027	1027	770	685	856
19,0	3/4	838	587	670	1006	1006	754	670	838
20,0		796	557	637	955	955	717	637	796
20,4	13/16	781	546	624	937	937	703	624	781
21,0		758	531	607	910	910	682	607	758
22,0		724	507	579	869	869	651	579	724
22,5	7/8	708	495	566	849	849	637	566	708
23,0		692	485	554	831	831	623	554	692
24,0	15/16	663	464	531	796	796	597	531	663
25,0		637	446	510	764	764	573	510	637
25,5	1	624	437	500	749	749	562	500	624
26,0		612	429	490	735	735	551	490	612
27,0	1 1/16	590	413	472	708	708	531	472	590
28,0	1 3/32	569	398	455	682	682	512	455	569
28,3	1 1/8	563	394	450	675	675	506	450	563
29,0		549	384	439	659	659	494	439	549
30,0	1 3/16	531	372	425	637	637	478	425	531
31,0	1 7/32	514	360	411	616	616	462	411	514
32,0	1 1/4	498	348	398	597	597	448	398	498
32,5		490	343	392	588	588	441	392	490
33,0		483	338	386	579	579	434	386	483
34,0		468	328	375	562	562	422	375	468
35,0	1 3/8	455	318	364	546	546	409	364	455
36,0		442	310	354	531	531	398	354	442
37,0	1 7/16	430	301	344	516	516	387	344	430
38,0	1 1/2	419	293	335	503	503	377	335	419
39,0		408	286	327	490	490	367	327	408
40,0	1 9/16	398	279	318	478	478	358	318	398
40,5		393	275	315	472	472	354	315	393
41,0	1 5/8	388	272	311	466	466	350	311	388
42,0		379	265	303	455	455	341	303	379
43,0	1 11/16	370	259	296	444	444	333	296	370
44,0	1 3/4	362	253	290	434	434	326	290	362
45,0		354	248	283	425	425	318	283	354
46,0		346	242	277	415	415	312	277	346
47,0	1 7/8	339	237	271	407	407	305	271	339
48,0		332	232	265	398	398	299	265	332
49,0		325	227	260	390	390	292	260	325
50,0	1 31/32	318	223	255	382	382	287	255	318
50,5		315	221	252	378	378	284	252	315
51,0	2	312	219	250	375	375	281	250	312
52,0		306	214	245	367	367	276	245	306
53,0		300	210	240	361	361	270	240	300
54,0	2 1/8	295	206	236	354	354	265	236	295
55,0		290	203	232	347	347	261	232	290
56,0		284	199	227	341	341	256	227	284
57,0	2 1/4	279	196	223	335	335	251	223	279
58,0		275	192	220	329	329	247	220	275
59,0		270	189	216	324	324	243	216	270
60,0	2 3/8	265	186	212	318	318	239	212	265
63,5	2 1/2	251	176	201	301	301	226	201	251
65,0		245	171	196	294	294	220	196	245
70,0	2 3/4	227	159	182	273	273	205	182	227
75,0		212	149	170	255	255	191	170	212
80,0		199	139	159	239	239	179	159	199
85,0		187	131	150	225	225	169	150	187
90,0		177	124	142	212	212	159	142	177
95,0	3 3/4	168	117	134	201	201	151	134	168
100,0		159	111	127	191	191	143	127	159
110,0		145	101	116	174	174	130	116	145
120,0		133	93	106	159	159	119	106	133
130,0	5 1/8	122	86	98	147	147	110	98	122
140,0	5 1/2	114	80	91	136	136	102	91	114
150,0		106	74	85	127	127	96	85	106

Bi-metal hole saws HSS with varied toothing / HSS Co 8 with fine toothing

Cutting edges:	HSS / HSS Co 8
Jacket:	special steel
Cutting depth:	up to max. 38,0 mm (1 1/2")
Cutting teeth: right hand cutting	HSS with varied toothing / HSS Co 8 with fine toothing

The RUKO bi-metal hole saws can be used in hand and pillar drills.
When employing pillar drills, use manual advance only.

Bimetal compass saws HSS with varied toothing
On easily cut materials the varied toothing ensures that the cut is more even and requires less effort. The reduction in vibrations and heat development during cutting achieves up to three times the tool life.

Suitable for unalloyed steel (up to 700 N/mm² strength), non-ferrous and light metals, plastics, plasterboard and light building boards, fibreboard, plywood and wood.

Bi-metal hole saws HSS Co 8 with fine toothing
The fine toothing is particularly suitable for cutting metals. It ensures smoother running and reduces the necessary effort. The reduction in heat development during cutting increases tool life, especially in the case of metals.

Suitable for alloyed and non-alloyed steels (up to 1.000 N/mm² strength), high chromium alloyed steels such as staniless steel, steels resistant to rusts and acids, non-ferrous and light metals.

Characteristics:
- High rotational precision
- Sturdy construction
- Hole saw and shank in two parts, so hole saws of different diameters can be exchanged and fitted more rapidly
- Positive chipping and cutting angles ensure more aggressive cutting
- The teeth are welded onto a jacket of special steel
- Good chip removal
- Slots in the jacket side assist removal of cutouts
- Exchangeable centring drill

User instructions:
- Unsuitable for percussion-drill operation
- Only slight pressure required to start drilling
- Drill with light, steady pressure
- Avoid pendulum movements while drilling
- Observe table of drilling speeds
- Use prescribed cooling agents

Bi-metal hole saws HSS with varied toothing / HSS Co 8 with fine toothing

Cutting edges: HSS / HSS Co 8
Jacket: special steel
Cutting depth: up to max. 38,0 mm (1 1/2")
Cutting teeth: HSS with varied toothing / HSS Co 8 with fine toothing
right hand cutting

Packing unit: individual carton

Ø mm	Ø inch	Through dimensions PG	Tube dimensions inch	For arbor holders	Article no. **HSS**	Article no. **HSS Co 8**
14,0	9/16			A1 / A4 / A5	106 014	126 014
16,0	5/8	~ PG 9		A1 / A4 / A5	106 016	126 016
17,0				A1 / A4 / A5	106 017	126 017
19,0	3/4	~ PG 11	3/8	A1 / A4 / A5	106 019	126 019
20,0				A1 / A4 / A5	106 020	126 020
21,0		~ PG 13,5		A1 / A4 / A5	106 021	126 021
22,0	7/8		1/2	A1 / A4 / A5	106 022	126 022
24,0	15/16	~ PG 16		A1 / A4 / A5	106 024	126 024
25,0	1			A1 / A4 / A5	106 025	126 025
27,0	1 1/16			A1 / A4 / A5	106 027	126 027
28,0	1 3/32			A1 / A4 / A5	106 028	126 028
29,0	1 1/8	~ PG 21	3/4	A1 / A4 / A5	106 029	126 029
30,0	1 3/16			A1 / A4 / A5	106 030	126 030
32,0	1 1/4			A2 / A6 / A7	106 032	126 032
33,0				A2 / A6 / A7	106 033	126 033
35,0	1 3/8		1	A2 / A6 / A7	106 035	126 035
36,0				A2 / A6 / A7	106 036	126 036
37,0		PG 29		A2 / A6 / A7	106 037	126 037
38,0	1 1/2			A2 / A6 / A7	106 038	126 038
40,0				A2 / A6 / A7	106 040	126 040
41,0	1 5/8			A2 / A6 / A7	106 041	126 041
43,0	1 11/16			A2 / A6 / A7	106 043	126 043
44,0	1 3/4		1 1/4	A2 / A6 / A7	106 044	126 044
46,0	1 13/16			A2 / A6 / A7	106 046	126 046
48,0	1 7/8	~ PG 36		A2 / A6 / A7	106 048	126 048
50,0				A2 / A6 / A7	106 050	126 050
51,0	2		1 1/2	A2 / A6 / A7	106 051	126 051
52,0				A2 / A6 / A7	106 052	126 052
54,0	2 1/8	PG 42		A2 / A6 / A7	106 054	126 054
55,0				A2 / A6 / A7	106 055	126 055
57,0	2 1/4			A2 / A6 / A7	106 057	126 057
59,0				A2 / A6 / A7	106 059	126 059
60,0	2 3/8	~ PG 48		A2 / A6 / A7	106 060	126 060
63,0				A2 / A6 / A7	106 063	126 063
64,0	2 1/2		2	A2 / A6 / A7	106 064	126 064
65,0				A2 / A6 / A7	106 065	126 065
67,0	2 5/8			A2 / A6 / A7	106 067	126 067
68,0				A2 / A6 / A7	106 068	126 068
70,0	2 3/4			A2 / A6 / A7	106 070	126 070
73,0	2 7/8			A2 / A6 / A7	106 073	126 073
76,0	3		2 1/2	A2 / A6 / A7	106 076	126 076
79,0	3 1/8			A2 / A6 / A7	106 079	126 079
83,0	3 1/4			A2 / A6 / A7	106 083	126 083
86,0	3 3/8			A2 / A6 / A7	106 086	126 086
89,0	3 1/2			A2 / A6 / A7	106 089	126 089
92,0	3 5/8		3	A2 / A6 / A7	106 092	126 092
95,0	3 3/4			A2 / A6 / A7	106 095	126 095
98,0	3 7/8			A2 / A6 / A7	106 098	126 098
102,0	4			A2 / A6 / A7	106 102	126 102
105,0			3 1/2	A2 / A6 / A7	106 105	126 105
108,0	4 1/4			A2 / A6 / A7	106 108	126 108
111,0	4 3/8			A2 / A6 / A7	106 111	126 111
114,0	4 1/2		4	A2 / A6 / A7	106 114	126 114
121,0	4 3/4			A2 / A6 / A7	106 121	126 121
127,0	5			A2 / A6 / A7	106 127	126 127
140,0	5 1/2			A2 / A6 / A7	106 140	126 140
152,0	6			A2 / A6 / A7	106 152	126 152
160,0	6 5/16			A2 / A6 / A7	106 160	126 160
168,0	6 5/8			A2 / A6 / A7	106 168	126 168
177,0				A2 / A6 / A7	106 177	126 177
210,0	8 1/4			A2 / A6 / A7	106 200	126 200

Arbor holders including pilot drill for bi-metal hole saws HSS and HSS Co 8

Packing unit: individual carton

Type A1

Type A2

Type A4

Type A5

Type A6

Type A7

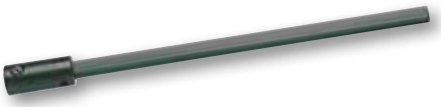
Hole saws Ø mm	Arbor holders Type	Shank Ø mm	Shank shape	Thread	Article no. **HSS**	Article no. **HSS Co**
14,0 - 30,0	A1	11,0	⬡	1/2" x 20	106 201	126 201
32,0 - 210,0	A2	11,0	⬡	5/8" x 18	106 202	126 202
14,0 - 30,0	A4	6,0	○	1/2" x 20	106 204	126 204
14,0 - 30,0	A5	9,5	⬡	1/2" x 20	106 210	126 210
32,0 - 210,0	A6	9,5	⬡	5/8" x 18	106 209	126 209
32,0 - 210,0	A7	10,0	SDS-Plus	5/8" x 18	106 211	126 211

Accessories for bi-metal hole saws HSS and HSS Co 8

Packing unit: individual plastic pack

No. 106 212

No. 106 207



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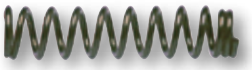


No. 106 208

Description	Arbor holders Type	Article no. **HSS**	Article no. **HSS Co**
Adapter to support HSS and HSS Co 8 bi-metal hole saws from Ø 32,0 to Ø 210,0 mm	A1 / A4 / A5	106 212	—
Pilot drill HSS / HSS Co 5, ground, Ø 6,35 x 102,0 mm and split point in accordance with DIN 1412 C	A4	106 207	126 207
Pilot drill HSS / HSS Co 5, ground, Ø 6,35 x 82,0 mm and split point in accordance with DIN 1412 C	A1 / A2 / A5 / A6 / A7	106 206	126 206
Extension 300,0 mm, shank shape ⬡ 11,0 mm	A1 / A2	106 205	—
Ejector spring	—	106 208	—

Sets of bi-metal hole saws HSS / HSS Co 8 in plastic cases

No. 106 306

No. 106 304

No. 106 318

No. 126 306

No. 126 304

No. 126 318

Type	Description	Article no. **HSS**	Article no. **HSS Co 8**
PK 1	8-piece set of bi-metal hole saws for plumbers 6 bi-metal hole saws Ø 19,0 - 22,0 - 29,0 - 38,0 - 44,0 - 57,0 mm + 2 arbor holders A2 and A4	106 301	126 301
PK 2	11-piece set of bi-metal hole saws for plumbers 9 bi-metal hole saws Ø 19,0 - 22,0 - 29,0 - 35,0 - 38,0 - 44,0 - 51,0 - 57,0 - 64,0 mm + 2 arbor holders A2 and A4	106 306	126 306
EK 1	8-piece set of bi-metal hole saws for electricians 6 bi-metal hole saws Ø 22,0 - 29,0 - 35,0 - 44,0 - 51,0 - 64,0 mm + 2 arbor holders A2 and A4	106 305	126 305
EK 2	8-piece set of bi-metal hole saws for electricians 6 bi-metal hole saws Ø 22,0 - 29,0 - 35,0 - 44,0 - 51,0 - 68,0 mm + 2 arbor holders A2 and A4	106 302	126 302
Universal	12-piece set of bi-metal hole saws Ø 19,0 - 22,0 - 25,0 - 29,0 - 35,0 - 38,0 - 44,0 - 51,0 - 57,0 - 64,0 mm + 2 arbor holders A2 and A4	106 303	126 303
Super	12-piece set of bi-metal hole saws Ø 22,0 - 25,0 - 32,0 - 35,0 - 41,0 - 44,0 - 51,0 - 54,0 - 60,0 - 68,0 mm + 2 arbor holders A2 and A4	106 304	126 304
Premium	19-piece set of bi-metal hole saws Ø 16,0 - 19,0 - 21,0 - 24,0 - 25,0 - 29,0 - 32,0 - 37,0 - 40,0 - 48,0 - 51,0 - 54,0 - 60,0 - 73,0 - 83,0 mm + 2 arbor holders A1 and A2 + 1 Pilot dril HSS Ø 6,35 mm x 82,0 mm + 1 Extension 300,0 mm, arbors for A1 and A2	106 318	126 318

Recommended cutting speeds for bi-metal hole saws HSS and HSS Co 8

Material:		High carbon struc. steel up to 700 N/mm²	Alloyed steel up to 1000 N/mm²	Cast iron over 250 N/mm²	CuZn alloy	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics	Wood
Vc = m/min		30	20	10	35	30	20	15	40
Coolant:		Cutting spray	Cutting spray	Compressed air	Compressed air	Cutting spray	Water	Compressed air	Compressed air
Ø mm	Ø inch	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
14,0	9/16	682	455	227	796	682	455	341	910
16,0	5/8	597	398	199	697	597	398	299	796
17,0		562	375	187	656	562	375	281	749
19,0	3/4	503	335	168	587	503	335	251	670
21,0		455	303	152	531	455	303	227	607
22,0	7/8	434	290	145	507	434	290	217	579
24,0	15/16	398	265	133	464	398	265	199	531
25,0	1	382	255	127	446	382	255	191	510
27,0	1 1/16	354	236	118	413	354	236	177	472
28,0	1 3/32	341	227	114	398	341	227	171	455
29,0	1 1/8	329	220	110	384	329	220	165	439
30,0	1 3/16	318	212	106	372	318	212	159	425
32,0	1 1/4	299	199	100	348	299	199	149	398
33,0		290	193	97	338	290	193	145	386
35,0	1 3/8	273	182	91	318	273	182	136	364
36,0		265	177	88	310	265	177	133	354
37,0		258	172	86	301	258	172	129	344
38,0	1 1/2	251	168	84	293	251	168	126	335
40,0		239	159	80	279	239	159	119	318
41,0	1 5/8	233	155	78	272	233	155	117	311
43,0	1 11/16	222	148	74	259	222	148	111	296
44,0	1 3/4	217	145	72	253	217	145	109	290
46,0	1 3/4	208	138	69	242	208	138	104	277
48,0	1 7/8	199	133	66	232	199	133	100	265
50,0	1 31/32	190	128	64	225	194	129	97	257
51,0	2	187	125	62	219	187	125	94	250
52,0		184	122	61	214	184	122	92	245
54,0	2 1/8	177	118	59	206	177	118	88	236
57,0	2 1/4	168	112	56	196	168	112	84	223
59,0		162	108	54	189	162	108	81	216
60,0	2 3/8	159	106	53	186	159	106	80	212
63,0		152	101	51	177	152	101	76	202
64,0	2 1/2	149	100	50	174	149	100	75	199
65,0		147	98	49	171	147	98	73	196
67,0	2 5/8	143	95	48	166	143	95	71	190
68,0		141	94	47	164	141	94	70	187
70,0	2 3/4	136	91	45	159	136	91	68	182
73,0	2 7/8	131	87	44	153	131	87	65	175
76,0	3	126	84	42	147	126	84	63	168
79,0	3 1/8	121	81	40	141	121	81	60	161
83,0	3 1/4	115	77	38	134	115	77	58	153
86,0	3 3/8	111	74	37	130	111	74	56	148
89,0	3 1/2	107	72	36	125	107	72	54	143
92,0	3 5/8	104	69	35	121	104	69	52	138
95,0	3 3/4	101	67	34	117	101	67	50	134
98,0	3 7/8	97	65	32	114	97	65	49	130
102,0	4	94	62	31	109	94	62	47	125
105,0		91	61	30	106	91	61	45	121
108,0	4 1/4	88	59	29	103	88	59	44	118
111,0	4 3/8	86	57	29	100	86	57	43	115
114,0	4 1/2	84	56	28	98	84	56	42	112
121,0	4 3/4	79	53	26	92	79	53	39	105
127,0	5	75	50	25	88	75	50	38	100
140,0	5 1/2	68	45	23	80	68	45	34	91
152,0	6	63	42	21	73	63	42	31	84
160,0	6 5/16	60	40	20	70	60	40	30	80
168,0	6 5/8	57	38	19	66	57	38	28	76
177,0		54	36	18	63	54	36	27	72
210,0	8 9/32	45	30	15	53	45	30	23	61

SAW PROGRAM

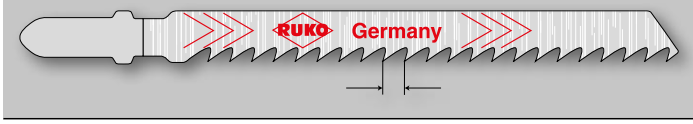
Technical advice for T Shank style jig-saw and reciprocating blades

Tooth spacing

In order to prevent the teeth from breaking off or the blade from snapping, at least three teeth should be cutting at the same time.
The thickness of the work piece should determine whether a coarse- or fine-toothed saw blade is to be used.

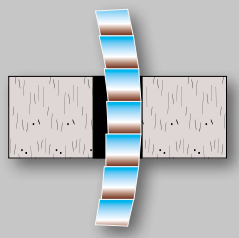
The following information can be used as a rule of thumb for selecting the correct saw blade for the job in hand:

A tooth spacing of 0,7 to 2,0 mm is suitable for thin materials and fine cuts.
A tooth spacing of 2,5 to 4,0 mm is suitable for thick materials and coarse cuts.

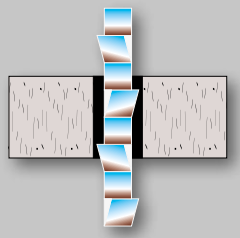


Cutting quality

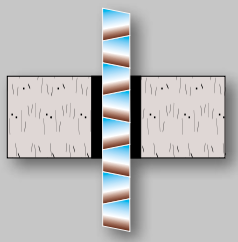
The quality of the saw cut is largely determined by the type and geometry of the teeth on the saw blade.
In order to prevent clamping of the saw blade in the work piece, three tooth systems are currently used:



Wavy set



Tooth side set



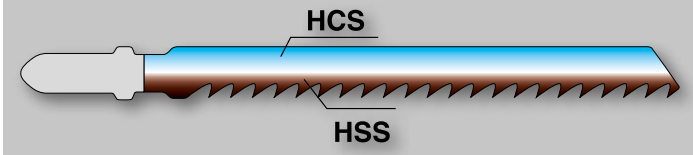
Blade tapered-ground away from the teeth (saw blades are thinner at the spine)

Blades for profiled cuts

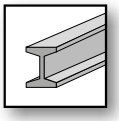
The blades which are most suitable for cutting tight-profiled cuts are narrow saw blades or narrow saw blades with toothed spines.

HSS bimetal

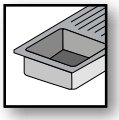
HSS bimetal saw blades are the correct choice where the material to be cut and the conditions of use subject the saw-blade to extreme stresses. The teeth of the saw blade are made of HSS steel whereas the spine is made of a softer and more elastic HCS steel. This combination of materials makes the HSS bimetal saw blades highly flexible and gives them high cutting performance and long service life at the same time.

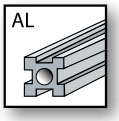


Pictograms for T Shank style jig-saw and reciprocating blades

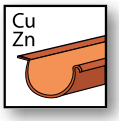

Steel, iron


Sheet steel

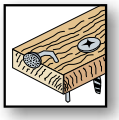

Stainless steel



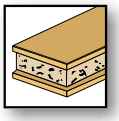
Aluminium

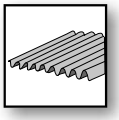


Non-ferrous metals


Wood with nails embedded

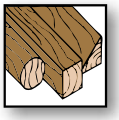
Plastics

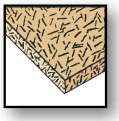

Sandwich materials

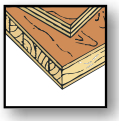

Eternit (asbestos cement) plates


Glass


Ceramic, clay

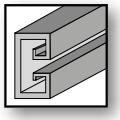

Hardwoods and softwoods

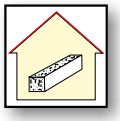

Chipboard


Blockboard

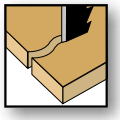
TOP / Bestseller

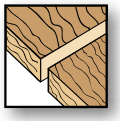

Leather

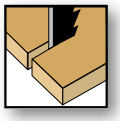

Profiled section

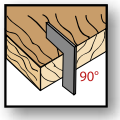

Porous concrete


Pipe


Profiled cuts


Clean cuts

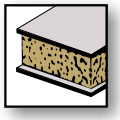

Straight cuts



Right-angled cuts


Fast cuts


Special technology


Laminated/coated boards


Plywood


Pruning

T-shank jig-saw blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

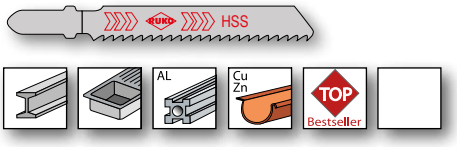
RUKO 8011 HSS steel
Standard saw blade, wavy set.

Application range: St 37 up to 4,0 mm thick, high-alloyed chromium steel such as stainless and acid resistant steel up to 3,0 mm thick, non-ferrous metals, aluminium 3,0 - 10,0 mm cooled with RUKO cutting spray. Hard plastics, acrylic glass 3,0 - 8,0 mm, Pertinax, Resitex. Asbestos cement 2,0 - 4,0 mm. Eternit up to 10,0 mm, cooled with water.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 118 B	Metabo®	23 638
MP.S®	3113	Wilpu®	MG 12
AEG®	254-064		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	2,0	13 Tpi	321 8011	323 8011



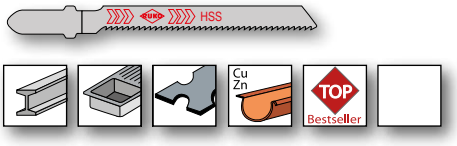
RUKO 8009 HSS steel
Standard saw blade, wavy set. Narrow blade suitable for profiled cuts.

Application range: St 37, sheet high-alloyed chromium steel such as stainless and acid resistant steel up to 2,0 mm thick, non-ferrous metals. Suitable for profiled cuts. Suitable for glass-fibre reinforced plastics up to 4,0 mm thick, acrylic glass up to 8,0 mm, cooled with water. Pressed materials, hard fabrics, insulation materials up 8,0 mm thick, cooled with water.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 218 A	Metabo®	23 647
MP.S®	3112	Wilpu®	MG 21
AEG®	254-063		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,1 x 1,0	1,2	21 Tpi	321 8009	323 8009



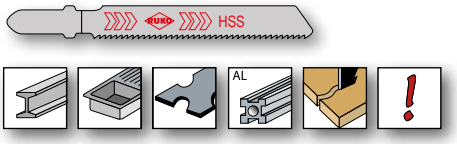
RUKO 8010 HSS steel
Standard saw blade, wavy set. Narrow blade suitable for profiled cuts.

Application range: St 37, non-ferrous metals, aluminium up to 4,0 mm thick, high-alloyed chromium steel such as stainless and acidresistant steel sheet up to 2,0 mm. Hard and softwood, insulation material up to 8,0 mm. Suitable for glassfibre reinforced plastics up to 2,0 mm, acrylic glass, pressed materials, hard fabrics, cooled with water.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 118 A	Metabo®	23 637
MP.S®	3111	Wilpu®	MG 11
AEG®	254-063		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	1,2	21 Tpi	321 8010	323 8010



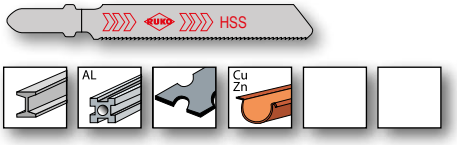
RUKO 8012 HSS steel
Standard saw blade, wavy set. For thin sheet steel.

Application range:
Thin-gauged sheet and profiled section less than 1,0 mm. St 37, non-ferrous metals, aluminium up to 2,0 mm. Armoured plastics, acrylic glass, cooled with water. Thin-gauged hard fabrics, insulation materials, cooled with water.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 118 G	Metabo®	23 636
MP.S®	3110	Wilpu®	HG 107
AEG®	274-652		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	0,7	36 Tpi	321 8012	323 8012



T-shank jig-saw blades for power tools by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

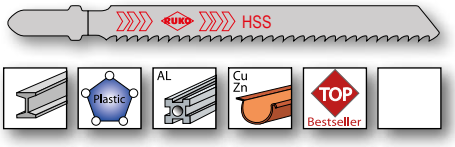
RUKO 8013 HSS steel
Standard saw blade, side set.

Application range:
Mild steel 3,0 - 6,0 mm, non-ferrous metals,
aluminium and aluminium alloys 3,0 - 15,0 mm, cooled with RUKO cutting spray.
Plastics, armoured plastics. Asbestos cement, eternit and hard materials.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 127 D	Metabo®	23 639
MP.S®	3118	Wilpu®	K 14
AEG®	274-315		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,0	3,0	8 Tpi	321 8013	323 8013



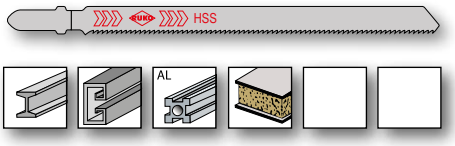
RUKO 8017 HSS steel
Standard saw blade, extra long, wavy set.

Application range:
Profiled section, mild steel, aluminium 2,0 - 10,0 mm,
composite materials, sandwich materials up to 70,0 mm.
Insulation materials.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 318 B	Metabo®	—
MP.S®	3115	Wilpu®	MG 32 bi
AEG®	274-653		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
132,0 x 7,9 x 1,3	2,0	13 Tpi	321 8017	323 8017



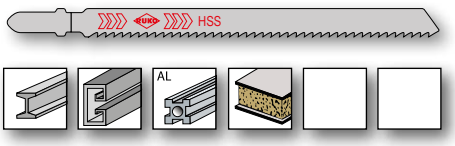
RUKO 8016 HSS steel
Standard saw blade, extra long, wavy set.

Application range:
Profiled section, mild steel, aluminium 1,5 - 4,0 mm,
composite materials, sandwich materials up to 70,0 mm.
Insulation materials.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 318 A	Metabo®	23 629
MP.S®	3114	Wilpu®	MG 31 bi
AEG®	274-654		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
132,0 x 9,5 x 1,0	1,2	21 Tpi	321 8016	323 8016



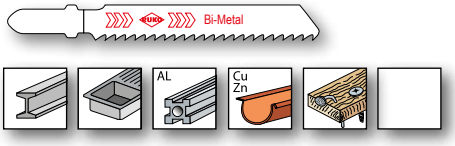
RUKO 8028 HSS bimetal
Saw blade, wavy set.

Application range:
Mild steel, non-ferrous metals 3,0 - 10,0 mm thick as well as sheet
high-alloyed chromium steel such as stainless and acidresistant steel,
wood with nails, acrylic glass.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 118 BF	Metabo®	23 973
MP.S®	3113 F	Wilpu®	MG 12 bi
AEG®	340-012		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	2,0	13 Tpi	321 8028	323 8028



T-shank jig-saw blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

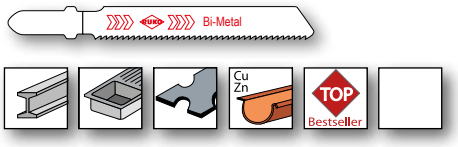
RUKO 8033 HSS bimetal
Saw blade wavy set.

Application range:
Mild steel, non-ferrous metals, aluminium and aluminium alloys 1,5 - 4,0 mm thick, sheet high-alloyed chromium steel such as stainless and acid resistant steel.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 118 AF	Metabo®	23 971
MP.S®	3111 F	Wilpu®	MG 11 bi
AEG®	340-011		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	1,2	21 Tpi	321 8033	323 8033



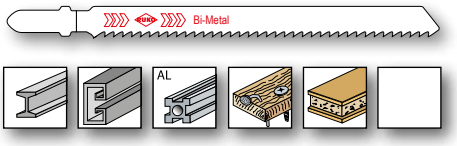
RUKO 8020 HSS bimetal
Saw blade wavy set.

Application range:
Profiled section, pipe up to Ø 60,0 mm with wall thickness 3,0 - 10,0 mm, non-ferrous metals, high-alloyed chromium steel such as stainless and acid resistant steel.
Wood with nails, acrylic glass, armoured plastics.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 318 BF	Metabo®	—
MP.S®	—	Wilpu®	K 14 bi
AEG®	274-653		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
132,0 x 7,9 x 1,0	2,0	13 Tpi	321 8020	323 8020



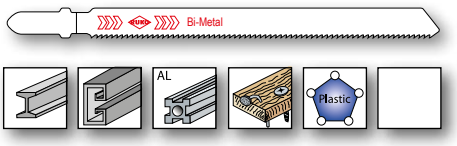
RUKO 8019 HSS bimetal
Saw blade wavy set.

Application range:
Profiled section, pipe up to Ø 60,0 mm with wall thickness 1,4 - 4,0 mm, high-alloyed chromium steel such as stainless and acid resistant steel.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 318 AF	Metabo®	—
MP.S®	—	Wilpu®	MG 31 bi
AEG®	274-654		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
132,0 x 7,9 x 1,0	1,2	21 Tpi	321 8019	323 8019



T-shank jig-saw blades for power tools by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

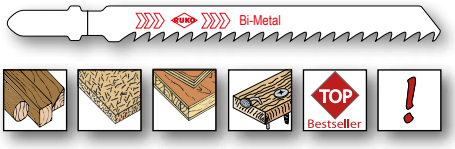
RUKO 8021 HSS bimetal
Blade sharpened, teeth side set.

Application range:
Hardwood and softwood up to 60,0 mm, rough cut, high cutting performance (can take heavy cuts). Suitable for wood with nails.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,3	4,0	6 Tpi	321 8021	323 8021

Blades to replace
Competitive blades may vary from our specifications

Bosch® T 144 DF Metabo® —
MP.S® — Wilpu® HGS 14 bi
AEG® —



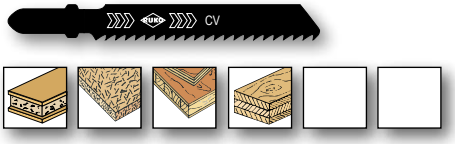
RUKO 8005 HCS
Standard saw blade, wavy set.

Application range:
Plywood and wood-fibre board up to 30,0 mm thick. Insulating materials, acrylic glass up to 6,0 mm, cooled with water. Pressed material, hard fabric up to 4,0 mm thick, cardboard, linoleum up to 6,0 mm thick, cooled with water.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
77,0 x 7,9 x 1,0	2,0	13 Tpi	321 8005	323 8005

Blades to replace
Competitive blades may vary from our specifications

Bosch® T 119 B Metabo® 23 631
MP.S® 3108 Wilpu® HW 12
AEG® 274-353



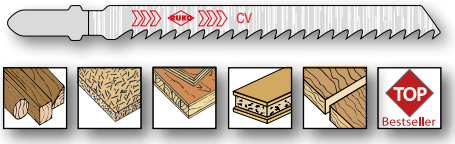
RUKO 8007 HCS
Tapered blade, ground teeth.
Fast and rough cut. Narrow blade suitable for profiled cuts.

Application range:
Hardwood, softwood, plywood and wood-fibre boards up to 50,0 mm thick, clean cut, suitable for slots and grooves. Various soft plastics up to 30,0 mm, clean cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,45	4,0	6 Tpi	321 8007	323 8007

Blades to replace
Competitive blades may vary from our specifications

Bosch® T 101 D Metabo® 23 635
MP.S® 3105 Wilpu® HGS 24
AEG® 274-351



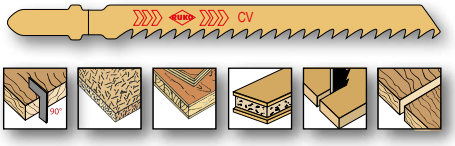
RUKO 8002 HCS
Tapered blade, ground teeth. Clean and fast cut.

Application range:
Hardwood, softwood, plywood and wood-fibre board up to 60,0 mm.
Parallel cuts and clean cuts. Various soft plastics up to 25,0 mm thick, clean cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,7	4,0	6 Tpi	321 8002	323 8002

Blades to replace
Competitive blades may vary from our specifications

Bosch® T 101 DP Metabo® 23 655
MP.S® 3103 Wilpu® HC 14 D
AEG® 274-351



T-shank jig-saw blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

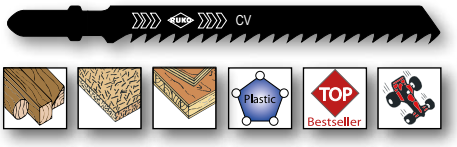
RUKO 8006 HCS
Blade sharpened and side set. Fast and rough cut.

Application range:
Hardwood and softwood up to 60,0 mm thick. Fast and rough cut.
Polystyrene, polyamide, soft plastics up to 50,0 mm thick and plexiglas up to 30,0 mm thick, cooled with water. Hard fabric, insulation material and cardboard.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,5 x 1,3	4,0	6 Tpi	321 8006	323 8006

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 144 D	Metabo®	23 633
MP.S®	3104	Wilpu®	HGS 14
AEG®	213-116		



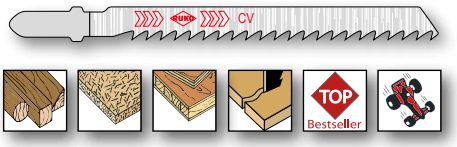
RUKO 8072 HCS
Blade side set and sharpened. Suitable for profiled cuts.

Application range:
Hardwoods and softwoods up to 60,0 mm thick, rough cut, especially suitable for profiled cuts.
Polystyrene, polyamide, soft plastics up to 50,0 mm.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 6,4 x 1,3	4,0	6 Tpi	321 8072	323 8072

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 244 D	Metabo®	23 649
MP.S®	—	Wilpu®	—
AEG®	346-078		



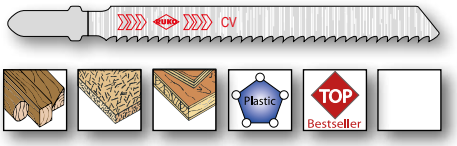
RUKO 8070 HCS
Saw blade side set. Rough cut with high cutting performance.

Application range:
Hardwoods and softwoods up to 60,0 mm thick, rough cut, high cutting performance (can take heavy cuts).
Polystyrene, polyamide, soft plastics up to 30,0 mm thick.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,3	3,0	8 Tpi	321 8070	323 8070

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 111 C	Metabo®	23 632
MP.S®	—	Wilpu®	HG 13
AEG®	254-071		



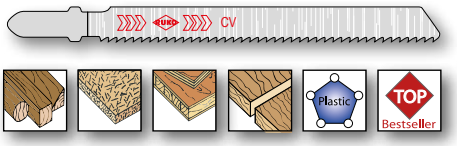
RUKO 8001 HCS
Tapered blade, ground teeth. Clean and fast cut.

Application range:
Hardwood, softwood, plywood and wood-fibre board up to 50,0 mm thick.
Suitable for slots and grooves. Various soft plastics up to 20,0 mm thick.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,45	2,5	10 Tpi	321 8001	323 8001

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 101 B	Metabo®	23 634
MP.S®	3101	Wilpu®	HC 12
AEG®	254-061		



T-shank jig-saw blades for power tools by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

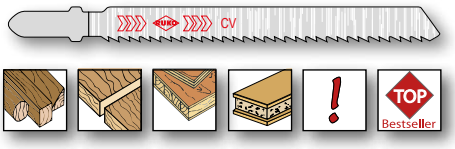
RUKO 8018 HCS
Tapered blade, ground teeth. Clean cut. Reversed cutting direction.

Application range:
Hardwoods and softwoods, plywood, wood-fibre boards up to 60,0 mm.
Formica and laminated / coated boards. Soft plastics.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 101 BR	Metabo®	23 650
MP.S®	3102	Wilpu®	HC 12 R
AEG®	346-079		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
100,0 x 7,9 x 1,45	2,5	10 Tpi	321 8018	323 8018



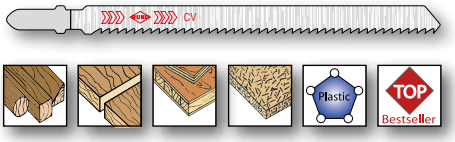
RUKO 8023 HCS
Tapered blade, ground teeth.

Application range:
Hardwood and softwood, plywood and wood-fibre boards up to 70,0 mm, clean cut, suitable for slots and grooves. Various soft plastics up to 40,0 mm, clean cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 301 D	Metabo®	23 654
MP.S®	3101 L	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
117,0 x 7,9 x 1,45	4,0	6 Tpi	321 8023	323 8023



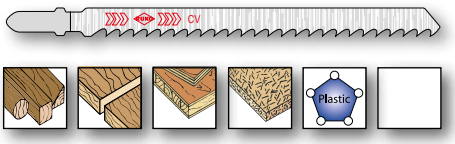
RUKO 8024 HCS
Tapered blade, ground teeth. Very clean and fast cut.

Application range:
Hardwood and softwood, plywood and wood-fibre boards up to 70,0 mm, clean and fast cut, suitable for slots and grooves.
Various soft plastics up to 40,0 mm, clean cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	T 301 DL	Metabo®	—
MP.S®	3104 L	Wilpu®	HGS 34
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5	Article no. Cont. pcs. 20
132,0 x 9,5 x 1,45	4,0	6 Tpi	321 8024	323 8024

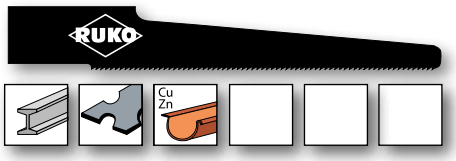


Jig-saw blades for pneumatic body saws by Ober®, Chicago Pneumatic®, Shinano®, Facom® and Pneutec®

RUKO 8811 HSS bimetal. For thin steel sheet such as car body panels.

Application range: St 37, high-alloyed chromium steel such as stainless and acid resistant steel, non-ferrous metals up to 2,0 mm thick. Suitable for profiled cuts.

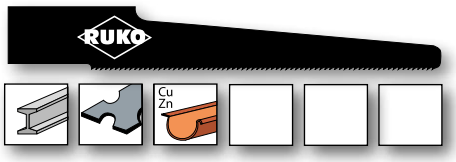
Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
91,5 x 12,7 x 0,6	1,0	24 Tpi	321 8811



RUKO 8812 HSS bimetal. For thin steel sheet such as car body panels.

Application range: St 37, high-alloyed chromium steel such as stainless and acid resistant steel, non-ferrous metals up to 1,0 mm thick. Suitable for profiled cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
91,5 x 12,7 x 0,6	0,8	32 Tpi	321 8812

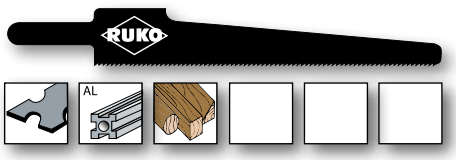


Jig-saw blades for pneumatic body saws by SIG®, FLEX® and Wieländer+Schill®

RUKO 8814 HSS bimetal. For thin steel sheet such as car body panels.

Application range:
St 37, non-ferrous metals up to 2,5 mm thick. Wood, plastics, hard fabrics.

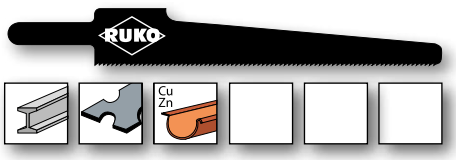
Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
96,0 x 12,7 x 0,6	1,8	14 Tpi	321 8814



RUKO 8824 HSS bimetal. For thin steel sheet such as car body panels.

Application range: St 37, high-alloyed chromium steel such as stainless and acid resistant steel, non-ferrous metals up to 2,0 mm thick. Suitable for profiled cuts.

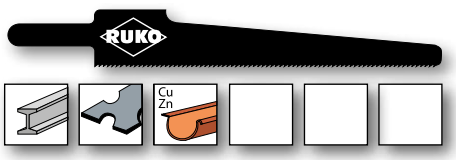
Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
96,0 x 12,7 x 0,6	1,0	24 Tpi	321 8824



RUKO 8832 HSS bimetal. For thin steel sheet such as car body panels.

Application range: St 37, high-alloyed chromium steel such as stainless and acid resistant steel, non-ferrous metals up to 1,0 mm thick. Suitable for profiled cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
96,0 x 12,7 x 0,6	0,8	32 Tpi	321 8832



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

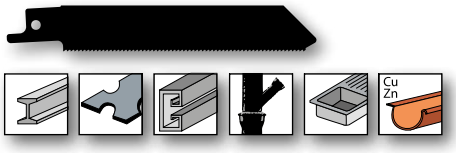
RUKO 8939 TC (Tungsten carbide)
Toothing ground.

Application range:
Inox sheeting from 2,0 - 4,0 mm material thickness,
Inox profiles from Ø 2,0 - 50,0 mm, FRP / epoxy from 2,0 - 15,0 mm.
For material with reduced stroke rate and cooling, work without oscillation.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 518 EHM	Metabo®	—
MP.S®	—	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
115,0 x 18,0 x 1,25	1,4	18 Tpi	331 89395



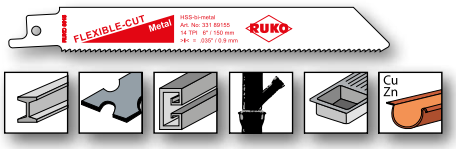
RUKO 8915 HSS bimetal
Toothing crossed and milled.

Application range:
Thick sheeting from 3,0 - 8,0 mm material thickness,
solid pipes and profiles Ø 10,0 - 100,0 mm, fast cutting.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 922 BF	Metabo®	31130
MP.S®	4411	Wilpu®	3013-150
AEG®	323-810		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	1,8	14 Tpi	331 89155



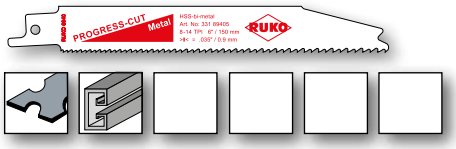
RUKO 8940 HSS bimetal
Toothing crossed and milled.

Application range:
Thick sheeting from 3,0 - 8,0 mm material thickness,
solid pipes and profiles Ø 10,0 - 100,0 mm, fast cutting.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 123 XF	Metabo®	—
MP.S®	—	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	1,8 - 3,0	8 - 14 Tpi	331 89405



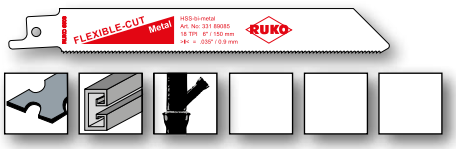
RUKO 8908 HSS bimetal
Toothing crossed and milled.

Application range:
Thin sheeting from 1,5 - 4,0 mm material thickness,
pipes and profiles Ø 5,0 - 100,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 922 EF	Metabo®	31132
MP.S®	4401	Wilpu®	3014-150
AEG®	323-809		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	1,4	18 Tpi	331 89085



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

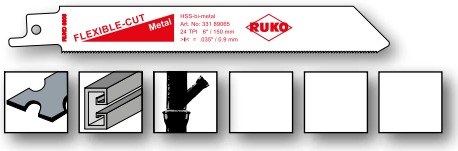
RUKO 8906 HSS bimetal
Toothing corrugated and milled.

Application range:
Thin sheeting from 0,7 - 3,0 mm material thickness,
fine pipes and profiles from Ø 5,0 - 10,0 mm.
Easy, fine cut.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	1,0	24 Tpi	331 89065

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 922 AF	Metabo®	31129
MP.S®	4405	Wilpu®	3015-150
AEG®	318-128		



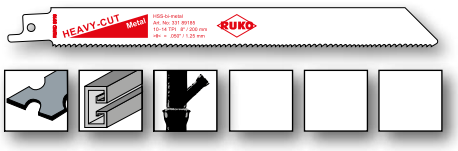
RUKO 8918 HSS bimetal
Toothing crossed and milled.

Application range:
Medium to thick sheeting from 2,0 - 12,0 mm material thickness,
solid pipes and profiles from Ø 10,0 - 150,0 mm.
Easy, fine cut.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
200,0 x 18,0 x 1,25	1,8 - 2,4	10 - 14 Tpi	331 89185

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1025 VF	Metabo®	—
MP.S®	—	Wilpu®	—
AEG®	—		



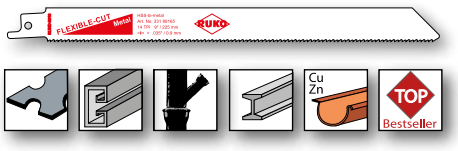
RUKO 8916 HSS bimetal
Toothing crossed and milled.

Application range:
Thin sheeting from 3,0 - 8,0 mm material thickness,
solid pipes and profiles from Ø 10,0 - 175,0 mm.
Flexible, flush and fast cut.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 0,9	1,8	14 Tpi	331 89165

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1122 BF	Metabo®	31135 / 31485
MP.S®	4415		
AEG®	—	Wilpu®	3013-200



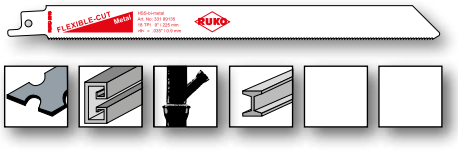
RUKO 8913 HSS bimetal
Toothing crossed and milled.

Application range:
Thin sheeting from 1,5 - 4,0 mm material thickness,
pipes and profiles Ø 5,0 - 175,0 mm.
Flexible, flush cut.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 0,9	1,4	18 Tpi	331 89135

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1122 EF	Metabo®	31133 / 31483
MP.S®	4402		
AEG®	323-812	Wilpu®	3014-200



Reciprocating blades demolition for power tools by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

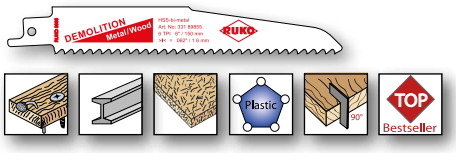
RUKO 8985 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails, metal, chipboard from 10,0 - 100,0 mm material thickness, plastic profiles from Ø 5,0 - 100,0 mm, solid plastics / FRP from 8,0 - 50,0 mm, wood and metal window frames. Especially suitable for plunge cuts.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 610 DF Metabo® —
MP.S® — Wilpu® —
AEG® —

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 21,0 x 1,6	4,2	6 Tpi	331 89855



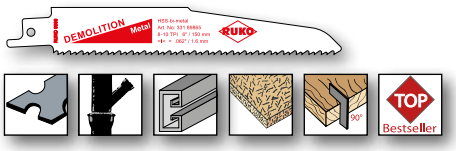
RUKO 8986 HSS bimetal
Toothing crossed and milled.

Application range:
Plates from 4,0 - 10,0 mm, solid pipes and profiles from Ø 20,0 - 100,0 mm.
Ideal for pipe cutting equipment, rescue and demolition work.
Powerful, coarse cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 920 CF Metabo® —
MP.S® — Wilpu® —
AEG® —

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 21,0 x 1,6	2,9	8 - 10 Tpi	331 89865



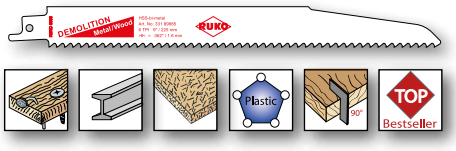
RUKO 8988 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails, metal, chipboard from 10,0 - 175,0 mm material thickness, solid plastics / FRP from 8,0 - 50,0 mm, wood and metal wall pieces to 150,0 mm.
For rescue and demolition work.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1110 DF Metabo® —
MP.S® — Wilpu® —
AEG® —

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
225,0 x 21,0 x 1,6	4,2	6 Tpi	331 89885



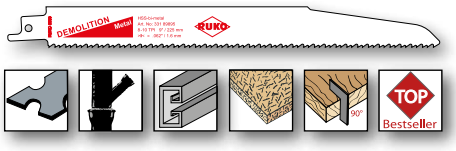
RUKO 8989 HSS bimetal
Toothing crossed and milled.

Application range:
Plates from 4,0 - 10,0 mm, solid pipes and profiles from Ø 20,0 - 175,0 mm.
Ideal for pipe cutting equipment, rescue and demolition work.
Powerful, coarse cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1120 CF Metabo® —
MP.S® — Wilpu® —
AEG® —

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
225,0 x 21,0 x 1,6	2,9	8 - 10 Tpi	331 89895



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

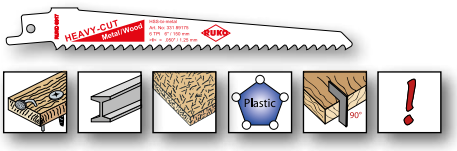
RUKO 8917 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails, metal, chipboard from 10,0 - 100,0 mm material thickness, plastic profiles from Ø 5,0 - 100,0 mm, solid plastics/ FRP from 8,0 - 50,0 mm, wood and metal window frames. Especially suitable for plunge cuts.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 611 DF	Metabo®	31123 / 31473
MP.S®	4016		
AEG®	318-127	Wilpu®	—

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 1,25	4,2	6 Tpi	331 89175



RUKO 8901 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 100,0 mm material thickness, metal sheeting, pipes, aluminium profiles from 3,0 - 12,0 mm and pallets.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 922 HF	Metabo®	31131
MP.S®	4430	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	2,5	10 Tpi	331 89015

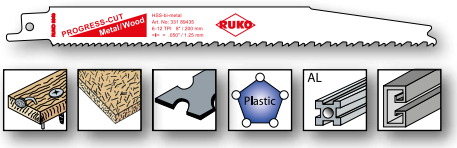
RUKO 8943 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal, chipboard from 5,0 - 150,0 mm material thickness, metal sheeting, aluminium profiles from 3,0 - 18,0 mm, plastics / FRP and profiles Ø 5,0 - 150,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 3456 XF	Metabo®	—
MP.S®	—	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
200,0 x 18,0 x 1,25	2,1 - 4,3	6 - 12 Tpi	331 89435



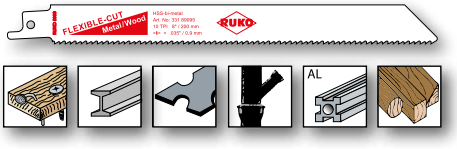
RUKO 8909 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 150,0 mm material thickness, metal sheeting, pipes, aluminium profiles from 3,0 - 12,0 mm and pallets.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1022 HF	Metabo®	—
MP.S®	4431	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
200,0 x 18,0 x 0,9	2,5	10 Tpi	331 89095



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

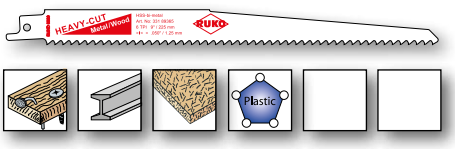
RUKO 8936 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal, chipboard from 10,0 - 175,0 mm material thickness, plastic profiles from Ø 5,0 - 175,0 mm, solid plastics / FRP from 8,0 - 50,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1111 DF Metabo® —
MP.S® — Wilpu® —
AEG® 318-125

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 1,25	4,2	6 Tpi	331 89365



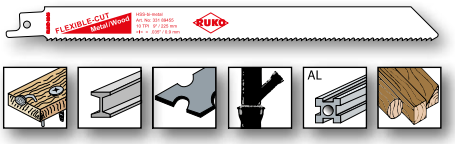
RUKO 8945 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 175,0 mm material thickness, metal sheeting, pipes, aluminium profiles from 3,0 - 12,0 mm and for pallet repairs. Flexible, flush cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1122 HF Metabo® —
MP.S® — Wilpu® —
AEG® —

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 0,9	2,5	10 Tpi	331 89455



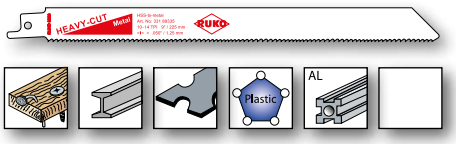
RUKO 8933 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 175,0 mm material thickness, metal sheeting, aluminium profiles from 3,0 - 10,0 mm and plastic profiles from Ø 3,0 - 175,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1125 VF Metabo® —
MP.S® — Wilpu® —
AEG® 323-813

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 1,25	1,8 - 2,4	10 - 14 Tpi	331 89335



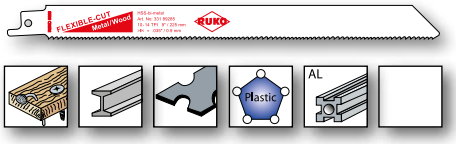
RUKO 8928 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 175,0 mm material thickness, metal sheeting, aluminium profiles from 3,0 - 10,0 mm and plastic profiles from Ø 3,0 - 175,0 mm. Flexible, flush cut.

Blades to replace
Competitive blades may vary from our specifications

Bosch® S 1122 VF Metabo® —
MP.S® — Wilpu® —
AEG® 323-813

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 0,9	1,8 - 2,4	10 - 14 Tpi	331 89285



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

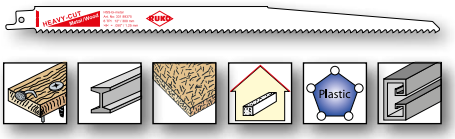
RUKO 8937 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails, metal and chipboard from 10,0 - 250,0 mm material thickness, gas concrete from 10,0 - 250,0 mm, plastics / FRP and profiles from 5,0 - 60,0 mm.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
300,0 x 18,0 x 1,25	4,2	6 Tpi	331 89375

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1411 DF	Metabo®	—
MP.S®	—	Wilpu®	3021-300 bi
AEG®	—		



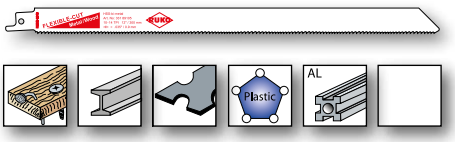
RUKO 8910 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 250,0 mm material thickness, metal sheeting, aluminium profiles from 3,0 - 10,0 mm and plastic profiles from Ø 3,0 - 250,0 mm. Flexible, flush cut.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
300,0 x 18,0 x 0,9	1,8 - 2,4	10 - 14 Tpi	331 89105

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1222 VF	Metabo®	31125 / 31475
MP.S®	4432		
AEG®	323-813	Wilpu®	3018-280



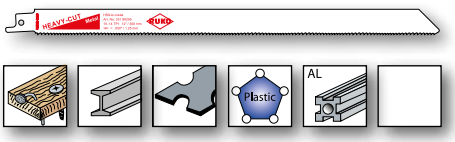
RUKO 8929 HSS bimetal
Toothing crossed and milled.

Application range:
Wood with nails and metal from 5,0 - 250,0 mm material thickness, metal sheeting, aluminium profiles from 3,0 - 10,0 mm and plastic profiles from Ø 3,0 - 250,0 mm.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
300,0 x 18,0 x 1,25	1,8 - 2,4	10 - 14 Tpi	331 89295

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1225 VF	Metabo®	31124 / 31474
MP.S®	4422		
AEG®	—	Wilpu®	—



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

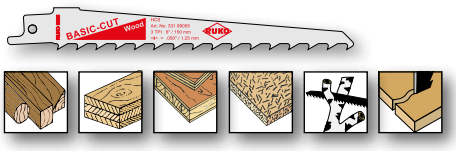
RUKO 8905 HCS
Toothing crossed and milled.

Application range:
Coarse and nail-free wood from 20,0 - 100,0 mm,
living wood, prune to Ø 100,0 mm.
Especially suitable for curved cuts and plunge cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 1,25	8,5	3 Tpi	331 89055

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 617 K	Metabo®	—
MP.S®	4021	Wilpu®	3019-150
AEG®	—		



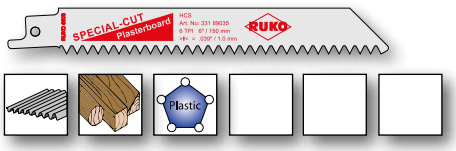
RUKO 8903 HCS
Toothing crossed.

Application range:
Specifically for various plaster and Rigips panels from 8,0 - 100,0 mm.
Wood, Eternit and plastics.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 0,9	4,2	6 Tpi	331 89035

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 828 D	Metabo®	31136
MP.S®	4014	Wilpu®	3025-150
AEG®	318-131 / 323-801		



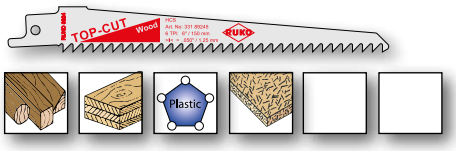
RUKO 8924 HCS
Toothing crossed and ground.

Application range:
Structural wood, plywood and plastics from 6,0 - 100,0 mm,
wooden wall to 75,0 mm, chipboard and MDF from 6,0 - 60,0 mm.
Especially suitable for plunge cuts.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
150,0 x 18,0 x 1,25	4,2	6 Tpi	331 89245

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 644 D	Metabo®	31120 / 31470
MP.S®	4011		
AEG®	323-800	Wilpu®	3021-150



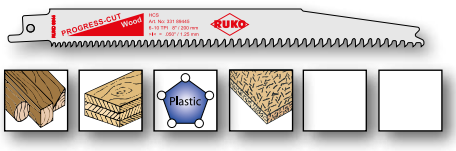
RUKO 8944 HCS
Toothing crossed and ground.

Application range:
Structural wood, plywood and plastics from 6,0 - 150,0 mm,
wooden walls up to 175,0 mm,
Chipboard and MDF from 6,0 - 60,0 mm.

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	per inch	Article no. Cont. pcs. 5
200,0 x 18,0 x 1,25	2,5 - 4,3	6 - 10 Tpi	331 89445

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 2345 X	Metabo®	—
MP.S®	—		
AEG®	—	Wilpu®	—



Reciprocating blades for power tools
by Bosch®, Metabo®, MP.S®, Wilpu®, Atlas Copco® / AEG® etc.

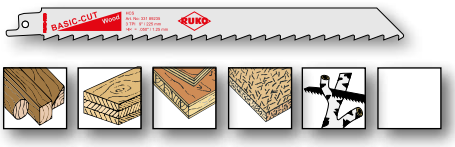
RUKO 8923 HCS
Toothing crossed and milled.

Application range:
Coarse and nail-free wood from 20,0 - 175,0 mm,
firewood from Ø 20,0 - 175,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1111 K	Metabo®	—
MP.S®	—	Wilpu®	—
AEG®	—		

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
225,0 x 18,0 x 1,25	8,5	3 Tpi	331 89235



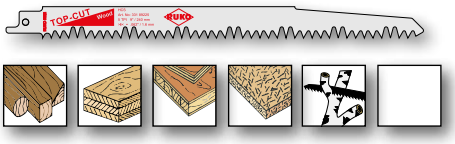
RUKO 8922 HCS
Toothing crossed and ground.

Application range:
Coarse and nail-free wood from 15,0 - 190,0 mm,
living wood, pruned to Ø 190,0 mm,
firewood from Ø 15,0 - 190,0 mm.

Blades to replace
Competitive blades may vary from our specifications

Bosch®	S 1531 L	Metabo®	31139 / 31488
MP.S®	4052		
AEG®	323-803	Wilpu®	3029-240

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
240,0 x 18,0 x 1,6	4,0 - 6,5	5 Tpi	331 89225



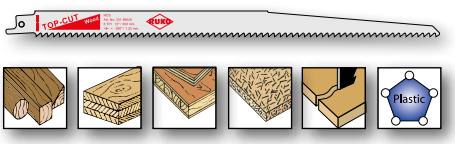
RUKO 8904 HCS
Toothing crossed and ground.

Application range:
Structural wood, wooden wall,
chipboard, MDF, plywood, plastics.

Blades to replace
Competitive blades may vary from our specifications

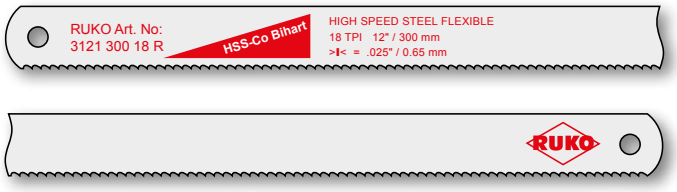
Bosch®	S 1344 D	Metabo®	31122 / 31472
MP.S®	4015		
AEG®	323-802	Wilpu®	3021-300

Dimensions Length x Height x Thickness mm	Tooth spacing teeth per mm	Tooth spacing teeth per inch	Article no. Cont. pcs. 5
300,0 x 18,0 x 1,25	4,2	6 Tpi	331 89045



HSS-Co Bihart cobalt hacksaw blade

This HSS bi-metallic hacksaw blade is made of two different types of steel. The cutting edge is made of hard HSS molybdenum steel and the saw blade body is made of alloyed heat-treated steel. The combination of the two types of steel in one saw blade makes the hacksaw blade extremely wear-resistant, unbreakable and gives it outstanding cutting durability. Suitable for all common materials. The ideal blade for high demands.

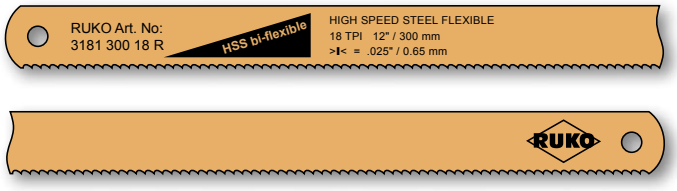


Packing unit: 100 blades per carton (10 x 10 pieces)

Dimensions Length x Height x Thickness mm	approx. inch	Tooth spacing teeth per inch	teeth per cm	Packing unit loose per carton	Article no.
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	18	8	100	3121 300 18 R
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	24	10	100	3121 300 24 R
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	32	12	100	3121 300 32 R

HSS bi-flexible hacksaw blade

Due to a special heat treatment, this HSS all-steel saw blade combines two seemingly incompatible properties: hardness and elasticity.
Only the teeth are hardened whilst the HSS saw blade body remains flexible. Because of these two hardness zones, the hacksaw blade virtually features the properties of an HSS bi-metallic hacksaw blade.
The ideal blade for the craftsman.



Packing unit: 100 blades per carton (10 x 10 pieces)

Dimensions Length x Height x Thickness mm	approx. inch	Tooth spacing teeth per inch	teeth per cm	Packing unit loose per carton	Article no.
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	18	8	100	3181 300 18 R
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	24	10	100	3181 300 24 R
300,0 x 13,0 x 0,65	12 x 1/2 x 0.025	32	12	100	3181 300 32 R

Compact 33 hacksaw frame

Handle made from lacquered light-metal pressure-die casting.
Frame made from polished chrome-plated square tube.
Suitable for 300,0 mm saw blades.
Includes 1 Bihart cobalt saw blade with 24 teeth per inch.

Dimensions Length mm	Height mm	Weight	Packing unit SB carton	Article no.
420,0	130,0	580 g	1	317 000 33 R

Reference table for RUKO jig-saw blades

Competitive blades may vary from our specifications.

Article no.	Bosch®	D+N®	Gematic®	Hawera®	Lenox®	Metabo®	MP.S®	Wilpu®	Atlas Copco®/ AEG®	Holz-Her®	Festo®
321 8001	T 101 B	3 22 25	10 2255	240 515	F 450 S	23 634	3101	HC 12	254-061	Ho 75 F	S 75/2,5
321 8002	T 101 DP	3 29 40	10 2258	240 516	F 456 S	23 655	3103	HC 14 D	274-351	—	S 75/4
321 8005	T 119 B	3 20 20	10 2249	144 212	F 410 S	23 631	3108	HW 12	274-353	SP 50 G	—
321 8006	T 144 D	3 23 40	10 2270	240 520	F 406 S	23 633	3104	HGS 14	213-116	HW 75 G	S75/4
321 8007	T 101 D	3 22 40	—	240 521	F 416 SC	23 635	3105	HGS 24	274-351	HO 75 G	—
321 8009	T 218 A	3 13 12	10 2104	240 523	F 324 S	23 647	3112	MG 21	254-063	ME 50 M	—
321 8010	T 118 A	3 10 12	—	—	F 318 SC	23 637	3111	MG 11	254-063	AK 50 M	HS 50/1.2
321 8011	T 118 B	3 10 20	10 2107	240 525	F 340 SV	23 638	3113	MG 12	254-064	ME 50 G	HS 50/2
321 8012	T 118 G	3 10 07	10 2101	240 526	—	23 636	3110	HG 107	274-652	ME 50 F	—
321 8013	T 127 D	3 10 30	10 2110	240 528	F 410 S	23 639	3118	K 14	274-315	AL 75 G	HS 75/3
321 8016	T 318 A	3 11 12	10 2113	240 527	F 518 S	23 629	3114	MG 31 bi	274-654	AK 100 M	—
321 8017	T 318 B	3 11 20	10 2116	240 534	F 410 S	—	3115	MG 32 bi	274-653	ME 100 G	—
321 8018	T 101 BR	3 26 25	10 2264	240 545	F 450 SR	23 650	3102	HC 12 R	346-079	—	—
321 8019	T 318 AF	3 15 12	—	144 223	F 324 S	—	—	MG 31 bi	274-654	HS 105 /1,2 bi	—
321 8020	T 318 BF	3 15 20	—	144 227	—	—	—	K 14 bi	274-653	HS 105 /2,0 bi	—
321 8021	T 144 DF	3 33 40	—	144 220	F 456 S	—	—	HGS 14 bi	—	—	HS 75/4 bi
321 8023	T 301 D	3 27 40	—	—	F 410 S	23 654	3101 L	—	—	HO 90 G	—
321 8024	T 301 DL	3 40 40	10 2253	144 213	F 686 S	—	3104 L	HGS 34	—	—	—
321 8028	T 118 BF	3 14 20	10 2322	144 225	F 314 S	23 973	3113 F	MG 12 bi	340-012	—	—
321 8033	T 118 AF	3 14 12	10 2319	240 503	F 324 S	23 971	3111 F	MG 11 bi	340-011	—	—
321 8070	T 111 C	3 20 30	—	—	—	23 632	—	HG 13	254-071	HO 75 R	S 75/3
321 8072	T 244 D	3 24 40	—	—	—	23 649	—	—	346-078	HW 75 K	S 75/4 K

Reference table for RUKO reciprocating blades

Competitive blades may vary from our specifications.

Article no.	Bosch®	D+N®	Gematic®	Hawera®	Metabo®	MP.S®	Fein®	Alfra®
33189015	S 922 HF	11 10 18	11 5346	144248	31131	4430	48015	30 058
33189035	S 828 D	11 20 41	11 5222	121605	31136	4014	56012	30 082
33189045	S 1344 D	11 20 46	11 5210	144235	31122	4015	—	30 079
					31472			
33189055	S 617 K	11 20 40	11 5207	121590	—	4021	50011	30 076
33189065	S 922 AF	11 10 21	11 5354	144239	31129	4405	—	30 061
33189085	S 922 EF	11 10 20	11 5352	144242	31132	4401	—	30 060
33189095	S 1022 HF	11 10 24	11 5361	144249	—	4431	52013	30 063
33189105	S 1222 VF	11 10 31	—	—	31125	4432	—	30 071
					31475			
33189135	S 1122 EF	11 10 26	11 5367	144243	31133	4402	59018	30 065
					31483			
33189155	S 922 BF	11 10 19	11 5349	144245	31130	4411	47017	30 059
33189165	S 1122 BF	11 10 25	11 5364	—	31135	4415	51010	30 064
					31485			
33189175	S 611 DF	11 22 70	11 5328	—	31123	4016	—	—
					31473			
33189185	S 1025 VF	—	—	—	—	—	—	—
33189225	S 1531 L	11 20 51	11 5219	121611	31139	4052	—	—
					31488			
33189235	S 1111 K	—	—	—	—	—	—	—
33189245	S 644 D	11 20 44	11 5201	121600	31120	4011	55019	—
					31470			
33189285	S 1122 VF	11 10 35	—	—	—	—	—	—
33189295	S 1225 VF	11 10 32	11 5379	—	31124	4422	—	—
					31474			
33189335	S 1125 VF	11 10 34	—	—	—	—	—	—
33189365	S 1111 DF	11 22 71	—	—	—	—	—	—
33189375	S 1411 DF	11 22 72	—	—	—	—	—	—
33189395	S 518 EHM	—	—	—	—	—	—	—
33189405	S 123 XF	—	—	—	—	—	—	—
33189435	S 3456 XF	—	—	—	—	—	—	—
33189445	S 2345 X	—	—	—	—	—	—	—
33189455	S 1122 HF	—	—	—	—	—	—	—
33189855	S 610 DF	—	—	—	—	—	—	—
33189865	S 920 CF	—	—	—	—	—	—	—
33189885	S 1110 DF	—	—	—	—	—	—	—
33189895	S 1120 CF	—	—	—	—	—	—	—

Reference table for RUKO reciprocating blades

Competitive blades may vary from our specifications.

Article no.	Flex®	Wilpu®	Atlas Copco®/ AEG®	Makita® Hitachi®	Milford® Rockwell®	Lenox®	Rothenberger®
33189015	—	—	—	—	M 88176	20562-610R	—
					R 12415		
33189035	200.786	3025-150	318-131	M 0.30.20	M 87945	20560-606R	—
			323-801	H 983 605 Z			
33189045	201.936	3021-300	318-125	M 0.30.21	M 88010	20585-156R	—
			323-802		R 12403		
33189055	200.751	3019-150	—	M 0.30.19	M 87936	—	—
33189065	200.743	3015-150	318-128	M 0.30.07	M 88179	20568-624R	86.5784
				H 983 603 Z	R 12433		
33189085	200.735	3014-150	323-809	M 0.30.06	M 88178	20566-618R	86.5785
				H 983 602 Z	R 12454		
33189095	—	—	—	—	M 88174	20580-810R	—
33189105	201.928	3018-280	323-813	M 0.30.18	M 88208	—	—
					M 12418		
33189135	217.751	3014-200	323-812	M 0.30.09	M 88187	20578-818R	86.5787
					R 12420		
33189155	200.727	3013-150	323-810	M 0.30.13	M 88177	205654-614R	86.5786
					M 12451		
33189165	217.190	3013-200	—	M 0.30.08	M 88186	—	86.5788
				H 983 601 Z	R 12419		
33189175	—	—	318-127	—	—	20570-636RP	—
33189185	—	—	—	—	—	—	—
33189225	250.056	3029-240	323-803	M 0.30.29	—	—	—
33189235	—	—	—	—	—	—	—
33189245	—	3021-150	318-126	—	M 88000	20572-656R	—
			323-800		R 12400		
33189285	—	—	323-813	—	—	—	—
33189295	—	—	—	—	M 88218	20583-110R	86.5789
					R 12457		—
33189335	—	—	323-813	—	—	—	—
33189365	—	—	318-125	—	—	—	—
33189375	—	3021-300 bi	—	—	—	—	—
33189395	—	—	—	—	—	—	—
33189405	—	—	—	—	—	—	—
33189435	—	—	—	—	—	—	—
33189445	—	—	—	—	—	—	—
33189455	—	—	—	—	—	—	—
33189855	—	—	—	—	—	—	—
33189865	—	—	—	—	—	—	—
33189885	—	—	—	—	—	—	—
33189895	—	—	—	—	—	—	—

DEBURRING PROGRAM

RUKO

Product Information

Unigrat „Universal Handle”,
designed in accordance with the latest ergonomic research.

One-hand operation
The locking head can be drawn back with thumb and finger of the hand holding the tool. With the locking head withdrawn, all steel holders (B-C-D-E-F) can be used and adjusted to lengths of up to 100,0 mm.

Grip grooves
The ends of the grip grooves are raised, preventing the tool from slipping out of the hand.

Offset surfaces
The offset between the surfaces means that the Unigrat „Universal Handle” can be held firmly for maximum torque.

Tapered handle
Gets narrower towards the base, giving improved grip.

Removable cap
The relevant blades can be stored inside the handle.

Application table

■ well applicabel
▪ efficent applicabel
□ not recommended

	Alloyed steel	Rust-resistant steel	Steel	Sheet metal	Cast iron	Aluminium	Copper	Brass	Polyacetal	Polyamid (PA)	Polyvinyl chlorid (PVC)	Polyphenylene oxide	Polyethylene	Polypropylene	Poly carbonate	Polytetrafluoroethylene	Polystyrene
Unigrat B 10	□	□	■	□	□	■	■	□	■	▪	■	■	■	■	■	■	■
Unigrat B 20	□	□	□	□	■	□	□	■	■	▪	■	■	▪	■	■	■	■
Unigrat B 30	□	□	■	□	□	■	■	□	■	■	■	■	■	■	■	■	▪
Unigrat B 50	▪	▪	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Unigrat B 60	□	□	■	□	□	■	■	□	▪	▪	▪	▪	▪	▪	▪	▪	▪
Unigrat B 70	▪	■	■	■	▪	■	■	▪	▪	□	■	■	□	□	▪	□	▪
Unigrat C 40	□	■	■	▪	▪	▪	■	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Unigrat C 42	□	■	■	▪	▪	▪	■	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Unigrat D 80	▪	■	■	■	▪	▪	▪	□	▪	□	■	■	□	□	▪	□	▪
Unigrat D 82	▪	■	■	■	▪	▪	▪	□	▪	□	■	■	□	□	▪	□	▪
Unigrat E 100	□	□	■	□	□	■	■	□	■	▪	■	■	■	■	■	■	■
Unigrat E 200	□	□	□	□	■	□	□	■	■	▪	■	■	▪	■	■	■	■
Unigrat E 300	□	□	■	□	□	■	■	□	■	■	■	■	■	■	■	■	▪
Unigrat E 350	□	□	□	□	■	□	□	■	□	□	□	□	□	□	□	□	□
Unigrat E 600	□	□	■	□	□	■	■	□	■	▪	▪	▪	▪	▪	■	■	▪
Unigrat F 12	□	▪	■	▪	▪	■	■	▪	■	■	■	■	■	■	▪	▪	■
Unigrat F 20	□	▪	■	▪	▪	■	■	▪	■	■	■	■	■	■	▪	▪	■
Unigrat F 30	□	▪	■	▪	▪	■	■	▪	■	■	■	■	■	■	▪	▪	■
Double deburrer	□	▪	■	▪	▪	■	■	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Groove deburrer	□	▪	■	□	▪	■	■	▪	■	■	■	■	■	■	■	■	■
Sheet-metal deburrer	▪	■	■	■	▪	■	■	▪	■	■	■	■	■	■	■	■	■
Tube deburrer	□	▪	▪	□	▪	■	■	▪	■	▪	■	■	■	■	■	▪	■

Unigrat „Universal Handle”

Packing unit: in plastic pack

Description	Article no.	
Universal handle A This handle fits all holders B-C-D-E-F. With the locking head withdrawn, the steel holders can be adjusted up to 100,0 mm in length and can be locked in any position. The replacement blades fit in the bottom cavity of the handle.	107 010	

Unigrat „Steel holder”

Description	Content pieces	Article no.	
Steel holder B	1	107 011	
Steel holder C	1	107 019	
Steel holder D	1	107 022	
Steel holder E	1	107 025	
Steel holder F	1	107 031	

Unigrat „Blade B”

Description	Content pieces	Article no.	
Blade B 10 The HSS blade most commonly used for internal and external deburring work on long-chipping materials such as steel, aluminium, plastics etc.	10	107 012	
Blade B 20 This HSS blade is used for short-chipping materials such as brass and cast iron. Can be used in both directions.	10	107 014	
Blade B 30 This HSS blade is suitable for the simultaneous deburring of inside and outside bores in material up to 4,0 mm thick.	10	107 015	
Blade B 50 Scriber with carbide-tipped point, regrindable.	1	107 016	
Blade B 60 This HSS blade removes burrs from the back of material up to 20,0 mm thick.	10	107 017	
Blade B 70 This carbide-tipped blade deburs workpieces made of material up to 3,0 mm thick.	1	107 018	

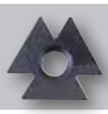
Unigrat „Blade C”

Packing unit: in plastic pack

Description	Content pieces	Article no.	
Blade C 40 Small HSS triangular scraper 4,0 x 20,0 mm for precision work on surfaces up to 4 mm wide.	1	107 020	
Blade C 42 Large HSS triangular scraper 8,0 x 30,0 mm for standard work on surfaces up to 8,0 mm wide.	1	107 021	

Unigrat „Blade D”

Packing unit: in plastic pack

Description	Content pieces	Article no.	
Blade D 80 Reversible tungsten-carbide insert for blunt scraping and deburring sheet metal up to 3,0 mm thick. 6 cutting edges.	1	107 023	
Blade D 82 Reversible tungsten-carbide insert for deburring sheet metal up to 8,0 mm thick. 2 cutting edges.	1	107 024	

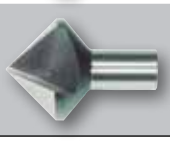
Unigrat „Blade E”

Packing unit: in plastic pack

Description	Content pieces	Article no.	
Blade E 100 HSS blade with B 10 cutting edge, long shank only. For internal and external deburring work on long-chipping materials such as steel, aluminium, plastics etc.	10	107 026	
Blade E 200 HSS blade with B 20 cutting edge, long shank only. For short-chipping materials such as brass and cast iron. Usable in both directions.	10	107 027	
Blade E 300 HSS blade with B 30 cutting edge, long shank only. For simultaneous deburring of internal and external bores in materials up to 4,0 mm thick.	10	107 028	
Blade E 350 This HSS blade is suitable for deburring straight edges, keyways etc.	10	107 029	
Blade E 600 This HSS blade is suitable for deburring from behind in materials up to 20,0 mm thick.	5	107 030	

Unigrat „Blade F”

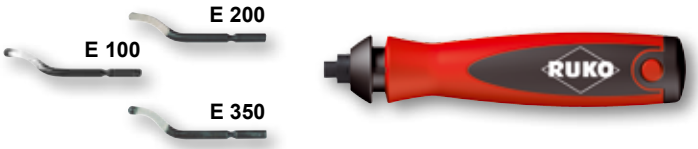
Packing unit: in plastic pack

Description	Content pieces	Article no.	
Countersinker F 12 HSS countersinker for deburring bores up to Ø 12,0 mm.	1	107 032	
Countersinker F 20 HSS countersinker for deburring bores up to Ø 20,0 mm.	1	107 033	
Countersinker F 30 HSS countersinker for deburring bores up to Ø 30,0 mm.	1	107 034	

Edge trimmer with HSS blades

- Plastic handle with removable back for spare blade storage.
- Exchangeable blades.
- Ideal for trimming edges, tubes, steel, aluminium, brass and copper sheets, cast iron and plastic sheets.

Packing unit: in plastic pack

Description	Article no.
Edge trimmer **A1** complete with E 100 HSS blade 	107 050
4-piece set of edge trimmer **A3** complete with 3 HSS blades 	107 051

Tube deburrer with HSS cutting edges

- Ideal for internal tube deburring.
- Ideal for external tube deburring.
- Suitable for tube diameters from 4,0 to 36,0 mm.

Packing unit: individual cartons

Description	Article no.
Tube deburrer 	107 053

Groove deburrer set “N” with HSS disk blade

- Plastic handle.
- Exchangeable HSS disk blade.
- Ideal for grooves from 2,4 - 11,0 mm wide.
- Especially suitable for deburring shaft keyways and bores in steel and aluminium.

Packing unit: in plastic pack

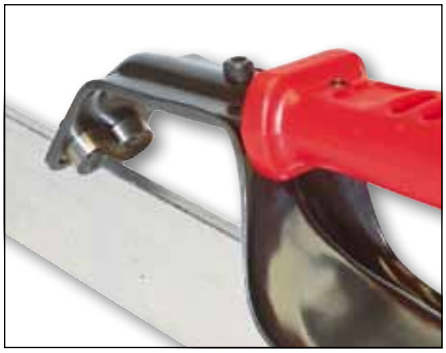
Description	Article no.
3-piece set of groove deburrer “N” 3 pieces with RUKO universal handle A 	107 062
1 replacement steel holder N 	107 037
1 replacement HSS disk blade 	107 063

Double deburrer with HSS disk blades

- Plastic handle with hand protector and 2 HSS blades.
- Exchangeable HSS disk blades.
- The disk blades can be turned when the cutting surfaces become worn, enabling the whole blade circumference to be utilized.
- The distance between the disk blades can be adjusted.
- Suitable for double-sided deburring of steel, aluminium, brass, copper and plastic sheets up to 10,0 mm thick.

Packing unit: in plastic pack

Description	Article no.
Double deburrer, complete 	107 060
1 replacement HSS disk blade 	107 061



Rapid deburrer with HSS blade

- Hexagonal aluminium handle.
- Small and handy.
- Pocket-sized for permanent readiness.

Packing unit: in plastic bags of 1 each

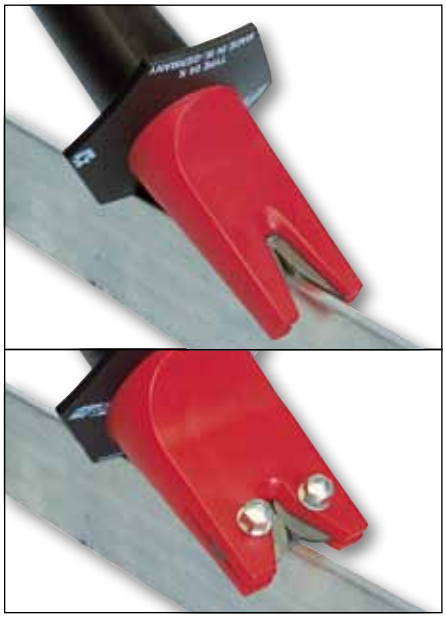
Description	Article no.
Rapid deburrer with non-exchangeable E 100 HSS blade 	107 052
Rapid deburrer with exchangeable E 100 HSS blade 	107 054

Sheet-metal deburrer with tungsten-carbide cutting edges

- Plastic handle with hand protector and 2 tungsten-carbide blades.
- This sheet-metal deburrer processes two edges in one operation.
- Suitable for double-sided deburring of steel, aluminium, brass, copper and plastic sheets.

Packing unit: in plastic pack

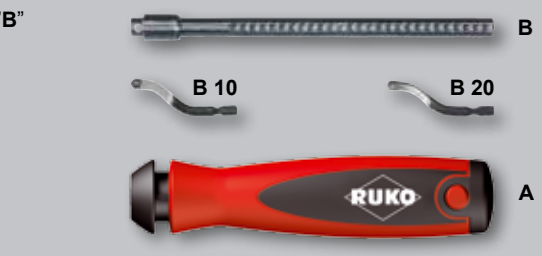
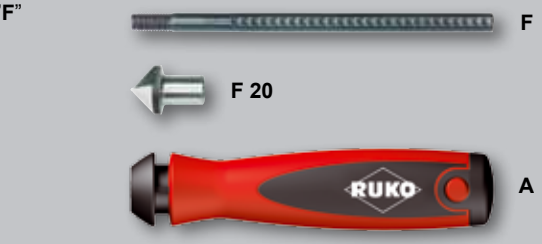
Description	Article no.
Sheet-metal deburrer for materials up to 5,0 mm thick 	107 064
Sheet-metal deburrer for materials up to 10,0 mm thick 	107 065
Sheet-metal deburrer with exchangeable cutting blades for materials up to 5,0 mm thick 	107 066
2 replacement tungsten-carbide cutting blades 	107 067

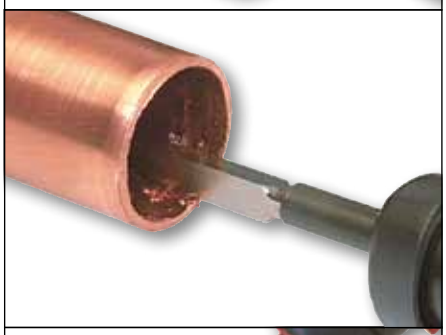


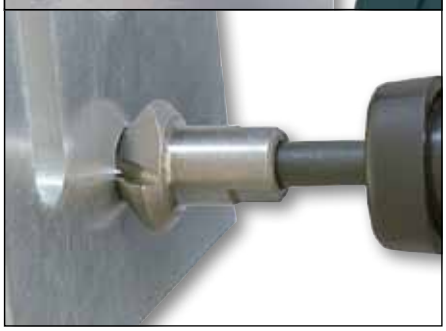
Unigrat sets

A rational deburring system for all deburring work that has to be done by hand. The wide selection of blades provides a wide range of deburring possibilities for bores and edges. The various blades enable you to debur bores from inside, outside or on both sides, as the blade itself adapts to the contours.

Packing unit: in plastic packs

Description	Article no.
4-piece set of unigrat deburrer "**B**" 	107 003
3-piece set of unigrat deburrer "**C**" 	107 004
4-piece set of unigrat deburrer "**D**" 	107 005
5-piece set of unigrat deburrer "**E**" 	107 006
3-piece set of unigrat deburrer "**F**" 	107 007





SCREW-HOLE PUNCHES

RUKO

Product Information

- Cuts holes in thin materials quickly, easily, cleanly and without burrs in a few simple operations.
- Three-point cut gives improved contact and thus less deformation of the punched parts, preventing damage to the draw-in bolt.
- The ball bearing between draw-in bolt and die plate makes handling even simpler and quicker, reducing the force required by approx. 67%.
- Before the screw-hole punch is used, the draw-in bolt should always be lubricated with RUKO cutting spray or cutting paste.
- The metric draw-in bolts of RUKO screw hole punches are always of the highest quality grade and are thus designed for extreme loads. If lost, they can be replaced for short periods of time by standard metric fine threaded bolts.
- Particularly suitable for use with spanners, manual or foot-operated hydraulic punches.
- Special sizes available on request.

Screw-hole punches with three-point cutting tip

Die: three-point cutting tip
Mat. thickness: up to 4,0 mm
Material: special steel
Draw-in bolt: metric fine-threads, from MF 10 grade 12.9

Suitable for sheet steel, stainless-steel sheets, non-ferrous and light metals, plastics. Ideal for switchgear manufacturers, electricians, plumbers, industry and handicrafts.

No. 109 300 K

Packing unit:
individual cartons

Ø mm	Through dimensions M + PG **Conduit & Pipe Size**	Draw-in bolt MF	Article no. **standard**	Article no. **ball bearing**
12,7	M 12 / PG 7	MF 8	109 127	—
14,0		MF 8	109 140	—
15,2	PG 9	MF 10	109 152	109 152 K
16,0		MF 10	109 160	109 160 K
16,5	M 16	MF 10	109 165	109 165 K
17,0		MF 10	109 170	109 170 K
18,0		MF 10	109 180	109 180 K
18,6	PG 11	MF 10	109 186	109 186 K
19,0		MF 10	109 190	109 190 K
20,0		MF 10	109 200	109 200 K
20,4	M 20 / PG 13,5	MF 10	109 204	109 204 K
21,0		MF 10	109 210	109 210 K
22,0		MF 10	109 220	109 220 K
22,5	PG 16 / **1/2"**	MF 10	109 225	109 225 K
23,0		MF 10	109 230	109 230 K
24,0		MF 10	109 240	109 240 K
25,0		MF 10	109 250	109 250 K
25,4	M 25	MF 10	109 254	109 254 K
26,0		MF 10	109 260	109 260 K
27,0		MF 10	109 270	109 270 K
28,3	PG 21 / **3/4"**	MF 12	109 283	109 283 K
29,0		MF 12	109 290	109 290 K
30,0		MF 12	109 300	109 300 K
30,5		MF 12	109 305	109 305 K
31,0		MF 12	109 310	109 310 K
32,0		MF 12	109 320	109 320 K
32,5	M 32	MF 12	109 325	109 325 K
33,0		MF 12	109 330	109 330 K

Ø mm	Through dimensions M + PG **Conduit & Pipe Size**	Draw-in bolt MF	Article no. **standard**	Article no. **ball bearing**
34,0		MF 12	109 340	109 340 K
35,0	**1"**	MF 12	109 350	109 350 K
36,0		MF 12	109 360	109 360 K
37,0	PG 29	MF 12	109 370	109 370 K
38,0		MF 12	109 380	109 380 K
39,0		MF 12	109 390	109 390 K
40,0		MF 12	109 400	109 400 K
40,5	M 40	MF 16	109 405	109 405 K
41,0		MF 16	109 410	109 410 K
42,0		MF 16	109 420	109 420 K
43,0	**1 1/4"**	MF 16	109 430	109 430 K
44,0		MF 16	109 440	109 440 K
45,0		MF 16	109 450	109 450 K
46,0		MF 16	109 460	109 460 K
47,0	PG 36	MF 16	109 470	109 470 K
48,0		MF 16	109 480	109 480 K
49,0		MF 16	109 490	109 490 K
50,0	**1 1/2"**	MF 16	109 500	109 500 K
50,5	M 50	MF 16	109 505	109 505 K
51,0		MF 16	109 510	109 510 K
52,0		MF 16	109 520	109 520 K
53,0		MF 16	109 530	109 530 K
54,0	PG 42	MF 16	109 540	109 540 K
55,0		MF 16	109 550	109 550 K
60,0	~ PG 48	MF 16	109 600	109 600 K
61,5	**2"**	MF 16	109 615	109 615 K
63,5	M 63	MF 16	109 635	109 635 K

Recommendations for the use of screw-hole punches

Draw-in bolt	Sheet steel	Stainless-steel sheets	Non-ferrous and light metals	Plastics
MF 8 x 1,0 mm	2,0 mm	1,0 mm	4,0 mm	4,0 mm
MF 10 x 1,0 mm	2,0 mm	1,0 mm	4,0 mm	4,0 mm
MF 12 x 1,5 mm	3,0 mm	2,0 mm	4,0 mm	4,0 mm
MF 16 x 1,5 mm	3,0 mm	2,0 mm	4,0 mm	4,0 mm

Sets of screw-hole punches in plastic cases

No. 109 003

No. 109 006

No. 109 008

Type	Description	Article no.
Set 1	11 - piece set of screw-hole punches 6 screw-hole punches Ø 15,2 (PG 9) - 18,6 (PG 11) - 20,4 (M 20 / PG 13,5) - 22,5 (PG 16) - 28,3 (PG 21) + 32,0 mm + 1 tube and sheet drill HSS size 1 + 1 cutting paste 30 g + 2 draw-in bolts MF 10 x 1,0 x 45, grade 12.9 + 1 draw-in bolt MF 12 x 1,5 x 55, grade 12.9	109 002
Set 2	13 - piece set of screw-hole punches 8 screw-hole punches Ø 15,2 (PG 9) - 18,6 (PG 11) - 20,4 (M 20 / PG 13,5) - 22,5 (PG 16) - 28,3 (PG 21) 37,0 (PG 29) - 47,0 (PG 36) + 54,0 mm (PG 42) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 draw-in bolt MF 10 x 1,0 x 45, grade 12.9 + 1 draw-in bolt MF 12 x 1,5 x 55, grade 12.9 + 1 draw-in bolt MF 16 x 1,5 x 60, grade 12.9	109 003
Set 3	10 - piece set of screw-hole punches 5 screw-hole punches Ø 16,5 (M 16) - 20,4 (M 20 / PG 13,5) - 25,4 (M 25) - 32,5 (M 32) + 40,5 mm (M 40) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 draw-in bolt MF 10 x 1,0 x 45, grade 12.9 + 1 draw-in bolt MF 12 x 1,5 x 55, grade 12.9 + 1 draw-in bolt MF 16 x 1,5 x 60, grade 12.9	109 006
Set 4	12 - piece set of screw-hole punches 7 screw-hole punches Ø 16,5 (M 16) - 20,4 (M 20 / PG 13,5) - 25,4 (M 25) - 32,5 (M 32) - 40,5 (M 40) 50,5 (M 50) + 63,5 mm (M 63) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 draw-in bolt MF 10 x 1,0 x 45, grade 12.9 + 1 draw-in bolt MF 12 x 1,5 x 55, grade 12.9 + 1 draw-in bolt MF 16 x 1,5 x 60, grade 12.9	109 008

Sets of screw-hole punches with ball-bearing in plastic cases

No. 109 003 K

No. 109 006 K

No. 109 008 K

Type	Description	Article no.
Set 1 K	11 - piece set of screw-hole punches 6 screw-hole punches Ø 15,2 (PG 9) - 18,6 (PG 11) - 20,4 (M 20 / PG 13,5) - 22,5 (PG 16) - 28,3 (PG 21) + 32,0 mm + 1 tube and sheet drill HSS size 1 + 1 cutting paste 30 g + 2 ball-bearing draw-in bolts MF 10 x 1,0 x 50, grade 12.9 + 1 ball-bearing draw-in bolt MF 12 x 1,5 x 60, grade 12.9	109 002 K
Set 2 K	13 - piece set of screw-hole punches 8 screw-hole punches Ø 15,2 (PG 9) - 18,6 (PG 11) - 20,4 (M 20 / PG 13,5) - 22,5 (PG 16) - 28,3 (PG 21) 37,0 (PG 29) - 47,0 (PG 36) + 54,0 mm (PG 42) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 ball-bearing draw-in bolt MF 10 x 1,0 x 50, grade 12.9 + 1 ball-bearing draw-in bolt MF 12 x 1,5 x 60, grade 12.9 + 1 ball-bearing draw-in bolt MF 16 x 1,5 x 70, grade 12.9	109 003 K
Set 3 K	10 - piece set of screw-hole punches 5 screw-hole punches Ø 16,5 (M 16) - 20,4 (M 20 / PG 13,5) - 25,4 (M 25) - 32,5 (M 32) + 40,5 mm (M 40) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 ball-bearing draw-in bolt MF 10 x 1,0 x 50, grade 12.9 + 1 ball-bearing draw-in bolt MF 12 x 1,5 x 60, grade 12.9 + 1 ball-bearing draw-in bolt MF 16 x 1,5 x 70, grade 12.9	109 006 K
Set 4 K	12 - piece set of screw-hole punches 7 screw-hole punches Ø 16,5 (M 16) - 20,4 (M 20 / PG 13,5) - 25,4 (M 25) - 32,5 (M 32) - 40,5 (M 40) 50,5 (M 50) + 63,5 mm (M 63) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 ball-bearing draw-in bolt MF 10 x 1,0 x 50, grade 12.9 + 1 ball-bearing draw-in bolt MF 12 x 1,5 x 60, grade 12.9 + 1 ball-bearing draw-in bolt MF 16 x 1,5 x 70, grade 12.9	109 008 K

Set of foot-operated hydraulic punch in plastic case

Description	Article no.
Foot-operated hydraulic punch, complete + 1 distance sleeve + 1 adapter bolt MF 10 x 1,0, 3/4" UNF fitting + 1 adapter bolt MF 12 x 1,5, 3/4" UNF fitting + 1 adapter bolt MF 16 x 1,5, 3/4" UNF fitting pulling power 50 kN	109 301

No. 109 301

Sets of manual hydraulic punch in plastic case

Description	Article no.
Compact manual hydraulic punch, complete + 1 distance sleeve + 1 adapter bolt MF 10 x 1,0, 3/4" UNF fitting + 1 adapter bolt MF 12 x 1,5, 3/4" UNF fitting + 1 adapter bolt MF 16 x 1,5, 3/4" UNF fitting pulling power 50 kN	109 101
Manual hydraulic punch, complete + 1 distance sleeve + 1 adapter bolt MF 10 x 1,0, 3/4" UNF fitting + 1 adapter bolt MF 12 x 1,5, 3/4" UNF fitting + 1 adapter bolt MF 16 x 1,5, 3/4" UNF fitting pulling power 50 kN	109 201

No. 109 101

No. 109 201

Sets of screw-hole punches with compact manual hydraulic punch in plastic case

No. 109 009

No. 109 004

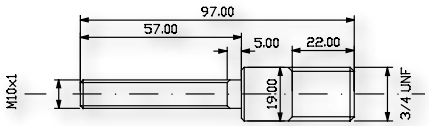
Type	Description	Article no.
Set 5 hydraulic	12 - piece set of screw-hole punches with compact manual hydraulic punch 1 compact manual hydraulic punch + 8 screw-hole punches Ø 16,5 (M 16) - 20,4 (M 20 / PG 13,5) - 25,4 (M 25) - 32,5 (M 32) - 40,5 (M 40) + 50,5 mm (M 50) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 distance sleeve + 1 adapter bolt MF 10 x 1,0, 3/4" UNF fitting + 1 adapter bolt MF 12 x 1,5, 3/4" UNF fitting + 1 adapter bolt MF 16 x 1,5, 3/4" UNF fitting pulling power 50 kN	109 009
Set 6 hydraulic	14 - piece set of screw-hole punches with compact manual hydraulic punch 1 compact manual hydraulic punch + 8 screw-hole punches Ø 15,2 (PG 9) - 18,6 (PG11) - 20,4 (M 20 / PG 13,5) - 22,5 (PG 16) - 28,3 (PG 21) - 37,0 (PG 29) - 47,0 (PG 36) + 54,0 mm (PG 42) + 1 tube and sheet drill HSS size 2 + 1 cutting paste 30 g + 1 distance sleeve + 1 adapter bolt MF 10 x 1,0, 3/4" UNF fitting + 1 adapter bolt MF 12 x 1,5, 3/4" UNF fitting + 1 adapter bolt MF 16 x 1,5, 3/4" UNF fitting pulling power 50 kN	109 004

Spare parts

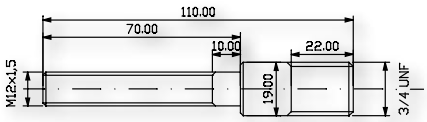
Packing unit: individual plastic packing

Description	Article no.
Distance sleeve	109 000
Adapter bolt MF 10 x 1,0, 3/4" UNF fitting	109 110
Adapter bolt MF 12 x 1,5, 3/4" UNF fitting	109 112
Adapter bolt MF 16 x 1,5, 3/4" UNF fitting	109 116
Replacement bolt MF 8 x 1,0 x 40, grade 12,9	103 108
Replacement bolt MF 10 x 1,0 x 45, grade 12,9	103 110
Replacement bolt MF 12 x 1,5 x 55, grade 12,9	103 112
Replacement bolt MF 16 x 1,5 x 60, grade 12,9	103 116
Replacement bolt with ball-bearing MF 10 x 1,0 x 50 grade 12,9	103 110 K
Replacement bolt with ball-bearing MF 12 x 1,5 x 60 grade 12,9	103 112 K
Replacement bolt with ball-bearing MF 16 x 1,5 x 70 grade 12,9	103 116 K

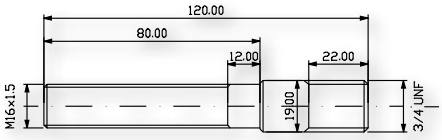
The adapter bolts may be used on all standard hydraulic punches.



No. 109 110



No. 109 112



No. 109 116