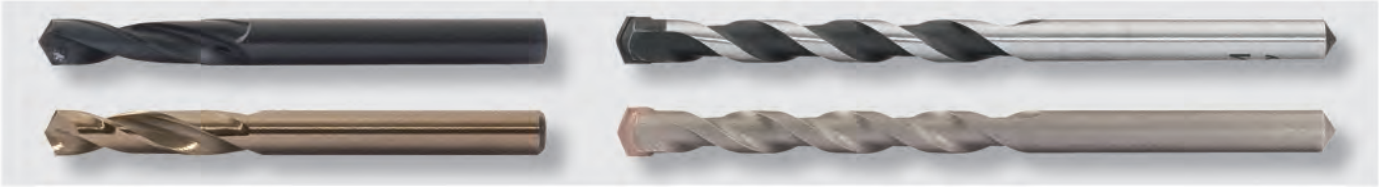

K15
Made in Germany
KSTOOLS
M12
M10
M8
M6
M5
M4
M3
KS TOOLS

CUTTING TOOLS / BRUSHES AND FILES

Innovation is our mission!

MACHINING TOOLS / BRUSHES AND FILES

Drills



Drilling: Technical information: Guidelines for drilling speeds feed rate and cooling

The table provides approximate values. According to drilling depth and thickness of the material, an increase or reduction in the cutting speed feed rate or cutting fluid would be reccomended. The values for -v- and -s- indicated value apply to drilling depths until 5 x d (d = drilling diameter) In drilling depths over 5 x d until 8 x d then -v- and -s- should be reduced around 20% to 30%. In general in drilling depths over 5 x d the hole should be cleaned!

Material grade	Cooling	Drilling speed v0m/min	s= feed rate n= speed	Twist drill diameter D [mm]							
				1*	2	5	8	16	25	40	63
				Feed rate s		[mm/U] and medium speed n [U/mi]					
Non alloyed steel up to 500 N/m²	Oil and water emulsion	30-40	s n	Hand 11100	0,05 5600	0,12 2200	0,2 1400	0,3 700	0,4 450	0,4 280	0,5 180
Non alloyed steel 500-700 N/m²		25-30	s n	Hand 8800	0,05 4400	0,12 1750	0,2 1100	0,3 550	0,4 350	0,4 220	0,5 140
Non alloyed steel above 700 N/m²		20-25	s n	Hand 7200	0,04 3600	0,1 1400	0,15 900	0,25 445	0,3 285	0,3 180	0,4 114
Alloyed steel 700-900 N/m²		12-15	s n	Hand 4300	0,03 2150	0,08 860	0,12 540	0,2 270	0,25 170	0,32 110	0,36 68
Alloyed steel 900-1100 N/m²		8-15	s n	Hand 3650	Hand 1840	0,06 735	0,001 455	0,2 230	0,3 145	0,3 90	0,3 60
Alloyed steel above 1100 N/m²	Cutting oil	5-8	s n	Hand 2100	Hand 1050	0,04 415	0,06 260	0,1 130	0,12 83	0,16 52	0,18 33
Rust steady, acid steady steels (highly Cr, Ni-alloy)		5-10	s n	Hand 2400	Hand 1200	0,05 480	0,1 300	0,15 150	0,2 95	0,2 60	0,3 38
High tensile steel (high Co, Cr, Mo, Ni, W alloys)		4-8	s n	Hand 1900	0,02 950	0,06 380	0,09 240	0,15 120	0,2 76	0,24 48	0,27 30
Sprung steel band (high Si alloy)	Cutting oil	3-6	s n	Hand 1430	Hand 720	0,04 285	0,06 180	0,1 90	0,12 57	0,16 36	0,18 23
Manganese steel (Mn-10%, C- 05%)	without cooling the material must be heated to 300	2-5	s n	Hand 1300	Hand 650	0,05 255	0,08 160	0,1 80	0,15 50	0,2 32	0,2 20
Cast steel up to GS-52	Oil and water emulsion	20-25	s n	Hand 7200	0,03 3600	0,9 1400	0,14 900	0,24 445	0,3 285	0,38 180	0,43 114
Cast steel above GS-52		12-20	s n	Hand 5100	0,03 2550	0,08 1020	0,12 640	0,02 320	0,25 200	0,32 130	0,36 80
Cast iron up to GG-26	Compressed air	18-25	s n	Hand 6800	0,06 3400	0,16 1350	0,24 860	0,4 430	0,5 275	0,6 170	0,7 110
Cast iron above GG 26		5-15	s n	Hand 3200	0,05 1600	0,14 635	0,2 400	0,35 200	0,45 130	0,5 80	0,6 50
Cast iron (GTW/GTS)	Compressed air (Oil and water emulsion)	18-25	s n	Hand 6800	0,07 3400	0,12 1400	0,2 850	0,4 430	0,5 275	0,6 170	0,6 110
Refined copper	Oil and water emulsion (compressed air)	50-80	s n	Hand 2100	0,005 10500	0,15 4100	0,25 2600	0,4 1300	0,5 830	0,5 520	0,5 330
Brass, tough (MS 63)	Oil and water emulsion (Cutting oil)	40-30	s n	Hand 16000	0,05 8000	0,15 3200	0,25 2000	0,4 1000	0,5 640	0,6 400	0,7 250
Brass, alloy (MS 58) Bronze, soft (gun metal, Rg)	Cutting oil	20-30	s n	Hand 8000	0,04 4000	0,1 1600	0,15 1000	0,25 500	0,32 320	0,42 200	0,46 125
Bronze, hard (Bz; Äternabronze)		10-20	s n	Hand 4800	0,04 2400	0,1 960	0,15 600	0,25 300	0,32 190	0,42 120	0,46 75
Copper nickel alloy (e.g. nickel bronze approx. 67% Ni)	Cutting oil	5-15	s n	Hand 3200	0,02 1600	0,06 635	0,09 400	0,15 200	0,2 130	0,24 80	0,27 50
Aluminium	Oil and water emulsion	50-120	n	Hand 3200	0,02 1600	0,06 635	0,09 400	0,15 200	0,2 130	0,24 80	0,27 50
Nickel alloy aluminium (e.g. piston alloy)		20-44	s n	Hand 9600	0,04 4800	0,1 1900	0,15 1200	0,25 600	0,32 380	0,4 240	0,45 150

* When the diameter is below 1 mm the cutting speed should be reduced.

Stepped drills

Cutting recommendations for stepped drills

Material:		Non alloyed steel up to 700 N/mm²	Alloyed steel up to 700 N/mm²	Alloy steel 1000 N/mm²	Cast iron up to 250 N/mm²	Cast iron above 250 N/mm²	CuZn refractory alloy	CuZn-refractory tough	Al refaactory up to 11% Si
Metal gauge in 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
Vc = m/min		30	20	20	15	10	60	35	30
Cooling lubricant		Cutting edge spray	Cutting edge spray	Cutting edge spray	Pneumatic	Pneumatic	Pneumatic	Pneumatic	Cutting edge spray
Ø mm	Dim.	U/min	U/min	U/min	U/min	U/min	U/min	U/min	U/min
3,0-14,0	Nr. 1	3185-682	2123-455	2123-455	1592-341	1062-227	6369-1365	3715-796	3185-682
5,0-20,0	Nr. 2	1911-478	1274-318	1274-318	955-239	637-159	3822-955	2229-557	1911-478
16,0-30,5	Nr. 3	597-313	398-209	398-209	299-157	199-104	1194- 627	697-365	597-313
24,0-40,0	Nr. 4	398-239	265-159	265-159	199-119	133-80	796-478	464-279	398-239
36,0-50,0	Nr. 5	265-191	177-127	177-127	133-96	88-64	531-382	310-223	265-191
40,0-61,0	Nr. 6	239-157	159-104	159-104	119-78	80-52	478-313	279-183	239-157
5,0-25,4	Nr. 7	1911-376	1274-251	1274-251	955-188	637-125	3822-752	2229-439	1911-376
5,0-31,0	Nr. 8	1911-308	1274-205	1274-205	955-154	637-103	3822-616	2229-360	1911-308
5,0-22,5	Nr. 9	1911-425	1274-283	1274-283	955-212	637-142	3822-849	2229-495	1911-425

Carbide milling cutters

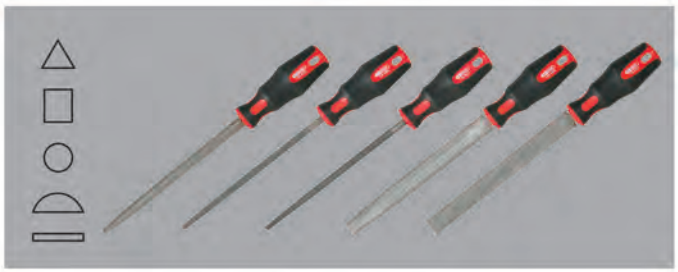
Milling cutters up to and including head Ø 6 mm manufactured out of solid carbide steel beyond that the carbide is soldered on the head cutting edges.
The special dovetailed cutting edge design C (after DIN toothing MX) has following advantages:

- Smooth running
- High material removal
- No clogging
- Comfortable working
- Short swarf
- Obtains even and smooth surfaces

Applications: Universal applications, for iron metals and non ferrous metals, for plastics, for plaster working areas, and hard material working, cast iron and titanium.
Recommended cutting speed for hard metal milling machine burrs Vc 450 - 600 ms/min

Manual and machine wire brushes

Files



Handsaws

Saw blades

COOLANT

Cooling lubricant stick

- Suitable for working with centre bits, countersinks and stepped drills
- Contents 18g
- To prolong the service life

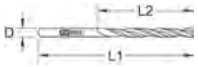
	Volume g	g
390.0190	18	50

HSS-R TWIST DRILLS

HSS-R Twist drill short

- DIN 1897 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Ideally suited for thin walled working
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

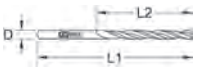


	D mm	L1 mm	L2 mm	Content	g
330.5020	2.0	38.0	12.0	10	7
330.5021	2.1	38.0	12.0	10	10
330.5022	2.2	40.0	13.0	10	12
330.5023	2.3	40.0	13.0	10	12
330.5024	2.4	43.0	14.0	10	15
330.5025	2.5	43.0	14.0	10	15
330.5026	2.6	43.0	14.0	10	16
330.5027	2.7	46.0	16.0	10	25
330.5028	2.8	46.0	16.0	10	26
330.5029	2.9	46.0	16.0	10	28
330.5030	3.0	46.0	16.0	10	30
330.5031	3.1	49.0	18.0	10	31
330.5032	3.2	49.0	18.0	10	32
330.5033	3.3	49.0	18.0	10	33
330.5034	3.4	52.0	20.0	10	34
330.5035	3.5	52.0	20.0	10	35
330.5036	3.6	52.0	20.0	10	37
330.5037	3.7	52.0	20.0	10	40
330.5038	3.8	55.0	22.0	10	42
330.5039	3.9	55.0	22.0	10	44
330.5040	4.0	55.0	22.0	10	45
330.5041	4.1	55.0	22.0	10	47
330.5042	4.2	55.0	22.0	10	49
330.5043	4.3	58.0	24.0	10	55
330.5044	4.4	58.0	24.0	10	57
330.5045	4.5	58.0	24.0	10	60
330.5046	4.6	58.0	24.0	10	62
330.5047	4.7	58.0	24.0	10	63
330.5048	4.8	62.0	26.0	10	72
330.5049	4.9	62.0	26.0	10	73
330.5050	5.0	62.0	26.0	10	75
330.5051	5.1	62.0	26.0	10	77
330.5052	5.2	62.0	26.0	10	78
330.5053	5.3	62.0	26.0	10	80
330.5054	5.4	66.0	28.0	10	95
330.5055	5.5	66.0	28.0	10	97
330.5056	5.6	66.0	28.0	10	99
330.5057	5.7	66.0	28.0	10	103
330.5058	5.8	66.0	28.0	10	105
330.5059	5.9	66.0	28.0	10	107
330.5060	6.0	66.0	28.0	10	110
330.5061	6.1	70.0	31.0	10	125
330.5062	6.2	70.0	31.0	10	128
330.5063	6.3	70.0	31.0	10	130
330.5064	6.4	70.0	31.0	10	133
330.5065	6.5	70.0	31.0	10	135
330.5066	6.6	70.0	31.0	10	138
330.5067	6.7	70.0	31.0	10	140
330.5068	6.8	74.0	34.0	10	170
330.5069	6.9	74.0	34.0	10	175
330.5070	7.0	74.0	34.0	10	180
330.5071	7.1	74.0	34.0	10	183
330.5072	7.2	74.0	34.0	10	185
330.5073	7.3	74.0	34.0	10	187
330.5074	7.4	74.0	34.0	10	188
330.5075	7.5	74.0	34.0	10	190
330.5076	7.6	79.0	36.0	10	220
330.5077	7.7	79.0	36.0	10	225
330.5078	7.8	79.0	36.0	10	230
330.5079	7.9	79.0	36.0	10	235
330.5080	8.0	79.0	36.0	10	240
330.5085	8.5	79.0	36.0	10	270
330.5090	9.0	84.0	40.0	10	310
330.5095	9.5	84.0	40.0	10	360
330.5100	10.0	89.0	43.0	10	420

HSS-R Twist drill

- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron malleable tempered and cast iron.



	D mm	L1 mm	L2 mm	Content	g
330.1003	0.3	19.0	3.0	10	1
330.1004	0.4	20.0	5.0	10	1
330.1005	0.5	22.0	6.0	10	1
330.1006	0.6	24.0	7.0	10	1
330.1007	0.7	28.0	9.0	10	1
330.1008	0.8	30.0	10.0	10	1
330.1009	0.9	32.0	11.0	10	1
330.1010	1.0	34.0	12.0	10	5
330.1011	1.1	36.0	14.0	10	5
330.1012	1.2	38.0	16.0	10	5
330.1013	1.3	38.0	16.0	10	5
330.1014	1.4	40.0	18.0	10	5
330.1015	1.5	40.0	18.0	10	5
330.1016	1.6	43.0	20.0	10	10
330.1017	1.7	43.0	20.0	10	10
330.1018	1.8	46.0	22.0	10	10
330.1019	1.9	46.0	22.0	10	10
330.1020	2.0	49.0	24.0	10	10
330.1021	2.1	49.0	24.0	10	20
330.1022	2.2	53.0	27.0	10	20
330.1023	2.3	53.0	27.0	10	20

	D mm	L1 mm	L2 mm	Content	g
330.1024	2.4	57.0	30.0	10	20
330.1025	2.5	57.0	30.0	10	20
330.1026	2.6	57.0	30.0	10	40
330.1027	2.7	61.0	33.0	10	40
330.1028	2.8	61.0	33.0	10	40
330.1029	2.9	61.0	33.0	10	40
330.1030	3.0	65.0	33.0	10	40
330.1031	3.1	65.0	36.0	10	40
330.1032	3.2	65.0	36.0	10	40
330.1033	3.3	70.0	36.0	10	40
330.1034	3.4	70.0	39.0	10	40
330.1035	3.5	70.0	39.0	10	40
330.1036	3.6	70.0	39.0	10	50
330.1037	3.7	70.0	39.0	10	50
330.1038	3.8	75.0	43.0	10	50
330.1039	3.9	75.0	43.0	10	50
330.1040	4.0	75.0	43.0	10	50
330.1041	4.1	75.0	43.0	10	80
330.1042	4.2	75.0	43.0	10	80
330.1043	4.3	80.0	47.0	10	80
330.1044	4.4	80.0	47.0	10	80
330.1045	4.5	80.0	47.0	10	80
330.1046	4.6	80.0	47.0	10	100
330.1047	4.7	80.0	47.0	10	100
330.1048	4.8	86.0	52.0	10	100
330.1049	4.9	86.0	52.0	10	100
330.1050	5.0	86.0	52.0	10	100
330.1051	5.1	86.0	52.0	10	130
330.1052	5.2	86.0	52.0	10	130
330.1053	5.3	86.0	52.0	10	130
330.1054	5.4	93.0	57.0	10	130
330.1055	5.5	93.0	57.0	10	130
330.1056	5.6	93.0	57.0	10	150
330.1057	5.7	93.0	57.0	10	150
330.1058	5.8	93.0	57.0	10	150
330.1059	5.9	93.0	57.0	10	150
330.1060	6.0	93.0	57.0	10	150
330.1061	6.1	101.0	63.0	10	180
330.1062	6.2	101.0	63.0	10	180
330.1063	6.3	101.0	63.0	10	180
330.1064	6.4	101.0	63.0	10	180
330.1065	6.5	101.0	63.0	10	180
330.1066	6.6	101.0	63.0	10	250
330.1067	6.7	101.0	63.0	10	250
330.1068	6.8	109.0	69.0	10	250
330.1069	6.9	109.0	69.0	10	250
330.1070	7.0	109.0	69.0	10	250
330.1071	7.1	109.0	69.0	10	260
330.1072	7.2	109.0	69.0	10	260
330.1073	7.3	109.0	69.0	10	260
330.1074	7.4	109.0	69.0	10	260
330.1075	7.5	109.0	69.0	10	260
330.1076	7.6	117.0	75.0	10	330
330.1077	7.7	117.0	75.0	10	330
330.1078	7.8	117.0	75.0	10	330
330.1079	7.9	117.0	75.0	10	330
330.1080	8.0	117.0	75.0	10	330
330.1081	8.1	117.0	75.0	10	350
330.1082	8.2	117.0	75.0	10	350
330.1083	8.3	117.0	75.0	10	350
330.1084	8.4	117.0	75.0	10	350
330.1085	8.5	117.0	75.0	10	350
330.1086	8.6	125.0	81.0	10	430
330.1087	8.7	125.0	81.0	10	430
330.1088	8.8	125.0	81.0	10	430
330.1089	8.9	125.0	81.0	10	430
330.1090	9.0	125.0	81.0	10	430
330.1091	9.1	125.0	81.0	10	480
330.1092	9.2	125.0	81.0	10	480
330.1093	9.3	125.0	81.0	10	480
330.1094	9.4	125.0	81.0	10	480
330.1095	9.5	125.0	81.0	10	480
330.1096	9.6	133.0	87.0	10	275
330.1097	9.7	133.0	87.0	10	275
330.1098	9.8	133.0	87.0	10	275
330.1099	9.9	133.0	87.0	10	275
330.1100	10.0	133.0	87.0	5	275
330.1101	10.1	133.0	87.0	5	300
330.1102	10.2	133.0	87.0	5	300
330.1103	10.3	133.0	87.0	5	300
330.1104	10.4	133.0	87.0	5	300
330.1105	10.5	133.0	87.0	5	300
330.1106	10.6	142.0	94.0	5	350
330.1107	10.7	142.0	94.0	5	350
330.1108	10.8	142.0	94.0	5	350
330.1109	10.9	142.0	94.0	5	350
330.1110	11.0	142.0	94.0	5	350

	D mm	L1 mm	L2 mm	Content	g	
330.1111	11.1	142.0	94.0	5	385	
330.1112	11.2	142.0	94.0	5	385	
330.1113	11.3	142.0	94.0	5	385	
330.1114	11.4	142.0	94.0	5	385	
330.1115	11.5	142.0	94.0	5	385	
330.1116	11.6	142.0	94.0	5	440	
330.1117	11.7	142.0	94.0	5	440	
330.1118	11.8	142.0	94.0	5	440	
330.1119	11.9	151.0	101.0	5	440	
330.1120	12.0	151.0	101.0	5	440	
330.1121	12.1	151.0	101.0	5	490	
330.1122	12.2	151.0	101.0	5	490	
330.1123	12.3	151.0	101.0	5	490	
330.1124	12.4	151.0	101.0	5	490	
330.1125	12.5	151.0	101.0	5	490	
330.1126	12.6	151.0	101.0	5	515	
330.1127	12.7	151.0	101.0	5	515	
330.1128	12.8	151.0	101.0	5	515	
330.1129	12.9	151.0	101.0	5	515	
330.1130	13.0	151.0	101.0	5	515	
330.1135	13.5	160.0	108.0	1	110	
330.1140	14.0	160.0	108.0	1	115	
330.1145	14.5	169.0	114.0	1	120	
330.1150	15.0	169.0	114.0	1	125	
330.1155	15.5	178.0	120.0	1	130	
330.1160	16.0	178.0	120.0	1	135	
330.1165	16.5	184.0	125.0	1	140	
330.1170	17.0	184.0	125.0	1	145	
330.1175	17.5	191.0	130.0	1	150	
330.1180	18.0	191.0	130.0	1	155	
330.1185	18.5	198.0	135.0	1	160	
330.1190	19.0	198.0	135.0	1	165	
330.1195	19.5	205.0	140.0	1	170	
330.1200	20.0	205.0	140.0	1	175	

HSS-R Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.1610	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-R Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.1620	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-R Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.1613	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.30	

HSS-R Twist drill set in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.1623	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	3.35	

HSS-R Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.1640	170 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 mm	4.15	

HSS-R Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- Black, tempered surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

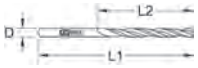
			kg	
330.1650	230 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,2 - 3,5 - 4,0 - 4,2 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 6,8 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	7.40	

HSS-G TWIST DRILLS

HSS-G Twist drill

- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.



	D mm	L1 mm	L2 mm	Content	g	
330.2003	0.3	19.0	3.0	10	1	
330.2004	0.4	20.0	5.0	10	1	
330.2005	0.5	22.0	6.0	10	1	
330.2006	0.6	24.0	7.0	10	1	
330.2007	0.7	28.0	9.0	10	1	
330.2008	0.8	30.0	10.0	10	1	
330.2009	0.9	32.0	11.0	10	1	
330.2010	1.0	34.0	12.0	10	1	
330.2011	1.1	36.0	14.0	10	1	

	D mm	L1 mm	L2 mm	Content	g	
330.2012	1.2	38.0	16.0	10	1	
330.2013	1.3	38.0	16.0	10	1	
330.2014	1.4	40.0	18.0	10	1	
330.2015	1.5	40.0	18.0	10	1	
330.2016	1.6	43.0	20.0	10	10	
330.2017	1.7	43.0	20.0	10	10	
330.2018	1.8	46.0	22.0	10	10	
330.2019	1.9	46.0	22.0	10	10	
330.2020	2.0	49.0	24.0	10	10	
330.2021	2.1	49.0	24.0	10	20	
330.2022	2.2	53.0	27.0	10	20	
330.2023	2.3	53.0	27.0	10	20	
330.2024	2.4	57.0	30.0	10	20	
330.2025	2.5	57.0	30.0	10	20	
330.2026	2.6	61.0	30.0	10	40	
330.2027	2.7	61.0	33.0	10	40	
330.2028	2.8	61.0	33.0	10	40	
330.2029	2.9	61.0	33.0	10	40	
330.2030	3.0	61.0	33.0	10	40	
330.2031	3.1	65.0	36.0	10	40	
330.2032	3.2	65.0	36.0	10	40	
330.2033	3.3	65.0	36.0	10	40	
330.2034	3.4	70.0	39.0	10	40	
330.2035	3.5	70.0	39.0	10	40	
330.2036	3.6	70.0	39.0	10	50	
330.2037	3.7	70.0	39.0	10	50	
330.2038	3.8	75.0	43.0	10	50	
330.2039	3.9	75.0	43.0	10	50	
330.2040	4.0	75.0	43.0	10	50	
330.2041	4.1	75.0	43.0	10	80	
330.2042	4.2	75.0	43.0	10	80	
330.2043	4.3	80.0	47.0	10	80	
330.2044	4.4	80.0	47.0	10	80	
330.2045	4.5	80.0	47.0	10	80	
330.2046	4.6	80.0	47.0	10	100	
330.2047	4.7	80.0	47.0	10	100	
330.2048	4.8	86.0	52.0	10	100	
330.2049	4.9	86.0	52.0	10	100	
330.2050	5.0	86.0	52.0	10	100	
330.2051	5.1	86.0	52.0	10	130	
330.2052	5.2	86.0	52.0	10	130	
330.2053	5.3	86.0	52.0	10	130	
330.2054	5.4	93.0	57.0	10	130	
330.2055	5.5	93.0	57.0	10	130	
330.2056	5.6	93.0	57.0	10	150	
330.2057	5.7	93.0	57.0	10	150	
330.2058	5.8	93.0	57.0	10	150	
330.2059	5.9	93.0	57.0	10	150	
330.2060	6.0	93.0	57.0	10	150	
330.2061	6.1	101.0	63.0	10	180	
330.2062	6.2	101.0	63.0	10	180	
330.2063	6.3	101.0	63.0	10	180	
330.2064	6.4	101.0	63.0	10	180	
330.2065	6.5	101.0	63.0	10	180	
330.2066	6.6	101.0	63.0	10	250	
330.2067	6.7	101.0	63.0	10	250	
330.2068	6.8	109.0	69.0	10	250	
330.2069	6.9	109.0	69.0	10	250	
330.2070	7.0	109.0	69.0	10	250	
330.2071	7.1	109.0	69.0	10	260	
330.2072	7.2	109.0	69.0	10	260	
330.2073	7.3	109.0	69.0	10	260	
330.2074	7.4	109.0	69.0	10	260	
330.2075	7.5	109.0	69.0	10	260	
330.2076	7.6	117.0	75.0	10	330	
330.2077	7.7	117.0	75.0	10	330	
330.2078	7.8	117.0	75.0	10	330	
330.2079	7.9	117.0	75.0	10	330	
330.2080	8.0	117.0	75.0	10	330	
330.2081	8.1	117.0	75.0	10	350	
330.2082	8.2	117.0	75.0	10	350	
330.2083	8.3	117.0	75.0	10	350	
330.2084	8.4	117.0	75.0	10	350	
330.2085	8.5	117.0	75.0	10	350	
330.2086	8.6	125.0	81.0	10	430	
330.2087	8.7	125.0	81.0	10	403	
330.2088	8.8	125.0	81.0	10	430	
330.2089	8.9	125.0	81.0	10	430	
330.2090	9.0	125.0	81.0	10	430	
330.2091	9.1	125.0	81.0	10	480	
330.2092	9.2	125.0	81.0	10	480	
330.2093	9.3	125.0	81.0	10	480	
330.2094	9.4	125.0	81.0	10	480	
330.2095	9.5	125.0	81.0	10	480	
330.2096	9.6	133.0	87.0	10	275	
330.2097	9.7	133.0	87.0	10	275	
330.2098	9.8	133.0	87.0	10	275	

	D mm	L1 mm	L2 mm	Content	g	
330.2099	9.9	133.0	87.0	10	275	
330.2100	10.0	133.0	87.0	5	275	
330.2101	10.1	133.0	87.0	5	300	
330.2102	10.2	133.0	87.0	5	300	
330.2103	10.3	133.0	87.0	5	300	
330.2104	10.4	133.0	87.0	5	300	
330.2105	10.5	133.0	87.0	5	300	
330.2106	10.6	133.0	87.0	5	350	
330.2107	10.7	142.0	94.0	5	350	
330.2108	10.8	142.0	94.0	5	350	
330.2109	10.9	142.0	94.0	5	350	
330.2110	11.0	142.0	94.0	5	350	
330.2111	11.1	142.0	94.0	5	385	
330.2112	11.2	142.0	94.0	5	385	
330.2113	11.3	142.0	94.0	5	385	
330.2114	11.4	142.0	94.0	5	385	
330.2115	11.5	142.0	94.0	5	385	
330.2116	11.6	142.0	94.0	5	440	
330.2117	11.7	142.0	94.0	5	440	
330.2118	11.8	142.0	94.0	5	440	
330.2119	11.9	151.0	101.0	5	440	
330.2120	12.0	151.0	101.0	5	440	
330.2121	12.1	151.0	101.0	5	490	
330.2122	12.2	151.0	101.0	5	490	
330.2123	12.3	151.0	101.0	5	490	
330.2124	12.4	151.0	101.0	5	490	
330.2125	12.5	151.0	101.0	5	490	
330.2126	12.6	151.0	101.0	5	515	
330.2127	12.7	151.0	101.0	5	515	
330.2128	12.8	151.0	101.0	5	515	
330.2129	12.9	151.0	101.0	5	515	
330.2130	13.0	151.0	101.0	5	515	
330.2135	13.5	160.0	108.0	1	110	
330.2140	14.0	160.0	108.0	1	115	
330.2145	14.5	169.0	114.0	1	120	
330.2150	15.0	169.0	114.0	1	125	
330.2155	15.5	178.0	120.0	1	130	
330.2160	16.0	178.0	120.0	1	135	

HSS-G Twist drill, long

- DIN 340 Typ N
- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered tempered and cast iron.

	D mm	L1 mm	L2 mm	Content	g	
330.7025	2.5	95.0	62.0	10	40	
330.7030	3.0	100.0	66.0	10	50	
330.7031	3.1	106.0	69.0	10	50	
330.7032	3.2	106.0	69.0	10	60	
330.7033	3.3	106.0	69.0	10	65	
330.7034	3.4	112.0	73.0	10	65	
330.7035	3.5	112.0	73.0	10	70	
330.7036	3.6	112.0	73.0	10	75	
330.7037	3.7	112.0	73.0	10	75	
330.7038	3.8	119.0	78.0	10	80	
330.7039	3.9	119.0	78.0	10	80	
330.7040	4.0	119.0	78.0	10	85	
330.7041	4.1	119.0	78.0	10	90	
330.7042	4.2	119.0	78.0	10	95	
330.7043	4.3	126.0	82.0	10	110	
330.7044	4.4	126.0	82.0	10	115	
330.7045	4.5	126.0	82.0	10	120	
330.7046	4.6	126.0	82.0	10	130	
330.7047	4.7	126.0	82.0	10	135	
330.7048	4.8	132.0	87.0	10	140	
330.7049	4.9	132.0	87.0	10	145	

	D mm	L1 mm	L2 mm	Content	g	
330.7050	5.0	132.0	87.0	10	150	
330.7051	5.1	132.0	87.0	10	150	
330.7052	5.2	132.0	87.0	10	160	
330.7053	5.3	132.0	87.0	10	170	
330.7054	5.4	139.0	91.0	10	190	
330.7055	5.5	139.0	91.0	10	195	
330.7056	5.6	139.0	91.0	10	200	
330.7057	5.7	139.0	91.0	10	205	
330.7058	5.8	139.0	91.0	10	210	
330.7059	5.9	139.0	91.0	10	220	
330.7060	6.0	139.0	91.0	10	225	
330.7061	6.1	148.0	97.0	10	255	
330.7062	6.2	148.0	97.0	10	260	
330.7063	6.3	148.0	97.0	10	265	
330.7064	6.4	148.0	97.0	10	270	
330.7065	6.5	148.0	97.0	10	270	
330.7066	6.6	148.0	97.0	10	275	
330.7067	6.7	148.0	97.0	10	275	
330.7068	6.8	156.0	102.0	10	360	
330.7069	6.9	156.0	102.0	10	370	
330.7070	7.0	156.0	102.0	10	375	
330.7071	7.1	156.0	102.0	10	380	
330.7072	7.2	156.0	102.0	10	380	
330.7073	7.3	156.0	102.0	10	385	
330.7074	7.4	156.0	102.0	10	390	
330.7075	7.5	156.0	102.0	10	390	
330.7076	7.6	165.0	109.0	10	480	
330.7077	7.7	165.0	109.0	10	485	
330.7078	7.8	165.0	109.0	10	485	
330.7079	7.9	165.0	109.0	10	490	
330.7080	8.0	165.0	109.0	10	495	
330.7081	8.1	165.0	109.0	10	500	
330.7082	8.2	165.0	109.0	10	505	
330.7083	8.3	165.0	109.0	10	510	
330.7084	8.4	165.0	109.0	10	520	
330.7085	8.5	165.0	109.0	10	525	
330.7086	8.6	175.0	115.0	10	620	
330.7087	8.7	175.0	115.0	10	630	
330.7088	8.8	175.0	115.0	10	635	
330.7089	8.9	175.0	115.0	10	640	
330.7090	9.0	175.0	115.0	10	645	
330.7091	9.1	175.0	115.0	10	660	
330.7092	9.2	175.0	115.0	10	670	
330.7093	9.3	175.0	115.0	10	680	
330.7094	9.4	175.0	115.0	10	690	
330.7095	9.5	175.0	115.0	10	720	
330.7096	9.6	184.0	121.0	10	800	
330.7097	9.7	184.0	121.0	10	810	
330.7098	9.8	184.0	121.0	10	815	
330.7099	9.9	184.0	121.0	10	820	
330.7100	10.0	184.0	121.0	10	825	
330.7105	10.5	184.0	121.0	5	450	
330.7110	11.0	195.0	128.0	5	525	
330.7115	11.5	195.0	128.0	5	575	
330.7120	12.0	205.0	134.0	5	660	
330.7125	12.5	205.0	134.0	5	735	
330.7130	13.0	205.0	134.0	5	765	

HSS-G Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.2610	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-G Twist drill set in metal case

- High strength hinge
- DIN 338 Type N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° Spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel cast steel and high and low alloyed steel up to 900 N/mm² tensile Bronze, brass, brushed aluminium alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.2613	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.30	

HSS-G Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.2620	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-G Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.2623	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.30	

HSS-G Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.2640	170 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 mm	4.15	

HSS-G Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 118° pointed angle
- 20 - 30° spiral angle
- High concentricity accuracy
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

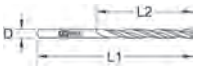
			kg	
330.2650	230 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,2 - 3,5 - 4,0 - 4,2 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 6,8 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	7.40	

HSS-G CO TWIST DRILLS

HSS-G Co 5 Twist drill short

- DIN 1897 Typ N
- Right hand cutting
- Relieved cone has a ground point
- From 3 mm split point according to DIN 1412 C
- 135 ° pointed angle
- 20 - 30° spiral angle
- Gold coated surface
- High performance steel

Ideally suitable in steel, cast steel l up to 1,100 N/mm² tensile, rust and acid steady steels, V2a, V4a, cast and tempered iron.



	D mm	L1 mm	L2 mm	Content	g	
330.6020	2.0	38.0	12.0	10	7	
330.6025	2.5	43.0	14.0	10	15	
330.6030	3.0	46.0	16.0	10	30	
330.6031	3.1	49.0	18.0	10	31	
330.6032	3.2	49.0	18.0	10	32	
330.6033	3.3	49.0	18.0	10	33	
330.6034	3.4	52.0	20.0	10	34	
330.6035	3.5	52.0	20.0	10	35	
330.6036	3.6	52.0	20.0	10	37	
330.6037	3.7	52.0	20.0	10	40	
330.6038	3.8	55.0	22.0	10	42	
330.6039	3.9	55.0	22.0	10	44	
330.6040	4.0	55.0	22.0	10	45	
330.6041	4.1	55.0	22.0	10	47	
330.6042	4.2	55.0	22.0	10	49	
330.6043	4.3	58.0	24.0	10	55	
330.6044	4.4	58.0	24.0	10	57	
330.6045	4.5	58.0	24.0	10	60	
330.6046	4.6	58.0	24.0	10	62	
330.6047	4.7	58.0	24.0	10	63	
330.6048	4.8	62.0	26.0	10	72	
330.6049	4.9	62.0	26.0	10	73	
330.6050	5.0	62.0	26.0	10	75	
330.6051	5.1	62.0	26.0	10	77	
330.6052	5.2	62.0	26.0	10	78	
330.6053	5.3	62.0	26.0	10	80	
330.6054	5.4	66.0	28.0	10	95	
330.6055	5.5	66.0	28.0	10	97	
330.6056	5.6	66.0	28.0	10	99	
330.6057	5.7	66.0	28.0	10	103	
330.6058	5.8	66.0	28.0	10	105	
330.6059	5.9	66.0	28.0	10	107	
330.6060	6.0	66.0	28.0	10	110	
330.6061	6.1	70.0	31.0	10	125	
330.6062	6.2	70.0	31.0	10	128	
330.6063	6.3	70.0	31.0	10	130	
330.6064	6.4	70.0	31.0	10	133	
330.6065	6.5	70.0	31.0	10	135	
330.6066	6.6	70.0	31.0	10	138	
330.6067	6.7	70.0	31.0	10	140	
330.6068	6.8	74.0	34.0	10	170	
330.6069	6.9	74.0	34.0	10	175	
330.6070	7.0	74.0	34.0	10	180	
330.6071	7.1	74.0	34.0	10	183	
330.6072	7.2	74.0	34.0	10	185	
330.6073	7.3	74.0	34.0	10	187	
330.6074	7.4	74.0	34.0	10	188	
330.6075	7.5	74.0	34.0	10	190	
330.6076	7.6	79.0	36.0	10	220	
330.6077	7.7	79.0	36.0	10	225	
330.6078	7.8	79.0	36.0	10	230	
330.6079	7.9	79.0	36.0	10	235	
330.6080	8.0	79.0	36.0	10	240	
330.6085	8.5	79.0	36.0	10	270	
330.6090	9.0	84.0	40.0	10	310	
330.6095	9.5	84.0	40.0	10	360	
330.6100	10.0	89.0	43.0	10	420	
330.6102	10.2	89.0	43.0	10	435	
330.6105	10.5	89.0	43.0	5	210	

	D mm	L1 mm	L2 mm	Content	g	
330.6110	11.0	95.0	47.0	5	255	
330.6115	11.5	95.0	47.0	5	260	
330.6120	12.0	102.0	51.0	5	285	
330.6125	12.5	102.0	51.0	5	290	
330.6130	13.0	102.0	51.0	5	295	

HSS-G Co 5 Twist drill

- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel.

	D mm	L1 mm	L2 mm	Content	g	
330.3003	0.3	19.0	3.0	10	1	
330.3004	0.4	20.0	5.0	10	1	
330.3005	0.5	22.0	6.0	10	1	
330.3006	0.6	24.0	7.0	10	1	
330.3007	0.7	28.0	9.0	10	1	
330.3008	0.8	30.0	10.0	10	1	
330.3009	0.9	32.0	11.0	10	1	
330.3010	1.0	34.0	12.0	10	1	
330.3011	1.1	36.0	14.0	10	1	
330.3012	1.2	38.0	16.0	10	1	
330.3013	1.3	38.0	16.0	10	1	
330.3014	1.4	40.0	18.0	10	1	
330.3015	1.5	40.0	18.0	10	1	
330.3016	1.6	43.0	20.0	10	1	
330.3017	1.7	43.0	20.0	10	10	
330.3018	1.8	46.0	22.0	10	10	
330.3019	1.9	46.0	22.0	10	10	
330.3020	2.0	49.0	24.0	10	10	
330.3021	2.1	49.0	24.0	10	10	
330.3022	2.2	53.0	27.0	10	10	
330.3023	2.3	53.0	27.0	10	20	
330.3024	2.4	57.0	30.0	10	20	
330.3025	2.5	57.0	30.0	10	20	
330.3026	2.6	57.0	30.0	10	40	
330.3027	2.7	61.0	33.0	10	40	
330.3028	2.8	61.0	33.0	10	40	
330.3029	2.9	61.0	33.0	10	40	
330.3030	3.0	61.0	33.0	10	40	
330.3031	3.1	65.0	36.0	10	40	
330.3032	3.2	65.0	36.0	10	40	
330.3033	3.3	65.0	36.0	10	40	
330.3034	3.4	70.0	39.0	10	40	
330.3035	3.5	70.0	39.0	10	40	
330.3036	3.6	70.0	39.0	10	50	
330.3037	3.7	70.0	39.0	10	50	
330.3038	3.8	75.0	43.0	10	50	
330.3039	3.9	75.0	43.0	10	50	
330.3040	4.0	75.0	43.0	10	50	
330.3041	4.1	75.0	43.0	10	80	
330.3042	4.2	75.0	43.0	10	80	
330.3043	4.3	80.0	47.0	10	80	
330.3044	4.4	80.0	47.0	10	80	
330.3045	4.5	80.0	47.0	10	80	
330.3046	4.6	80.0	47.0	10	100	
330.3047	4.7	80.0	47.0	10	100	
330.3048	4.8	86.0	52.0	10	100	
330.3049	4.9	86.0	52.0	10	100	

	D mm	L1 mm	L2 mm	Content	g	
330.3050	5.0	86.0	52.0	10	100	
330.3051	5.1	86.0	52.0	10	130	
330.3052	5.2	86.0	52.0	10	130	
330.3053	5.3	86.0	52.0	10	130	
330.3054	5.4	93.0	57.0	10	130	
330.3055	5.5	93.0	57.0	10	130	
330.3056	5.6	93.0	57.0	10	150	
330.3057	5.7	93.0	57.0	10	150	
330.3058	5.8	93.0	57.0	10	150	
330.3059	5.9	93.0	57.0	10	105	
330.3060	6.0	93.0	57.0	10	150	
330.3061	6.1	101.0	63.0	10	180	
330.3062	6.2	101.0	63.0	10	180	
330.3063	6.3	101.0	63.0	10	180	
330.3064	6.4	101.0	63.0	10	180	
330.3065	6.5	101.0	63.0	10	180	
330.3066	6.6	101.0	63.0	10	250	
330.3067	6.7	101.0	63.0	10	250	
330.3068	6.8	109.0	69.0	10	250	
330.3069	6.9	109.0	69.0	10	250	
330.3070	7.0	109.0	69.0	10	250	
330.3071	7.1	109.0	69.0	10	260	
330.3072	7.2	109.0	69.0	10	260	
330.3073	7.3	109.0	69.0	10	260	
330.3074	7.4	109.0	69.0	10	260	
330.3075	7.5	109.0	69.0	10	260	
330.3076	7.6	117.0	75.0	10	330	
330.3077	7.7	117.0	75.0	10	330	
330.3078	7.8	117.0	75.0	10	330	
330.3079	7.9	117.0	75.0	10	330	
330.3080	8.0	117.0	75.0	10	330	
330.3081	8.1	117.0	75.0	10	350	
330.3082	8.2	117.0	75.0	10	350	
330.3083	8.3	117.0	75.0	10	350	
330.3084	8.4	117.0	75.0	10	350	
330.3085	8.5	117.0	75.0	10	350	
330.3086	8.6	125.0	81.0	10	430	
330.3087	8.7	125.0	81.0	10	430	
330.3088	8.8	125.0	81.0	10	430	
330.3089	8.9	125.0	81.0	10	430	
330.3090	9.0	125.0	81.0	10	430	
330.3091	9.1	125.0	81.0	10	480	
330.3092	9.2	125.0	81.0	10	480	
330.3093	9.3	125.0	81.0	10	480	
330.3094	9.4	125.0	81.0	10	480	
330.3095	9.5	125.0	81.0	10	480	
330.3096	9.6	133.0	87.0	10	275	
330.3097	9.7	133.0	87.0	10	275	
330.3098	9.8	133.0	87.0	10	275	
330.3099	9.9	133.0	87.0	10	275	
330.3100	10.0	133.0	87.0	5	275	
330.3101	10.1	133.0	87.0	5	300	
330.3102	10.2	133.0	87.0	5	300	
330.3103	10.3	133.0	87.0	5	300	
330.3104	10.4	133.0	87.0	5	300	
330.3105	10.5	133.0	87.0	5	300	
330.3106	10.6	133.0	87.0	5	350	
330.3107	10.7	142.0	94.0	5	350	
330.3108	10.8	142.0	94.0	5	350	
330.3109	10.9	142.0	94.0	5	350	
330.3110	11.0	142.0	94.0	5	350	
330.3111	11.1	142.0	94.0	5	385	
330.3112	11.2	142.0	94.0	5	385	
330.3113	11.3	142.0	94.0	5	385	
330.3114	11.4	142.0	94.0	5	385	
330.3115	11.5	142.0	94.0	5	385	
330.3116	11.6	142.0	94.0	5	440	
330.3117	11.7	142.0	94.0	5	440	
330.3118	11.8	142.0	94.0	5	440	
330.3119	11.9	151.0	101.0	5	440	
330.3120	12.0	151.0	101.0	5	440	
330.3121	12.1	151.0	101.0	5	490	
330.3122	12.2	151.0	101.0	5	490	
330.3123	12.3	151.0	101.0	5	490	
330.3124	12.4	151.0	101.0	5	490	
330.3125	12.5	151.0	101.0	5	490	
330.3126	12.6	151.0	101.0	5	515	
330.3127	12.7	151.0	101.0	5	515	
330.3128	12.8	151.0	101.0	5	515	
330.3129	12.9	151.0	101.0	5	515	
330.3130	13.0	151.0	101.0	5	515	
330.3135	13.5	160.0	108.0	1	110	
330.3140	14.0	160.0	108.0	1	115	
330.3145	14.5	169.0	114.0	1	120	
330.3150	15.0	169.0	114.0	1	125	
330.3155	15.5	178.0	120.0	1	130	
330.3160	16.0	178.0	120.0	1	135	

HSS-G Co 5 Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel

			kg	
330.3610	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-G Co 5 Twist drill set in metal case

- High strength hinge
- DIN 338 Type N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° Spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- •• High performance cobalt steel

ideally usable in high and low alloyed steel up to 1,100 N/mm² tensile Compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel

			kg	
330.3613	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.30	

HSS-G Co 5 Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel

			kg	
330.3620	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.60	

HSS-G Co 5 Twist Drill Set in steel storage case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel

			kg	
330.3623	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.30	

HSS-G Co 5 Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel.

			kg	
330.3640	170 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 mm	4.15	

HSS-G Co 5 Twist drill set in metal case

- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- Gold coated surface
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 1,100 N/mm² tensile, compensation steel and stainless steel, rustproof and acid steady steel and warm and cold forged steel.

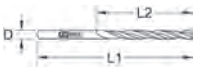
			kg	
330.3650	230 pcs	per 10 x: 1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,2 - 3,5 - 4,0 - 4,2 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 6,8 - 7,0 - 7,5 - 8,0 per 5 x: 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	7.40	

HSS TIN TWIST DRILLS

HSS-TiN Twist drill

- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- With TiN coated surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 1,100 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron malleable tempered and cast iron.



	D mm	L1 mm	L2 mm	Content	g
330.4003	0.3	19.0	3.0	10	1
330.4004	0.4	20.0	5.0	10	1
330.4005	0.5	22.0	6.0	10	1
330.4006	0.6	24.0	7.0	10	1
330.4007	0.7	28.0	9.0	10	1
330.4008	0.8	30.0	10.0	10	1
330.4009	0.9	32.0	11.0	10	1
330.4010	1.0	34.0	12.0	10	1
330.4011	1.1	36.0	14.0	10	1
330.4012	1.2	38.0	16.0	10	1
330.4013	1.3	38.0	16.0	10	1
330.4014	1.4	40.0	18.0	10	1
330.4015	1.5	40.0	18.0	10	1
330.4016	1.6	43.0	20.0	10	10
330.4017	1.7	43.0	20.0	10	10
330.4018	1.8	46.0	22.0	10	10
330.4019	1.9	46.0	22.0	10	10
330.4020	2.0	49.0	24.0	10	10
330.4021	2.1	49.0	24.0	10	20
330.4022	2.2	53.0	27.0	10	20
330.4023	2.3	53.0	27.0	10	20
330.4024	2.4	57.0	30.0	10	20
330.4025	2.5	57.0	30.0	10	20
330.4026	2.6	57.0	30.0	10	40
330.4027	2.7	61.0	33.0	10	40
330.4028	2.8	61.0	33.0	10	40
330.4029	2.9	61.0	33.0	10	40
330.4030	3.0	61.0	33.0	10	40
330.4031	3.1	65.0	36.0	10	40
330.4032	3.2	65.0	36.0	10	40
330.4033	3.3	65.0	36.0	10	40
330.4034	3.4	70.0	39.0	10	40
330.4035	3.5	70.0	39.0	10	40
330.4036	3.6	70.0	39.0	10	50
330.4037	3.7	70.0	39.0	10	50
330.4038	3.8	75.0	43.0	10	50
330.4039	3.9	75.0	43.0	10	50
330.4040	4.0	75.0	43.0	10	50
330.4041	4.1	75.0	43.0	10	80
330.4042	4.2	75.0	43.0	10	80
330.4043	4.3	80.0	47.0	10	80
330.4044	4.4	80.0	47.0	10	80
330.4045	4.5	80.0	47.0	10	80
330.4046	4.6	80.0	47.0	10	100
330.4047	4.7	80.0	47.0	10	100
330.4048	4.8	86.0	52.0	10	100
330.4049	4.9	86.0	52.0	10	100
330.4050	5.0	86.0	52.0	10	100
330.4051	5.1	86.0	52.0	10	130
330.4052	5.2	86.0	52.0	10	130
330.4053	5.3	86.0	52.0	10	130
330.4054	5.4	93.0	57.0	10	130
330.4055	5.5	93.0	57.0	10	130
330.4056	5.6	93.0	57.0	10	150
330.4057	5.7	93.0	57.0	10	150
330.4058	5.8	93.0	57.0	10	150
330.4059	5.9	93.0	57.0	10	150
330.4060	6.0	93.0	57.0	10	150
330.4061	6.1	101.0	63.0	10	180
330.4062	6.2	101.0	63.0	10	180
330.4063	6.3	101.0	63.0	10	180
330.4064	6.4	101.0	63.0	10	180
330.4065	6.5	101.0	63.0	10	180
330.4066	6.6	101.0	63.0	10	250
330.4067	6.7	101.0	63.0	10	250
330.4068	6.8	109.0	69.0	10	250
330.4069	6.9	109.0	69.0	10	250
330.4070	7.0	109.0	69.0	10	250
330.4071	7.1	109.0	69.0	10	260
330.4072	7.2	109.0	69.0	10	260
330.4073	7.3	109.0	69.0	10	260
330.4074	7.4	109.0	69.0	10	260
330.4075	7.5	109.0	69.0	10	260
330.4076	7.6	117.0	75.0	10	330
330.4077	7.7	117.0	75.0	10	330
330.4078	7.8	117.0	75.0	10	330
330.4079	7.9	117.0	75.0	10	330
330.4080	8.0	117.0	75.0	10	330
330.4081	8.1	117.0	75.0	10	350
330.4082	8.2	117.0	75.0	10	350
330.4083	8.3	117.0	75.0	10	350
330.4084	8.4	117.0	75.0	10	350
330.4085	8.5	117.0	75.0	10	350
330.4086	8.6	125.0	81.0	10	430
330.4087	8.7	125.0	81.0	10	430
330.4088	8.8	125.0	81.0	10	430
330.4089	8.9	125.0	81.0	10	430
330.4090	9.0	125.0	81.0	10	430
330.4091	9.1	125.0	81.0	10	480
330.4092	9.2	125.0	81.0	10	480
330.4093	9.3	125.0	81.0	10	480
330.4094	9.4	125.0	81.0	10	480
330.4095	9.5	125.0	81.0	10	480
330.4096	9.6	133.0	87.0	10	275
330.4097	9.7	133.0	87.0	10	275
330.4098	9.8	133.0	87.0	10	275
330.4099	9.9	133.0	87.0	10	275
330.4100	10.0	133.0	87.0	5	275
330.4101	10.1	133.0	87.0	5	300
330.4102	10.2	133.0	87.0	5	300
330.4103	10.3	133.0	87.0	5	300
330.4104	10.4	133.0	87.0	5	300
330.4105	10.5	133.0	87.0	5	300
330.4106	10.6	133.0	87.0	5	350
330.4107	10.7	142.0	94.0	5	350
330.4108	10.8	142.0	94.0	5	350
330.4109	10.9	142.0	94.0	5	350
330.4110	11.0	142.0	94.0	5	350
330.4111	11.1	142.0	94.0	5	385
330.4112	11.2	142.0	94.0	5	385
330.4113	11.3	142.0	94.0	5	385
330.4114	11.4	142.0	94.0	5	385
330.4115	11.5	142.0	94.0	5	385
330.4116	11.6	142.0	94.0	5	440
330.4117	11.7	142.0	94.0	5	440
330.4118	11.8	142.0	94.0	5	440
330.4119	11.9	151.0	101.0	5	440
330.4120	12.0	151.0	101.0	5	440
330.4121	12.1	151.0	101.0	5	490
330.4122	12.2	151.0	101.0	5	490
330.4123	12.3	151.0	101.0	5	490
330.4124	12.4	151.0	101.0	5	490
330.4125	12.5	151.0	101.0	5	490
330.4126	12.6	151.0	101.0	5	515
330.4127	12.7	151.0	101.0	5	515
330.4128	12.8	151.0	101.0	5	515
330.4129	12.9	151.0	101.0	5	515
330.4130	13.0	151.0	101.0	5	515
330.4135	13.5	160.0	108.0	1	110
330.4140	14.0	160.0	108.0	1	115
330.4145	14.5	169.0	114.0	1	120
330.4150	15.0	169.0	114.0	1	125
330.4155	15.5	178.0	120.0	1	130
330.4160	16.0	178.0	120.0	1	135

HSS-G Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- TIN coated surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 1,100 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.4610	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.66	

HSS-G Twist drill set in metal case

- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- TIN coated surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 1,100 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.4613	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.36	

HSS-TiN Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- TIN coated surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 1,100 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

			kg	
330.4620	19 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 mm	0.66	

HSS-TiN Twist drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 338 Typ N
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 130° pointed angle
- 20 - 30° spiral angle
- High heat hardness constancy
- For heavy loading
- TIN coated surface
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 1,100 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, malleable tempered and cast iron.

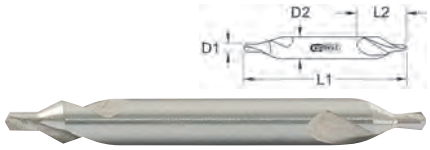
			kg	
330.4623	25 pcs	1,0 - 1,5 - 2,0 - 2,5 - 3,0 - 3,5 - 4,0 - 4,5 - 5,0 - 5,5 - 6,0 - 6,5 - 7,0 - 7,5 - 8,0 - 8,5 - 9,0 - 9,5 - 10,0 - 10,5 - 11,0 - 11,5 - 12,0 - 12,5 - 13,0 mm	1.36	

CENTRE DRILLS

HSS Centre drill

- DIN 333 form A
- Right hand cutting
- 60° centre angle
- 120° pointed angle
- For production of center borings
- Surface without discolouration
- High performance steel

Ideally suited for production of center borings according to DIN 332 form A.

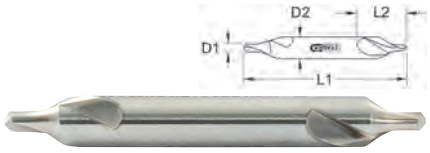


	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
330.1201	1.00	3.15	32.0	7.3	1	2
330.1202	1.50	4.00	36.0	9.3	1	4
330.1203	2.00	5.00	40.0	11.5	1	6
330.1204	2.50	6.30	46.0	15.4	1	9
330.1205	3.15	8.00	51.0	18.0	1	13
330.1206	4.00	10.00	56.0	20.0	1	22
330.1207	5.00	12.50	64.0	22.0	1	37
330.1208	6.30	15.00	72.0	30.0	1	65

HSS Centre drill

- DIN 333 form R
- Right hand cutting
- 60° centre angle
- 120° pointed angle
- For production of center borings
- Surface without discolouration
- High performance steel

Ideally suited for production of center borings according to DIN 332 form R.



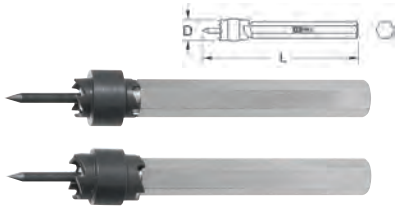
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
330.1211	1.00	3.15	32.0	7.3	1	2
330.1212	1.50	4.00	36.0	9.3	1	4
330.1213	2.00	5.00	40.0	11.5	1	6
330.1214	2.50	6.30	46.0	15.4	1	9
330.1215	3.15	8.00	51.0	18.0	1	13
330.1216	4.00	10.00	56.0	20.0	1	22
330.1217	5.00	12.50	64.0	22.0	1	37
330.1218	6.30	15.00	72.0	30.0	1	65

SPOT WELD DRILLS

HSS Spot weld cutter

- Right hand cutting
- Interchangeable crowns
- Milling machine depth adjustable
- For efficient and fast working
- For loosening of spot welds
- No deformation of the sheet metal
- Special high performance steel

Ideally suitable with compressed air drill, electric drill and rechargeable battery drill.

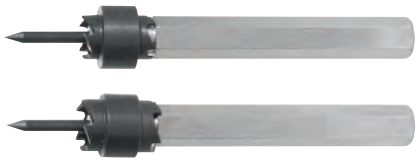


	D mm	D	L mm	Replacement crowns	Center point	Content	g
332.0951	8.0	5/16	72.0	332.0952	332.0955	1	30
332.0953	10.0	3/8	72.0	332.0954	332.0955	1	30

HSS Spot weld cutter set

- Right hand cutting
- Interchangeable crowns
- Milling machine depth adjustable
- For efficient and fast working
- For loosening of spot welds
- No deformation of the sheet metal
- Special high performance steel

Ideally suitable with compressed air drill, electric drill and rechargeable battery drill.



332.0950	2 pcs	8 - 10 mm	100

HSSE Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- Surface without discolouration
- High performance steel

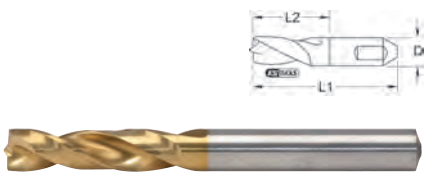
Ideally suited in a hand drilling machine.
For drilling of plastic sheet, copper, zinc, aluminum, brass and steel sheet.

	D mm	L1 mm	L2 mm	Content	
332.0106	6.0	70.0	25.0	1	10
332.0108	8.0	80.0	30.0	1	20
332.0110	10.0	90.0	35.0	1	40

HSSE TIN Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TIN coated surface
- High performance steel

Ideally suited in a hand drilling machine.
For drilling of plastic sheet, copper, zinc, aluminum, brass and steel sheet.



	D mm	L1 mm	L2 mm	Content	
332.0206	6.0	70.0	25.0	1	10
332.0208	8.0	80.0	30.0	1	20
332.0210	10.0	90.0	35.0	1	40

HSSE TICN Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TICN coated surface
- High performance steel

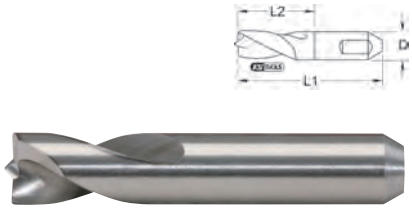
Ideally suited in a hand drilling machine.
For drilling of plastic sheet, copper, zinc, aluminum, brass and steel sheet.

	D mm	L1 mm	L2 mm	Content	
332.0308	8.0	80.0	30.0	1	20
332.0310	10.0	90.0	35.0	1	40

HSS Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TICN coated surface
- High performance steel

Ideally suited in a compressed air drill and vario milling machine.

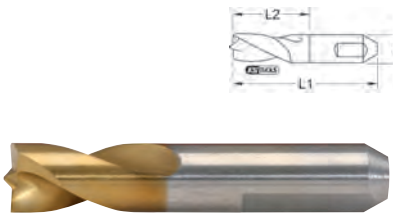


	D mm	L1 mm	L2 mm	Content	
332.0408	6.5	44.0	15.0	1	10
332.0708	8.0	44.0	15.0	1	10

HSSE TiN Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TIN coated surface
- High performance steel

Ideally suited in a compressed air drill and vario milling machine.

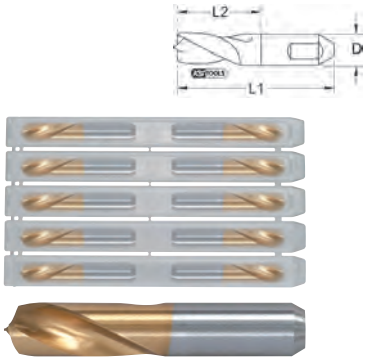


	D mm	L1 mm	L2 mm	Content	
332.0508	6.5	44.0	15.0	1	10
332.0808	8.0	44.0	15.0	1	10

HSSE TiN Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TIN coated surface
- High strength steel

Ideally suited in a compressed air drill and vario milling machine

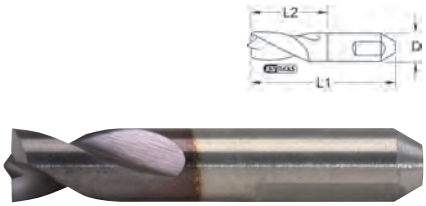


	D mm	L1 mm	L2 mm	Content	
332.0809	8.0	44.0	23.0	10	100

HSSE TiCN Spot weld drill

- Right hand cutting
- Centre tip has a ground point
- Accurate polished
- For burr free drilling without using a centre punch
- For the drilling of welding points
- TICN coated surface
- High performance steel

Ideally suited in a compressed air drill and vario milling machine.

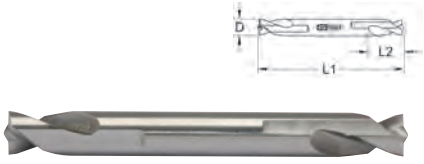


	D mm	L1 mm	L2 mm	Content	
332.0608	8.0	44.0	15.0	1	10

HSSE Double ended spot weld drill

- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 135° pointed angle
- Double ended usage
- Extra short and durable
- For thin walled materials
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, pressure-, malleable- and cast iron



	D mm	L1 mm	L2 mm	Content	
332.0908	8.0	70.0	16.3	1	20

HSS Double ended spot weld drill set

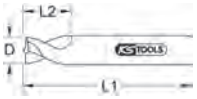
- Right hand cutting
- Relieved cone has a ground point
- Cutting edge has thinning point
- 135° pointed angle
- Double ended usage
- Extra short and durable
- For thin walled materials
- Surface without discolouration
- High performance steel

Ideally suitable in steel, cast steel and high and low alloyed steel up to 900 N/mm² tensile, bronze, brass, brushed aluminum alloy, graphite, nickel silver, sintered iron, pressure-, malleable- and cast iron

			g
332.0938	3 pcs	3 x 332.0908	20

Carbide spot weld drill

- Right hand cutting
- Highest stability under load
- Double edged
- Welded carbide head
- Especially temperature resistance up to max. 1100°C
- High performance carbide
- Suitable for high strength car body panels



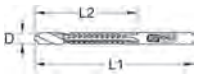
	D mm	L1 mm	L2 mm	Content	g
515.1305	8.0	44.0	11.0	1	20
515.1308	10.0	44.0	11.0	1	26

MILLING DRILLS

HSS Milling drill

- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- Suitable for thin walled material
- Surface without discolouration
- Special high performance steel

Ideally suitable for boring and milling machines thin walled materials, plastic, wood and sheet metal.

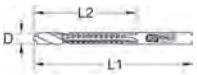


	D mm	L1 mm	L2 mm	Content	g
332.0330	6.0	90.0	35.0	1	25
332.0331	8.0	90.0	35.0	1	30

HSS TiN Milling drill

- Right hand cutting
- Relieved cone has a ground point
- 118° pointed angle
- Suitable for thin walled material
- With TiN coated surface
- Special high performance steel

Ideally suitable for boring and milling machines thin walled materials, plastic, wood and sheet metal.

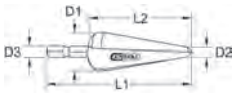


	D mm	L1 mm	L2 mm	Content	g
332.0332	6.0	90.0	35.0	1	25
332.0333	8.0	90.0	35.0	1	30

HSS CONE CUTTERS

HSS Cone cutter bit

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- With 1/4" external hexagon drive adaptor to DIN 3126 - C6,3
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

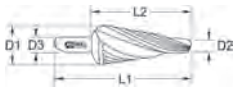


	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0031	5,0 - 22,0	20.0	5.0	6.4	78.0	51.0	1	65

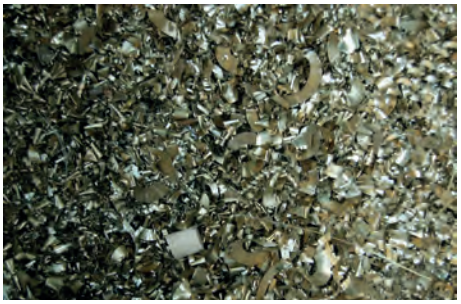
HSS Cone cutter spiral grooved

- Point thinning according to DIN 1412 C
- Right hand cutting
- 118° pointed angle
- 20° cone angle
- Spiral form flute
- Three sided clamping surface on the shaft
- Absolute smooth operation
- Surface without discolouration
- High performance steel

Is suitable for use in all current industrial metals. Such as alloyed and non alloyed sheet metals up to 4.0 mm, NE metal and plastic. The spiral chip groove formed means that drilling is absolutly quiet, whilst the forming ensures the best cut achievement.

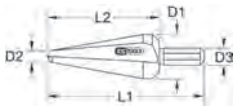


	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0024	4,0 - 14,0	14.0	4.0	6.0	58.0	33.0	1	20
336.0025	5,0 - 20,0	20.0	5.0	8.0	71.0	47.0	1	56
336.0026	5,0 - 31,0	31.0	5.0	10.0	103.0	78.0	1	170



HSS Cone cutter

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0001	3,0 - 14,0	14.0	3.0	6.0	58.0	38.0	1	20
336.0002	5,0 - 20,0	20.0	5.0	8.0	71.0	51.0	1	50
336.0003	16,0 - 30,5	30.5	16.0	9.0	76.0	54.0	1	120
336.0004	24,0 - 40,0	40.0	24.0	10.0	89.0	65.0	1	270
336.0005	36,0 - 50,0	50.0	36.0	12.0	97.0	71.0	1	490
336.0006	40,0 - 61,0	61.0	40.0	13.0	103.0	73.0	1	510
336.0007	5,0 - 25,4	25.4	5.0	10.0	87.0	67.0	1	100
336.0008	4,0 - 30,0	30.0	4.0	9.0	103.0	83.0	1	150
336.0009	5,0 - 22,5	22.5	5.0	8.0	79.0	59.0	1	90

HSS Cone cutter set in metal case

- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

336.0503	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590	

HSS Cone cutter set in plastic case

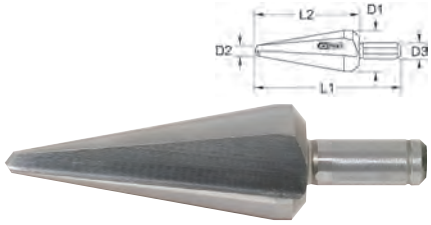
- Stackable for storage
- With integral clasp
- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

336.0533	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590	

HSS CO CONE CUTTERS

HSS Co Cone cutter

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steel



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0011	3,0 - 20,0	14.0	3.0	6.0	58.0	38.0	1	20
336.0012	5,0 - 20,0	20.0	5.0	8.0	71.0	51.0	1	56
336.0013	16,0 - 30,5	30.5	16.0	9.0	76.0	54.0	1	120
336.0014	4,0 - 30,0	30.0	4.0	9.0	103.0	65.0	1	170

HSS Co Cone cutter set in metal case

- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steel

336.0513	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590

HSS Co Cone cutter set in plastic case

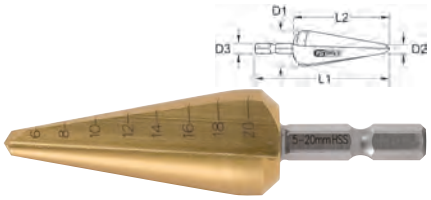
- Stackable for storage
- With integral clasp
- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steel

336.0543	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590

HSS TIN CONE CUTTERS

HSS TiN Cone cutter bit

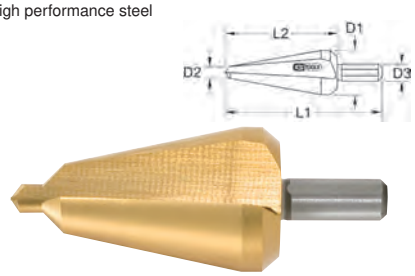
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- With 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0033	5,0 - 20,0	20.0	5.0	6.4	78.0	51.0	1	65

HSS TiN Cone cutter

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	Content	g
336.0015	3,0 - 14,0	14.0	3.0	6.0	58.0	38.0	1	20
336.0016	5,0 - 20,0	20.0	5.0	8.0	71.0	51.0	1	56
336.0017	16,0 - 30,5	30.5	16.0	9.0	76.0	54.0	1	120
336.0018	24,0 - 40,0	40.0	24.0	10.0	89.0	65.0	1	259
336.0019	36,0 - 50,0	50.0	36.0	12.0	97.0	71.0	1	480
336.0020	40,0 - 61,0	61.0	40.0	13.0	103.0	73.0	1	605
336.0021	5,0 - 25,4	25.4	5.0	10.0	87.0	67.0	1	150
336.0022	4,0 - 30,0	30.0	4.0	9.0	103.0	83.0	1	170
336.0023	5,0 - 22,5	22.5	5.0	8.0	79.0	59.0	1	180

HSS TiN Cone cutter set in metal case

- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

336.0523	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590

HSS TiN Cone cutter set in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- 118° pointed angle
- 20 - 30° cone angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

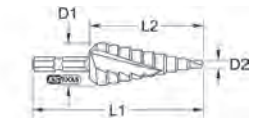
			g	
336.0553	4 pcs	3 - 14 mm - 5 - 20 mm - 16 - 30,5 mm	590	

HSS STEPPED DRILLS

HSS Stepped drill bit

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- With 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

The cone simplifies the retracting through bored sheet metals. Breaking chips and swarf are taken away.
The construction of the cutting edges and cold welded joint in the edges blunting is thereby prevented.



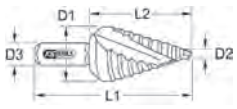
1/4"

	Ø mm	D1 mm	D2 mm	L1 mm	L2 mm	No. stages	Content	g
330.2381	4,0-12,0	12.0	4.0	72.0	45.0	9	1	25
330.2382	4,0-20,0	20.0	4.0	81.0	54.0	9	1	85
330.2383	4,0-30,0	30.0	4.0	105.0	78.0	14	1	165

HSS Stepped drill, extra short

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

The cone simplifies the retracting through bored sheet metals. Breaking chips and swarf are taken away.
The construction of the cutting edges and cold welded joint in the edges blunting is thereby prevented. Ideally suited for construction strength grade sheet metal up to 2.0 mm.

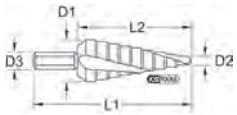


	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	No. stages	Content	g
330.2371	4 - 12	12.0	4.0	6.0	48.0	28.0	9	1	16
330.2372	4 - 20	20.0	4.0	8.0	58.0	38.0	9	1	42
330.2373	4 - 30	30.0	4.0	10.0	72.0	49.0	14	1	130

HSS Stepped drill

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	No. stages	Content	g
330.2301	4 - 12	12.0	4.0	6.0	65.0	45.0	9	1	22
330.2302	4 - 20	20.0	4.0	8.0	75.0	55.0	9	1	60
330.2303	4 - 30	30.0	4.0	10.0	100.0	78.0	14	1	185
330.2304	6 - 30	30.0	6.0	10.0	95.0	73.0	13	1	205
330.2305	6 - 37	37.0	6.0	10.0	100.0	76.0	12	1	245
330.2306	6 - 38	38.0	6.0	10.0	100.0	76.0	12	1	260
330.2307	4 - 39	39.0	4.0	10.0	107.0	83.0	13	1	312
330.2308	6 - 40	40.0	6.0	13.0	105.0	81.0	16	1	455
330.2309	6 - 20	20.0	6.0	9.0	71.0	51.0	8	1	100
330.2310	4 - 22	22.0	4.0	10.0	76.0	56.0	10	1	85
330.2311	6 - 27,8	26.8	6.0	10.0	75.0	53.0	8	1	110
330.2312	6 - 32	32.0	6.0	10.0	75.0	53.0	8	1	102
330.2313	6 - 32	32.0	6.0	10.0	76.0	53.0	9	1	108
330.2314	5 - 28	28.0	5.0	9.0	69.0	53.0	7	1	86
330.2315	6 - 25	25.0	6.0	10.0	65.0	47.0	7	1	135
330.2316	6 - 30,5	30.5	6.0	10.0	80.0	57.0	9	1	150
330.2317	6,5 - 40,5	40.5	6.5	10.0	96.0	72.0	11	1	265
330.2318	6 - 36	36.0	6.0	10.0	82.0	57.0	11	1	255
330.2319	7 - 40,5	40.5	7.0	12.0	95.0	70.0	13	1	275
330.2320	4,8 - 10,7	10.7	4.8	6.0	54.0	34.0	5	1	27
330.2321	7 - 32,5	32.5	7.0	12.0	96.0	71.0	11	1	220

HSS Stepped drill set in metal case

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

			g	
330.2403	3 pcs	4 - 12 mm - 4 - 20 mm - 4 - 30 mm	610	

HSS Stepped drill set in plastic case

- Stackable for storage
- With integral clasp
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

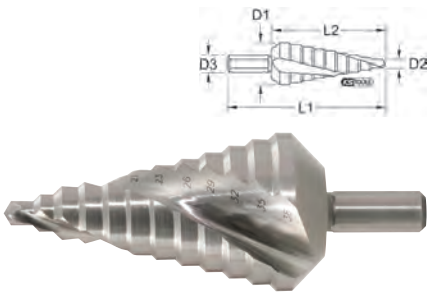
			g	
330.2404	3 pcs	4 - 12 mm - 4 - 20 mm - 6 - 30 mm	610	

HSS CO STEPPED DRILLS

HSS Co 5 Stepped drill

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steell

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	No. stages	Content	g
330.2322	4 - 12	12.0	4.0	6.0	65.0	45.0	9	1	22
330.2323	4 - 20	20.0	4.0	8.0	75.0	55.0	9	1	60
330.2324	4 - 30	30.0	4.0	10.0	100.0	78.0	14	1	185
330.2325	6 - 30	30.0	6.0	10.0	95.0	73.0	13	1	205
330.2326	6 - 37	37.0	6.0	10.0	100.0	76.0	12	1	245
330.2327	6 - 38	38.0	6.0	10.0	100.0	76.0	12	1	260
330.2328	4 - 39	39.0	4.0	10.0	107.0	83.0	13	1	312
330.2329	6 - 40	40.0	6.0	13.0	105.0	81.0	16	1	455
330.2330	6 - 20	20.0	6.0	9.0	71.0	51.0	8	1	100
330.2331	4 - 22	22.0	4.0	10.0	76.0	56.0	10	1	85
330.2332	6 - 26,8	26.8	6.0	10.0	75.0	53.0	8	1	110
330.2333	6 - 32	32.0	6.0	10.0	75.0	53.0	8	1	102
330.2334	6 - 32	32.0	6.0	10.0	76.0	53.0	9	1	108
330.2335	5 - 28	28.0	5.0	9.0	69.0	47.0	7	1	86
330.2336	6 - 25	25.0	6.0	10.0	65.0	42.0	7	1	135
330.2337	6 - 30,5	30.5	6.0	10.0	80.0	57.0	9	1	150
330.2338	6,5 - 40,5	40.5	6.5	10.0	96.0	72.0	11	1	265
330.2339	6 - 36	36.0	6.0	10.0	82.0	57.0	11	1	255
330.2340	7 - 40,5	40.5	7.0	12.0	95.0	70.0	13	1	275
330.2341	4,8 - 10,7	10.7	4.8	6.0	54.0	34.0	5	1	27
330.2342	7 - 32,5	32.5	7.0	12.0	96.0	71.0	11	1	220

HSS Co 5 Stepped drill set in metal case

- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

			g
330.2413	3 pcs	4 - 12 mm - 4 - 20 mm - 4 - 30 mm	600

HSS Co 5 Stepped drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- Surface without discolouration
- High performance cobalt steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

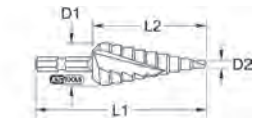
			g
330.2414	3 pcs	4 - 12 mm - 4 - 20 mm - 6 - 30 mm	600

HSS TIN STEPPED DRILLS

HSS TiN Stepped drill bit

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- With 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

The cone simplifies the retracting through bored sheet metals. Breaking chips and swarf are taken away.
The construction of the cutting edges and cold welded joint in the edges blunting is thereby prevented.



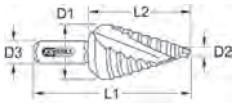
1/4"

	Ø mm	D1 mm	D2 mm	L1 mm	L2 mm	No. stages	Content	g
330.2384	4,0-12,0	12.0	4.0	72.0	45.0	9	1	25
330.2385	4,0-20,0	20.0	4.0	81.0	54.0	9	1	85
330.2386	4,0-30,0	30.0	4.0	105.0	78.0	14	1	165

HSS TiN Stepped drill, extra short

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

The cone simplifies the retracting through bored sheet metals. Breaking chips and swarf are taken away.
The construction of the cutting edges and cold welded joint in the edges blunting is thereby prevented. Ideally suited for construction strength grade sheet metal up to 2.0 mm.

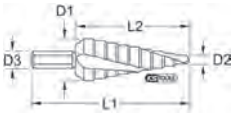


	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	No. stages	Content	g
330.2374	4 - 12	12.0	4.0	6.0	48.0	28.0	9	1	16
330.2375	4 - 20	20.0	4.0	8.0	58.0	38.0	9	1	42
330.2376	4 - 30	30.0	4.0	10.0	72.0	49.0	14	1	130

HSS TiN Stepped drill

- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.



	Ø mm	D1 mm	D2 mm	D3 mm	L1 mm	L2 mm	No. stages	Content	g
330.2343	4 - 12	12.0	4.0	6.0	65.0	45.0	9	1	22
330.2344	4 - 20	20.0	4.0	8.0	75.0	55.0	9	1	60
330.2345	4 - 30	30.0	4.0	10.0	100.0	78.0	14	1	185
330.2346	6 - 30	30.0	6.0	10.0	95.0	73.0	13	1	205
330.2347	6 - 37	37.0	6.0	10.0	100.0	76.0	12	1	245
330.2348	6 - 38	38.0	6.0	10.0	100.0	76.0	12	1	260
330.2349	4 - 39	39.0	4.0	10.0	107.0	83.0	13	1	312
330.2350	6 - 40	40.0	6.0	13.0	105.0	81.0	16	1	455
330.2351	6 - 20	20.0	6.0	9.0	71.0	51.0	8	1	100
330.2352	4 - 22	22.0	4.0	10.0	76.0	56.0	10	1	85
330.2353	6 - 26,8	26.8	6.0	10.0	75.0	53.0	8	1	110
330.2354	6 - 32	32.0	6.0	10.0	75.0	53.0	8	1	102
330.2355	6 - 32	32.0	6.0	10.0	76.0	53.0	9	1	108
330.2356	5 - 28	28.0	5.0	9.0	69.0	47.0	7	1	86
330.2357	6 - 25	25.0	6.0	10.0	65.0	42.0	7	1	135
330.2358	6 - 30,5	30.5	6.0	10.0	80.0	57.0	9	1	150
330.2359	6,5 - 40,5	40.5	6.5	10.0	96.0	72.0	11	1	265
330.2360	6 - 36	36.0	6.0	10.0	82.0	57.0	11	1	255
330.2361	7 - 40,5	40.5	7.0	12.0	95.0	70.0	13	1	275
330.2362	4,8 - 10,7	10.7	4.8	6.0	54.0	34.0	5	1	27
330.2363	7 - 32,5	32.5	7.0	12.0	96.0	71.0	11	1	220

HSS TiN Stepped drill set in metal case

- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning pointRight hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

330.2423	3 pcs	4 - 12 mm - 4 - 20 mm - 4 - 30 mm	610

HSS TiN Stepped drill set in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- Point thinning according to DIN 1412 C
- Cutting edge has thinning point
- Right hand cutting
- Spiral grooved
- 118° pointed angle
- 90° stepped angle
- Absolute smooth operation
- High cutting achievement
- With TiN coated surface
- High performance steel

The cone simplifies the retracting through bored sheet metals. Higher feed especially in NE metals possible due to the slim cutting edge.

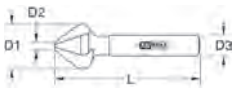
330.2424	3 pcs	4 - 12 mm - 4 - 20 mm - 6 - 30 mm	610

CONE - AND DEBURRING 60°

HSS Cone and deburrer 60°

- DIN 334 form C
- Right hand cutting
- 60° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

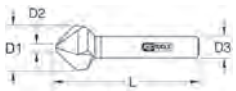


	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0034	6.3	1.6	5.0	45.0	1	10
336.0035	8.0	2.0	6.0	50.0	1	12
336.0036	10.0	2.5	6.0	53.0	1	12
336.0037	12.5	3.2	8.0	56.0	1	24
336.0038	16.0	4.0	10.0	63.0	1	42
336.0039	20.0	5.0	10.0	67.0	1	50
336.0040	25.0	6.3	10.0	71.0	1	66
336.0041	31.5	10.0	12.0	76.0	1	78

HSS Co Cone and deburrer 60°

- DIN 334 form C
- Right hand cutting
- 60° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



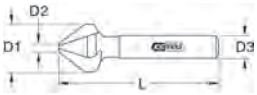
	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0102	6.3	1.6	5.0	45.0	1	10
336.0103	8.0	2.0	6.0	50.0	1	12
336.0104	10.0	2.5	6.0	53.0	1	14
336.0105	12.5	3.2	8.0	56.0	1	24
336.0106	16.0	4.0	10.0	63.0	1	44
336.0107	20.0	5.0	10.0	67.0	1	50
336.0108	25.0	6.3	10.0	71.0	1	64
336.0109	31.5	10.0	12.0	76.0	1	78

CONE - AND DEBURRING 75°

HSS Cone and deburrer 75°

- Form C
- Right hand cutting
- 75° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

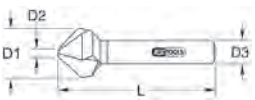


	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0042	6.3	1.6	5.0	45.0	1	10
336.0043	8.0	2.0	6.0	50.0	1	12
336.0044	10.0	2.5	6.0	53.0	1	14
336.0045	12.5	3.2	8.0	56.0	1	24
336.0046	16.0	4.0	10.0	63.0	1	44
336.0047	20.0	5.0	10.0	67.0	1	50
336.0048	25.0	6.3	10.0	71.0	1	64
336.0049	31.5	10.0	12.0	76.0	1	78

HSS Co Cone and deburrer 75°

- Form C
- Right hand cutting
- 75° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



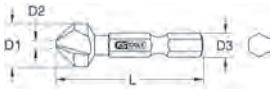
	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0110	6.3	1.6	5.0	45.0	1	10
336.0111	8.0	2.0	6.0	50.0	1	12
336.0112	10.0	2.5	6.0	53.0	1	14
336.0113	12.5	3.2	8.0	56.0	1	24
336.0114	16.0	4.0	10.0	63.0	1	44
336.0115	20.0	5.0	10.0	67.0	1	50
336.0116	25.0	6.3	10.0	71.0	1	64
336.0117	31.5	10.0	12.0	76.0	1	78

CONE - AND DEBURRING 90°

HSS Cone and deburrer bit 90°

- Right hand cutting
- 90° Countersink angle
- 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- Three cutting edges
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



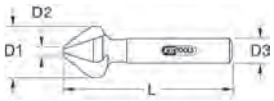
1/4"

	D1 mm	D2 mm	D3 mm	L mm	Content	
336.0274	6.3	1.0	6.4	45.0	1	10
336.0275	8.3	1.5	6.4	50.0	1	14
336.0276	10.4	2.0	6.4	50.0	1	15
336.0277	12.4	2.0	6.4	56.0	1	26
336.0278	16.5	2.5	6.4	60.0	1	36
336.0279	20.5	3.0	6.4	63.0	1	52

HSS Cone and deburrer 90°

- DIN 335 Form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



	D1 mm	D2 mm	D3 mm	L mm	Content	
336.0050	4.3	1.3	4.0	40.0	1	9
336.0051	5.0	1.5	4.0	40.0	1	9
336.0052	5.3	1.5	4.0	40.0	1	9
336.0053	5.8	1.5	5.0	45.0	1	10
336.0054	6.0	1.5	5.0	45.0	1	10
336.0055	6.3	1.5	5.0	45.0	1	10
336.0056	7.0	1.8	6.0	50.0	1	13
336.0057	7.3	1.8	6.0	50.0	1	13
336.0058	8.0	2.0	6.0	50.0	1	15
336.0059	8.3	2.0	6.0	50.0	1	15
336.0060	9.4	2.2	6.0	50.0	1	18
336.0061	10.0	2.5	6.0	50.0	1	20
336.0062	10.4	2.5	6.0	50.0	1	20
336.0063	11.5	2.8	8.0	56.0	1	26
336.0064	12.4	2.8	8.0	56.0	1	26
336.0065	13.4	2.9	8.0	56.0	1	26
336.0066	15.0	3.2	10.0	60.0	1	36
336.0067	16.5	3.2	10.0	60.0	1	36
336.0068	19.0	3.5	10.0	63.0	1	52
336.0069	20.5	3.5	10.0	63.0	1	52
336.0070	23.0	3.8	10.0	67.0	1	62
336.0071	25.0	3.8	10.0	67.0	1	62
336.0072	26.0	3.9	12.0	71.0	1	65
336.0073	28.0	4.0	12.0	71.0	1	70
336.0074	30.0	4.1	12.0	71.0	1	70
336.0075	31.0	4.2	12.0	71.0	1	70

HSS Cone and deburrer set 90° in metal case

- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

336.0406	6 pcs	6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	530

HSS Cone and deburrer set 90° in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

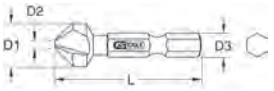
Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

336.0446	6 pcs	6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	530

HSS Co Cone and deburrer bit 90°

- Right hand cutting
- 90° Countersink angle
- 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- Three cutting edges
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



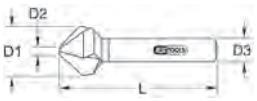
1/4"

	D1 mm	D2 mm	D3 mm	L mm	Content	
336.0300	6.3	1.0	6.4	45.0	1	10
336.0301	8.3	1.5	6.4	50.0	1	14
336.0302	10.4	2.0	6.4	50.0	1	15
336.0303	12.4	2.0	6.4	56.0	1	26
336.0304	16.5	2.5	6.4	60.0	1	36
336.0305	20.5	3.0	6.4	63.0	1	52

HSS Co 5 Cone and deburrer 90°

- DIN 335 Form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



	D1 mm	D2 mm	D3 mm	L mm	Countersink DIN 74 AF	Countersink DIN 74 BF	Content	
336.0118	4.3	1.3	4.0	40.0			1	9
336.0119	5.0	1.5	4.0	40.0	M2,5		1	9
336.0120	5.3	1.5	4.0	40.0			1	9
336.0121	5.8	1.5	5.0	45.0			1	10
336.0122	6.0	1.5	5.0	45.0	M3		1	10
336.0123	6.3	1.5	5.0	45.0		M3	1	10
336.0124	7.0	1.8	6.0	50.0	M3,5		1	13
336.0125	7.3	1.8	6.0	50.0			1	13
336.0126	8.0	2.0	6.0	50.0	M4		1	15
336.0127	8.3	2.0	6.0	50.0		M4	1	15
336.0128	9.4	2.2	6.0	50.0			1	18
336.0129	10.0	2.5	6.0	50.0	M5		1	20
336.0130	10.4	2.5	6.0	50.0		M5	1	20
336.0131	11.5	2.8	8.0	56.0	M6		1	26
336.0132	12.4	2.8	8.0	56.0		M6	1	26
336.0133	13.4	2.9	8.0	56.0			1	26
336.0134	15.0	3.2	10.0	60.0	M8		1	36
336.0135	16.5	3.2	10.0	60.0		M8	1	36
336.0136	19.0	3.5	10.0	63.0	M10		1	52
336.0137	20.5	3.5	10.0	63.0		M10	1	52
336.0138	23.0	3.8	10.0	67.0	M12		1	62
336.0139	25.0	3.8	10.0	67.0		M12	1	62
336.0140	26.0	3.9	12.0	71.0	M14		1	65
336.0141	28.0	4.0	12.0	71.0		M14	1	70
336.0142	30.0	4.1	12.0	71.0	M16		1	70
336.0143	31.0	4.2	12.0	71.0		M16	1	70

HSS Co 5 Cone and deburrer set 90° in metal case

- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

336.0416	6 pcs	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5 mm	530	

HSS Co 5 Cone and deburrer set 90° in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

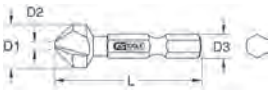
Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

336.0456	6 pcs	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5 mm	530	

HSS TiN Cone and deburrer bit 90°

- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- 1/4" external hexagon drive adaptor to DIN 3126 - C 6,3
- TiN coated surface
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



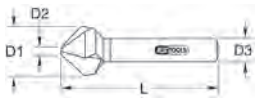
1/4"

	D1 mm	D2 mm	D3 mm	L mm	Content	
336.0326	6.3	1.0	6.4	45.0	1	10
336.0327	8.3	1.5	6.4	50.0	1	14
336.0328	10.4	2.0	6.4	50.0	1	15
336.0329	12.4	2.0	6.4	56.0	1	26
336.0330	16.5	2.5	6.4	60.0	1	36
336.0331	20.5	3.0	6.4	63.0	1	52

HSS TiN Cone and deburrer 90°

- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- TiN coated surface
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



	D1 mm	D2 mm	D3 mm	L mm	Countersink DIN 74 AF	Countersink DIN 74 BF	Content	
336.0170	4.3	1.3	4.0	40.0			1	9
336.0171	5.0	1.5	4.0	40.0	M2,5		1	9
336.0172	5.3	1.5	4.0	40.0			1	9
336.0173	5.8	1.5	5.0	45.0			1	10
336.0174	6.0	1.5	5.0	45.0	M3		1	10
336.0175	6.3	1.5	5.0	45.0		M3	1	10
336.0176	7.0	1.8	6.0	50.0	M3,5		1	13
336.0177	7.3	1.8	6.0	50.0			1	13
336.0178	8.0	2.0	6.0	50.0	M4		1	15
336.0179	8.3	2.0	6.0	50.0		M4	1	15
336.0180	9.4	2.0	6.0	50.0			1	18
336.0181	1.0	2.5	6.0	50.0	M5		1	20
336.0182	10.4	2.5	6.0	50.0		M5	1	20
336.0183	11.5	2.8	8.0	56.0	M6		1	26
336.0184	12.4	2.8	8.0	56.0		M6	1	26
336.0185	13.4	2.9	8.0	56.0			1	26
336.0186	15.0	3.2	10.0	60.0	M8		1	36
336.0187	16.5	3.2	10.0	60.0		M8	1	36
336.0188	19.0	3.5	10.0	63.0	M10		1	52
336.0189	20.5	3.5	10.0	63.0		M10	1	52
336.0190	23.0	3.8	10.0	67.0	M12		1	62
336.0191	25.0	3.8	10.0	67.0		M12	1	62
336.0192	26.0	3.9	12.0	71.0	M14		1	65
336.0193	28.0	4.0	12.0	71.0		M14	1	70
336.0194	30.0	4.1	12.0	71.0	M16		1	70
336.0195	31.0	4.2	12.0	71.0		M16	1	70

HSS TiN Cone and deburrer set 90° in metal case

- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- TiN coated surface
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

336.0426	6 pcs	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5 mm	530	

HSS TiN Cone and deburrer set 90° in plastic case

- Stackable for storage
- Integral clasp
- High strength hinge
- DIN 335 form C
- Right hand cutting
- 90° Countersink angle
- Three cutting edges
- Cylindrical shaft
- Deep ground flutes
- TiN coated surface
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

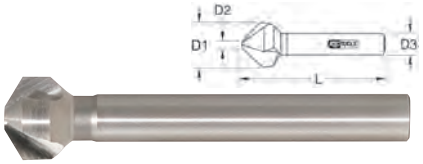
336.0466	6 pcs	6.3 - 8.3 - 10.4 - 12.4 - 16.5 - 20.5 mm	530	

CONE - AND DEBURRING 120°

HSS Cone and deburrer 120°

- Form C
- Right hand cutting
- 120° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

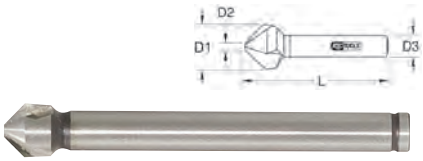


	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0076	6.3	1.5	5.0	45.0	1	14
336.0077	8.3	2.0	6.0	50.0	1	14
336.0078	10.4	2.5	6.0	50.0	1	20
336.0079	12.4	2.8	8.0	56.0	1	28
336.0080	16.5	3.2	10.0	60.0	1	46
336.0081	20.5	3.5	10.0	63.0	1	54
336.0082	25.0	3.8	10.0	67.0	1	62

HSS Co Cone and deburrer 120°

- Form C
- Right hand cutting
- 120° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- Surface without discolouration
- High performance cobalt steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.

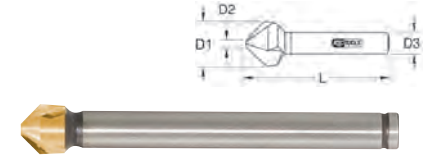


	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0144	6.3	1.5	5.0	45.0	1	10
336.0145	8.3	2.0	6.0	50.0	1	15
336.0146	10.4	2.5	6.0	50.0	1	20
336.0147	12.4	2.8	8.0	56.0	1	26
336.0148	16.5	3.2	10.0	60.0	1	36
336.0149	20.5	3.5	10.0	63.0	1	52
336.0150	25.0	3.8	10.0	67.0	1	62

HSS TiN Cone and deburrer 120°

- Form C
- Right hand cutting
- 120° Countersink angle
- Cylindrical shaft
- Deep ground flutes
- TiN coated surface
- High performance steel

Ideally suitable for deburring and countersinking in steel, non ferrous metals and light metals as well as chatter free countersinking.



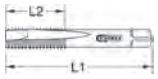
	D1 mm	D2 mm	D3 mm	L mm	Content	g
336.0201	6.3	1.5	5.0	45.0	1	14
336.0202	8.3	2.0	6.0	50.0	1	14
336.0203	10.4	2.5	6.0	50.0	1	20
336.0204	12.4	2.8	8.0	56.0	1	28
336.0205	16.5	3.2	10.0	60.0	1	46
336.0206	20.5	3.5	10.0	63.0	1	54
336.0207	25.0	3.8	10.0	67.0	1	62

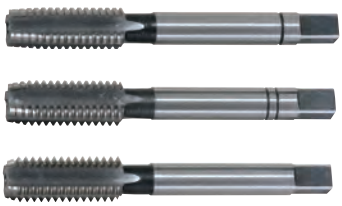
HSS THREADED TAP

HSS hand drill tap set M

- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance high speed steel

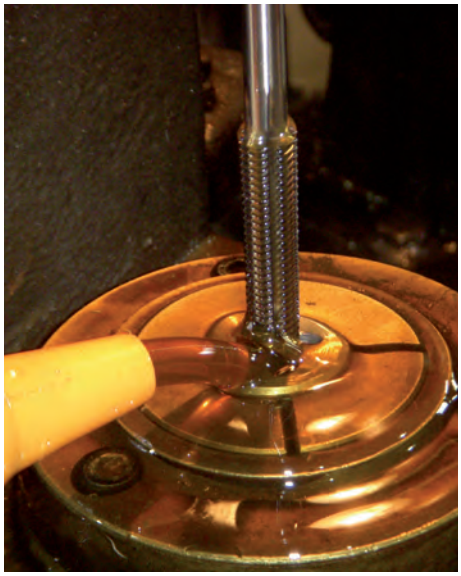
Ideally usably in high and low alloyed steel up to 800 N/mm² stability, cast iron and NE metals.





Taper tap: ca. 5 - 6 cutting gears
Second tap: ca. 4 - 5 cutting gears
Bottom tap: ca. 2 - 3 cutting gears

	mm	mm	L1 mm	Individual taper tap	Individual second tap	Individual bottom tap	L2 mm	g
331.0020	M2 x 0,4	1.60	36.0	331.0301	331.0321	331.0341	8.0	8
331.0025	M2,5 x 0,45	2.10	40.0	331.0302	331.0322	331.0342	8.0	10
331.0030	M3 x 0,5	2.50	40.0	331.0303	331.0323	331.0343	10.0	10
331.0035	M3,5 x 0,6	2.90	45.0	331.0304	331.0324	331.0344	12.0	10
331.0040	M4 x 0,7	3.30	45.0	331.0305	331.0325	331.0345	12.0	10
331.0050	M5 x 0,8	4.20	50.0	331.0306	331.0326	331.0346	13.0	30
331.0060	M6 x 1,0	5.00	56.0	331.0307	331.0327	331.0347	15.0	30
331.0070	M7 x 1,0	6.00	56.0	331.0308	331.0328	331.0348	16.0	30
331.0080	M8 x 1,25	6.80	63.0	331.0309	331.0329	331.0349	18.0	40
331.0100	M10 x 1,5	8.50	70.0	331.0310	331.0330	331.0350	24.0	70
331.0110	M11 x 1,5	8.50	70.0	331.0311	331.0331	331.0351	24.0	90
331.0120	M12 x 1,75	10.20	75.0	331.0312	331.0332	331.0352	29.0	110
331.0140	M14 x 2,0	12.00	80.0	331.0313	331.0333	331.0353	30.0	150
331.0160	M16 x 2,0	14.00	80.0	331.0314	331.0334	331.0354	32.0	200
331.0180	M18 x 2,5	15.50	95.0	331.0315	331.0335	331.0355	40.0	260
331.0200	M20 x 2,5	17.50	95.0	331.0316	331.0336	331.0356	40.0	330
331.0220	M22 x 2,5	19.50	100.0	331.0317	331.0337	331.0357	40.0	400
331.0240	M24 x 3,0	21.00	110.0	331.0318	331.0338	331.0358	45.0	470
331.0270	M27 x 3,0	24.00	110.0	331.0319	331.0339	331.0359	50.0	530
331.0300	M30 x 3,5	26.50	125.0	331.0320	331.0340	331.0360	56.0	600



HSS hand drill tap set MF

- DIN 2181
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes for cutting and threading
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance high speed steel

Ideally usably in high and low alloyed steel up to 800 N/mm² stability, cast iron and NE metals.

Taper tap: ca. 5 - 6 cutting gears
Bottom tap: ca. 2 - 3 cutting gears

	mm	mm	L1 mm	Individual taper tap	Individual bottom tap	L2 mm	g
331.1101	MF3 x 0,35	2.60	40.0	331.1201	331.1301	10.0	10
331.1102	MF4 x 0,5	3.50	45.0	331.1202	331.1302	12.0	10
331.1103	MF5 x 0,5	4.50	50.0	331.1203	331.1303	13.0	20
331.1104	MF6 x 0,75	5.20	50.0	331.1204	331.1304	15.0	20
331.1105	MF7 x 0,76	6.20	50.0	331.1205	331.1305	14.0	20
331.1106	MF8 x 0,75	7.20	56.0	331.1206	331.1306	18.0	30
331.1107	MF8 x 1,0	7.00	56.0	331.1207	331.1307	18.0	30
331.1108	MF9 x 1,0	8.00	63.0	331.1208	331.1308	20.0	40
331.1109	MF10 x 9,0	9.00	63.0	331.1209	331.1309	18.0	50
331.1110	MF10 x 1,25	8.70	70.0	331.1210	331.1310	24.0	50
331.1111	MF11 x 1,0	9.20	63.0	331.1211	331.1311	22.0	60
331.1112	MF12 x 1,0	11.00	70.0	331.1212	331.1312	20.0	80
331.1113	MF12 x 1,25	10.70	70.0	331.1213	331.1313	20.0	80
331.1114	MF12 x 1,5	10.50	70.0	331.1214	331.1314	20.0	80
331.1115	MF14 x 1,0	13.00	70.0	331.1215	331.1315	20.0	100
331.1116	MF14 x 1,25	12.70	70.0	331.1216	331.1316	20.0	100
331.1117	MF14 x 1,5	12.50	70.0	331.1217	331.1317	20.0	100
331.1118	MF16 x 1,5	14.50	70.0	331.1218	331.1318	20.0	160
331.1119	MF18 x 1,0	17.00	80.0	331.1219	331.1319	22.0	190
331.1120	MF18 x 1,25	16.80	80.0	331.1220	331.1320	22.0	190
331.1121	MF18 x 1,5	16.50	80.0	331.1221	331.1321	22.0	190
331.1122	MF18 x 2,0	16.00	80.0	331.1222	331.1322	22.0	190
331.1123	MF20 x 1,0	19.00	80.0	331.1223	331.1323	22.0	250
331.1124	MF20 x 1,25	18.80	80.0	331.1224	331.1324	22.0	250
331.1125	MF20 x 1,5	18.50	80.0	331.1225	331.1325	22.0	250
331.1126	MF20 x 2,0	18.00	80.0	331.1226	331.1326	22.0	250

HSS hand drill tap set M in steel case

- High strength hinge
- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance high speed steel
- Each size includes 1x second and bottom tap

Ideally usably in high and low alloyed steel up to 800 N/mm² stability, cast iron and NE metals.

Taper tap: ca. 5 - 6 cutting gears
Second tap: ca. 4 - 5 cutting gears
Bottom tap: ca. 2 - 3 cutting gears

			g
336.0621	21 pcs	M3 - M4 - M5 - M6 - M8 - M10 - M12	620

HSS hand drill tap set M in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance high speed steel
- Each size includes 1x second and bottom tap

Ideally usably in high and low alloyed steel up to 800 N/mm² stability, cast iron and NE metals.

Taper tap: ca. 5 - 6 cutting gears
Second tap: ca. 4 - 5 cutting gears
Bottom tap: ca. 2 - 3 cutting gears

			g
336.0641	21 pcs	M3 - M4 - M5 - M6 - M8 - M10 - M12	620

HSS tap and die set in metal case

- Universal set
- Straight forward hand thread cutting
- With adjustable tap wrench and die holder
- Includes tamperproof drill, thread gauge and screwdriver
- High performance steel

			kg
331.0644	44 pcs	HSS tap and die set in metal case	3.93
21 x		M3 - M4 - M5 - M6 - M8 - M10 - M12	
7 x		2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2 mm	
7 x		M3 - M4 - M5 - M6 - M8 - M10 - M12	
5 x		M3-M4 - M4,5-M6 - M7-M9 - M10-M11 - M12-M14	
2 x		M1-M10 - M3-M12	
1 x			
1 x			

HSS tap and die set in metal case

- Universal set
- Straight forward hand thread cutting
- With adjustable tap wrench and die holder
- Includes thread gauge and screwdriver
- High performance steel

			kg
331.0632	32 pcs	HSS tap and die set in metal case	1.32
21 x		M3 - M4 - M5 - M6 - M8 - M10 - M12	
7 x		M3 - M4 - M5 - M6 - M8 - M10 - M12	
1 x		M7 - M9	
1 x		M1 - M12	
1 x			
1 x			

HSS tap and die set in metal case

- Straight forward hand thread cutting
- With adjustable tap wrench and die holder
- Includes thread gauge and screwdriver
- High performance steel

			kg
331.0654	54 pcs	HSS tap and die set in metal case	8.30
33 x		M3 - M4 - M5 - M6 - M8 - M10 - M12 - M14 - M15 - M18 - M20	
11 x		M3 - M4 - M5 - M6 - M8 - M10 - M12 - M14 - M15 - M18 - M20	
6 x		M3-M4 - M4,5-M6 - M7-M9 - M10-M11 - M12-M14 - M16-M20	
2 x		M1-M10 - M5-M20	
1 x			
1 x			

HSS CO THREADED TAP

HSS Co slitting tap and die M

- DIN 352 form B
- Tolerance according to ISO 2 / 6 H
- Right hand cutting
- Hard metal centre
- Metric thread
- Thread process by slicing the cutting edge
- Surface without discolouration
- High performance cobalt steel

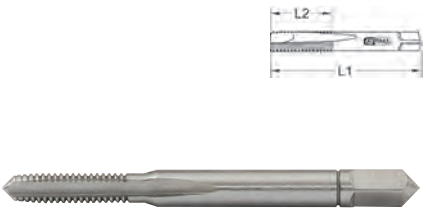
Ideally usably in high and low alloyed steel up to 900 N/mm² stability, cast iron and NE metals.

		mm	mm	L1 mm	L2 mm	Content	g
331.0223	M3 x 0,5	2.50	40.0	11.0	1	4	
331.0224	M4 x 0,7	3.30	45.0	13.0	1	7	
331.0225	M5 x 0,8	4.20	50.0	16.0	1	11	
331.0226	M6 x 1,0	5.00	50.0	19.0	1	13	
331.0228	M8 x 1,25	6.80	56.0	22.0	1	15	
331.0230	M10 x 1,5	8.50	70.0	24.0	1	30	
331.0232	M12 x 1,75	10.50	75.0	29.0	1	44	

HSS Co hand drill tap set M

- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance cobalt steel

Ideally usably in high and low alloyed steel up to 900 N/mm² stability, cast iron and NE metals.



Taper tap: ca. 5 - 6 cutting gears
Second tap: ca. 4 - 5 cutting gears
Bottom tap: ca. 2 - 3 cutting gears

	mm	mm	L1 mm	Individual taper tap	Individual second tap	Individual bottom tap	L2 mm	g
331.2020	M2 x 0,4	1.60	36.0	331.2301	331.3321	331.3341	8.0	10
331.2025	M2,5 x 0,45	2.10	40.0	331.2302	331.3322	331.3342	9.0	12
331.2030	M3 x 0,5	2.50	40.0	331.2303	331.3323	331.3343	11.0	12
331.2035	M3,5 x 0,6	2.90	45.0	331.2304	331.3324	331.3344	13.0	18
331.2040	M4 x 0,7	3.30	45.0	331.2305	331.3325	331.3345	13.0	20
331.2050	M5 x 0,8	4.20	50.0	331.2306	331.3326	331.3346	16.0	34
331.2060	M6 x 1,0	5.00	50.0	331.2307	331.3327	331.3347	19.0	40
331.2070	M7 x 1,0	6.00	50.0	331.2308	331.3328	331.3348	19.0	44
331.2080	M8 x 1,25	6.80	56.0	331.2309	331.3329	331.3349	22.0	48
331.2100	M10 x 1,5	8.50	70.0	331.2310	331.3330	331.3350	24.0	92
331.2110	M11 x 1,5	8.50	70.0	331.2311	331.3331	331.3351	24.0	112
331.2120	M12 x 1,75	10.20	75.0	331.2312	331.3332	331.3352	29.0	134
331.2140	M14 x 2,0	12.00	80.0	331.2313	331.3333	331.3353	30.0	200
331.2160	M16 x 2,0	14.00	80.0	331.2314	331.3334	331.3354	32.0	230
331.2180	M18 x 2,5	15.50	95.0	331.2315	331.3335	331.3355	40.0	365
331.2200	M20 x 2,5	17.50	95.0	331.2316	331.3336	331.3356	40.0	445
331.2220	M22 x 2,5	19.50	100.0	331.2317	331.3337	331.3357	40.0	470
331.2240	M24 x 3,0	21.00	110.0	331.2318	331.3338	331.3358	50.0	530
331.2270	M27 x 3,0	24.00	110.0	331.2319	331.3339	331.3359	50.0	565
331.2300	M30 x 3,5	26.50	125.0	331.2320	331.3340	331.3360	56.0	606

HSS Co hand drill tap set M in metal case

- High strength hinge
- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance cobalt steel
- Each size includes 1x second and bottom tap

Ideally usably in high and low alloyed steel up to 900 N/mm² stability, cast iron and NE metals.

Taper tap:	ca. 5 - 6 cutting gears
Second tap:	ca. 4 - 5 cutting gears
Bottom tap:	ca. 2 - 3 cutting gears

			g
336.0631	21 pcs	M3 - M4 - M5 - M6 - M8 - M10 - M12	620

HSS Co hand drill tap set M in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- DIN 352
- Tolerance according to ISO 2 / 6H
- Right hand cutting
- Includes second and bottom tap
- For running and blind hole threads
- With hard metal centre
- Surface without discolouration
- High performance cobalt steel
- Each size includes 1x second and bottom tap

Ideally usably in high and low alloyed steel up to 900 N/mm² stability, cast iron and NE metals.

Taper tap:	ca. 5 - 6 cutting gears
Second tap:	ca. 4 - 5 cutting gears
Bottom tap:	ca. 2 - 3 cutting gears

			g
336.0651	21 pcs	M3 - M4 - M5 - M6 - M8 - M10 - M12	620

HSS Co tap and die set in metal case

- Universal set
- Straight forward hand thread cutting
- With adjustable tap wrench and die holder
- Includes thread gauge and screwdriver
- High performance cobalt steel

			kg
331.0732	32 pcs	HSS Co tap and die set in metal case	1.32

21 x		M3 - M4 - M5 - M6 - M8 - M10 - M12
7 x		M3 - M4 - M5 - M6 - M8 - M10 - M12
1 x		M7 - M9
1 x		M1 - M12
1 x		
1 x		

HSS Co tap and die set in metal case

- Universal set
- Straight forward hand thread cutting
- With adjustable tap wrench and die holder
- Includes thread gauge and screwdriver
- High performance cobalt steel

			kg
331.0744	44 pcs	HSS Co tap and die set in metal case	3.93

21 x		M3 - M4 - M5 - M6 - M8 - M10 - M12
7 x		2,5 - 3,3 - 4,2 - 5 - 6,8 - 8,5 - 10,2 mm
7 x		M3 - M4 - M5 - M6 - M8 - M10 - M12
5 x		M3-M4 - M4,5-M6 - M7-M9 - M10 M11 - M12-M14
2 x		M1-M10 - M3-M12
1 x		
1 x		

HSS Co tap and die set in metal case

- Universal set
- Straight forward hand thread cutting
- With adjustable tap wrench and die holderIncludes thread gauge and screwdriver
- High performance cobalt steel

			kg
331.0754	54 pcs	HSS Co tap and die set in metal case	8.30

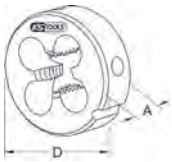
33 x		M3 - M4 - M5 - M6 - M8 - M10 - M12 M14 - M15 - M18 - M20
11 x		M3 - M4 - M5 - M6 - M8 - M10 - M12 M14 - M15 - M18 - M20
6 x		M3-M4 - M4,5-M6 - M7-M9 - M10 M11 - M12-M14 - M16-M20
2 x		M1-M10 - M5-M20
1 x		
1 x		

DIE STOCKS

HSS die M

- DIN EN 22568 Form B
- Tolerance according to ISO - 6g
- Right hand cutting
- Specification, ground cutting edge
- Metric thread
- Surface without discolouration
- High performance steel

Ideally usably in high and low alloyed steel up to 800 N/mm² tensile

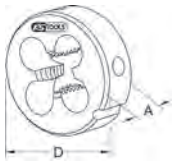


		A mm	D mm	Content	g
332.0030	M3 x 0,50	5.0	20.0	1	8
332.0040	M4 x 0,70	5.0	20.0	1	10
332.0050	M5 x 0,80	7.0	20.0	1	12
332.0060	M6 x 1,00	7.0	20.0	1	14
332.0070	M7 x 1,00	9.0	25.0	1	18
332.0080	M8 x 1,25	9.0	25.0	1	20
332.0090	M9 x 1,25	9.0	25.0	1	35
332.0100	M10 x 1,50	11.0	30.0	1	50
332.0120	M12 x 1,75	14.0	38.0	1	60
332.0140	M14 x 2,00	14.0	38.0	1	73
332.0160	M16 x 2,00	18.0	40.0	1	199
332.0180	M18 x 2,50	18.0	40.0	1	220
332.0200	M20 x 2,50	18.0	40.0	1	240

HSS die MF

- DIN EN 22568 form B
- Tolerance according to ISO - 6g
- Right hand cutting
- Specification, ground cutting edge
- Metric fine thread
- Surface without discolouration
- High performance steel

Ideally usably in high and low alloyed steel up to 800 N/mm² stability and NE metals.

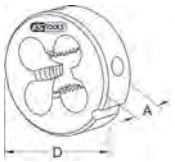


	mm	A mm	D mm	Content		
332.1000	M3 x 0,35	5.0	20.0	1	10	
332.1001	M4 x 0,5	5.0	20.0	1	10	
332.1002	M5 x 0,5	5.0	20.0	1	10	
332.1003	M6 x 0,75	7.0	20.0	1	10	
332.1004	M7 x 0,75	9.0	25.0	1	20	
332.1005	M8 x 0,75	9.0	25.0	1	20	
332.1006	M8 x 1,0	9.0	25.0	1	20	
332.1007	M9 x 1,0	9.0	25.0	1	20	
332.1008	M10 x 1,0	11.0	30.0	1	30	
332.1009	M10 x 1,25	11.0	30.0	1	30	
332.1010	M11 x 1,0	11.0	30.0	1	60	
332.1011	M12 x 1,0	11.0	38.0	1	80	
332.1012	M12 x 1,25	11.0	38.0	1	80	
332.1013	M12 x 1,5	11.0	38.0	1	80	
332.1014	M14 x 1,0	10.0	38.0	1	80	
332.1015	M14 x 1,25	10.0	38.0	1	80	
332.1016	M14 x 1,5	10.0	38.0	1	80	
332.1017	M16 x 1,0	14.0	45.0	1	100	
332.1018	M16 x 1,25	14.0	45.0	1	100	
332.1019	M16 x 1,5	14.0	45.0	1	100	
332.1020	M18 x 1,0	14.0	45.0	1	100	
332.1021	M18 x 1,25	14.0	45.0	1	100	
332.1022	M18 x 1,5	14.0	45.0	1	100	
332.1023	M18 x 2,0	14.0	45.0	1	100	
332.1024	M20 x 1,0	14.0	45.0	1	100	
332.1025	M20 x 1,25	14.0	45.0	1	100	
332.1026	M20 x 1,5	14.0	45.0	1	100	
332.1027	M20 x 2,0	14.0	45.0	1	100	

HSS Co die M

- DIN EN 22568 Form B
- Tolerance according to ISO - 6g
- Right hand cutting
- Specification, ground cutting edge
- Metric thread
- Surface without discolouration
- High performance cobalt high speed steel

Ideally usably in high and low alloyed steel up to 900 N/mm² stability and NE metals.

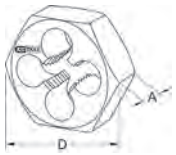


	mm	A mm	D mm	Content		
332.0001	M3 x 0,50	5.0	20.0	1	8	
332.0002	M4 x 0,70	5.0	20.0	1	10	
332.0003	M5 x 0,80	7.0	20.0	1	12	
332.0004	M6 x 1,00	7.0	20.0	1	14	
332.0005	M7 x 1,00	9.0	25.0	1	18	
332.0006	M8 x 1,25	9.0	25.0	1	20	
332.0007	M 9 x 1,25	9.0	25.0	1	35	
332.0008	M10 x 1,50	11.0	30.0	1	50	
332.0009	M12 x 1,75	14.0	38.0	1	60	
332.0010	M14 x 2,00	14.0	38.0	1	73	
332.0011	M16 x 2,00	18.0	45.0	1	199	
332.0012	M18 x 2,50	18.0	45.0	1	220	
332.0013	M20 x 2,50	18.0	45.0	1	220	

HSS hexagon die M

- DIN 382
- Tolerance according to ISO - 6g
- Right hand cutting
- Ground execution
- Metric thread
- Surface without discolouration
- High performance steel

Ideally usably in high and low alloyed steel up to 800 N/mm² stability and NE metals.

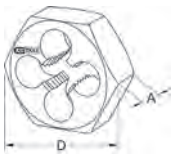


	mm	A mm	D mm	Content		
330.0030	M3 x 0,5	5.0	19.0	1	10	
330.0040	M4 x 0,7	5.0	19.0	1	10	
330.0050	M5 x 0,8	7.0	19.0	1	10	
330.0060	M6 x 1,0	7.0	19.0	1	10	
330.0070	M7 x 1,0	9.0	22.0	1	20	
330.0080	M8 x 1,25	9.0	22.0	1	20	
330.0090	M9 x 1,25	9.0	22.0	1	20	
330.0100	M10 x 1,5	11.0	27.0	1	40	
330.0110	M11 x 1,5	11.0	27.0	1	40	
330.0120	M12 x 1,75	14.0	36.0	1	80	
330.0140	M14 x 2,0	14.0	36.0	1	80	
330.0160	M16 x 2,0	18.0	41.0	1	90	
330.0180	M18 x 2,5	18.0	41.0	1	90	
330.0200	M20 x 2,5	18.0	41.0	1	90	

HSS hexagon die MF

- DIN 382
- Tolerance according to ISO - 6g
- Right hand cutting
- Ground execution
- Metric fine thread
- Surface without discolouration
- High performance steel

Ideally usably in high and low alloyed steel up to 800 N/mm² stability and NE metals.



	mm	A mm	D mm	Content		
333.0017	M3 x 0,35	5.0	19.0	1	20	
333.0018	M4 x 0,35	5.0	19.0	1	23	
333.0019	M4 x 0,5	5.0	19.0	1	27	
333.0020	M5 x 0,5	5.0	19.0	1	31	
333.0021	M5 x 0,75	7.0	19.0	1	32	
333.0022	M6 x 0,5	5.0	19.0	1	33	
333.0023	M7 x 0,75	9.0	22.0	1	35	
333.0024	M8 x 0,5	9.0	22.0	1	38	
333.0025	M8 x 0,75	9.0	22.0	1	41	
333.0026	M8 x 1,0	9.0	22.0	1	42	
333.0027	M9 x 0,75	9.0	22.0	1	45	
333.0028	M9 x 1,0	9.0	22.0	1	47	
333.0029	M10 x 0,75	11.0	27.0	1	50	
333.0031	M10 x 1,0	11.0	27.0	1	52	
333.0032	M10 x 1,25	11.0	27.0	1	55	
333.0033	M11 x 1,0	11.0	27.0	1	58	
333.0034	M11 x 1,25	11.0	27.0	1	60	
333.0035	M12 x 0,75	10.0	36.0	1	61	
333.0036	M12 x 1,0	10.0	36.0	1	63	
333.0037	M12 x 1,25	10.0	36.0	1	64	
333.0038	M12 x 1,5	10.0	36.0	1	66	
333.0039	M13 x 1,0	10.0	36.0	1	70	
333.0041	M13 x 1,5	10.0	36.0	1	72	
333.0042	M14 x 0,75	10.0	36.0	1	75	
333.0043	M14 x 1,00	10.0	36.0	1	78	
333.0044	M14 x 1,25	10.0	36.0	1	79	
333.0045	M14 x 1,5	10.0	36.0	1	82	
333.0046	M16 x 1,0	14.0	41.0	1	85	
333.0047	M16 x1,25	14.0	41.0	1	87	
333.0048	M16 x 1,5	14.0	41.0	1	90	
333.0049	M18 x 1,0	14.0	41.0	1	92	
333.0051	M18 x 1,25	14.0	41.0	1	94	
333.0052	M18 x 1,5	14.0	41.0	1	95	
333.0053	M18 x 2,0	14.0	41.0	1	97	
333.0054	M20 x 1,0	14.0	41.0	1	101	
333.0055	M20 x 1,25	14.0	41.0	1	103	
333.0056	M20 x 1,5	14.0	41.0	1	104	
333.0057	M20 x 2,0	14.0	41.0	1	107	
333.0058	M21 x 1,5	14.0	41.0	1	112	

TAP WRENCHES AND DIE HOLDERS

Adjustable tap wrench

- DIN 1814
- With two jaw collet chuck
- With steel rail
- Hardened clamping jaws
- Ideal to the thread cutting edge
- To that separating from thin sheet metals
- For difficult to access areas
- Die cast zinc housing

		L mm	Content		
331.0011	M1 - M8	130.0	1	90	
331.0029	M1 - M10	180.0	1	96	
331.0021	M1 - M12	180.0	1	110	
331.0012	M3 - M10	180.0	1	120	
331.0013	M3 - M12	200.0	1	220	
331.0014	M4 - M12	280.0	1	280	
331.0015	M5 - M20	380.0	1	400	
331.0016	M11 - M27	500.0	1	850	
331.0017	M13 - M32	700.0	1	1230	
331.0018	M19 - M38	1000.0	1	640	
331.0019	M25 - M52	1200.0	1	720	

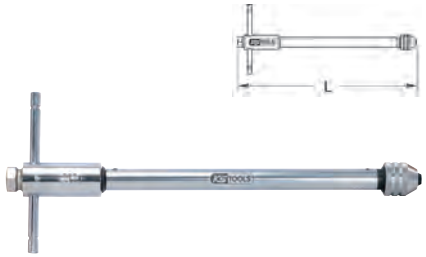
Ball tap holder

- For fast interchanging of the taps
- Square shaft according to DIN 10
- Die cast zinc housing

		L mm	Content		
331.0253	M1 - M4	200.0	1	82	
331.0254	M3,5 - M8	200.0	1	80	
331.0255	M4 - M10	240.0	1	175	
331.0256	M5 - M12	300.0	1	210	
331.0257	M9 - M16	340.0	1	350	
331.0258	M12 - M20	450.0	1	730	
331.0259	M18 - M27	650.0	1	950	

Die holder with exact gearing reversible ratchet head

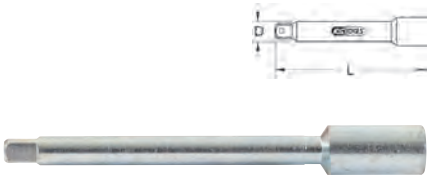
- Clockwise and anticlockwise action with positive adjustment
- With two jaw collet chuck
- With movable drive handle
- Ideal to the thread cutting edge
- For difficult to access areas
- Chrome plated and mirror polished
- Special steel



		L mm	Content	g	
331.0660	M3 - M10	85.0	1	190	
331.0665	M5 - M12	100.0	1	320	
331.0670	M3 - M10	250.0	1	250	
331.0675	M5 - M12	300.0	1	440	

Thread drilling extension

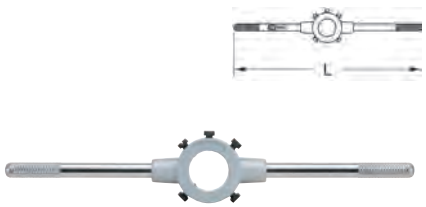
- DIN 377
- Hardened and ground execution
- Square shaft according to DIN 10
- For the extension of the hand threading tap
- High performance steel



		■ mm	D mm	L mm	Content	g	
331.0241	M1 - M2,6	2.1	2.5	60.0	1	10	
331.0242	M3	2.7	3.7	80.0	1	15	
331.0243	M4	3.4	4.5	95.0	1	40	
331.0244	M5 - M8	4.9	6.5	110.0	1	44	
331.0245	M9 - M10	5.5	7.0	115.0	1	55	
331.0246	M12	7.0	9.0	125.0	1	120	
331.0247	M13 - M16	9.0	12.0	135.0	1	135	
331.0248	M18	11.0	14.0	150.0	1	150	
331.0249	M20	12.0	16.0	155.0	1	175	

Die holder

- DIN 225
- Reinforcement of the cutting edge through iron screws
- With steel rail
- Die cast zinc housing



		L mm	Content	g	
331.0001	M1- M2,6	160.0	1	60	
331.0002	M3 - M4	195.0	1	60	
331.0003	M4,5 - M6	195.0	1	70	
331.0004	M7 - M9	215.0	1	100	
331.0005	M10 - M11	260.0	1	220	
331.0006	M12 - M14	315.0	1	280	
331.0007	MF12 - MF14	315.0	1	260	
331.0008	M16 - M20	445.0	1	480	
331.0009	MF16 - MF20	445.0	1	460	
331.0022	MF22 - MF24	160.0	1	860	
331.0023	M22 - M24	160.0	1	840	
331.0024	MF27 - MF36	160.0	1	1230	
331.0026	M27 - M36	160.0	1	1190	

Threading die adaptor set

- Universal use for round cutting dies according to DIN E 22568 form B
- Slim design
- Ideal for difficult to access areas
- Internal square drive to DIN 3120 / ISO 1174 with ball reception
- Includes extension and locking knob
- Special steel
- In durable plastic storage case

			kg	
331.0620	8 pcs	Threading die adaptor set	1.94	

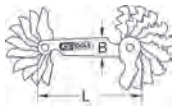
consists of:

		g	
331.0621	Die adaptor, M3-M6, 24mm	60	
331.0622	Die adaptor, M7-M8, 24mm	50	
331.0623	Die adaptor, M9-M10, 24mm	90	
331.0624	Die adaptor, M11-M14, 41mm	230	
331.0625	Die adaptor, M18-M20, 41mm	360	
331.0626	Die adaptor, M22-M24, 41mm	430	
331.0627	Toggle f.extension f.die adaptor	120	
331.0628	1/2" extension f.die adaptor	250	

THREAD GAUGES

Thread gauge

- For controlling and increasing the interior thread and outside thread
- Imperial sizes
- Cylindrical tapered
- Leaves fan shaped arrangement
- Leaves individually marked with size
- Out of hardened spring steel



	Tooth pitch	Measuring range	B mm	L mm	g	
301.0090	22	4-4,5-5-6-7-8-9-10-11-12-13-14-16-18 20-22-24-32-40-48-56-64mm	12.2	66.5	40	
301.0095	20	0,40-0,45-0,50-0,60-0,70-0,75-0,80-1,00-1,25-1,50-1,75-2,00-2,50-3,00-3,50-4,00-4,50-5,00-5,50-6,00mm	12.2	66.5	40	

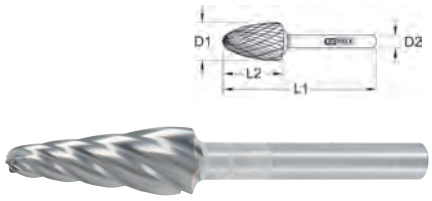
ROTARY BURRS

Round cone rotary burr form L for aluminium alloys, long

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high Si portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



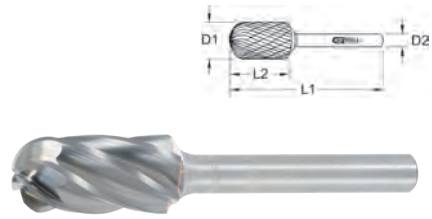
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g	
515.3291	12.0	6.0	65.0	25.0	1	22	

Round milling rotary burr form C for aluminium alloys

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high Si portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



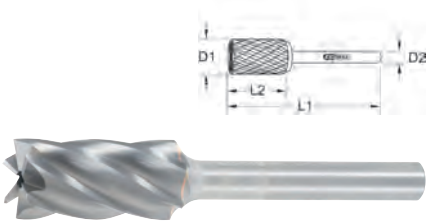
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g	
515.3292	12.0	6.0	65.0	25.0	1	35	

Cylinder rotary burr form A without spur gearing for aluminium alloys

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high Si portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



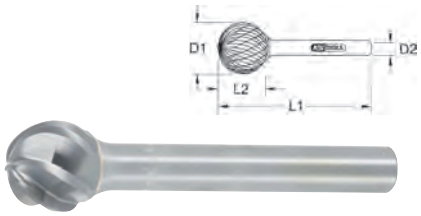
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g	
515.3293	12.0	6.0	65.0	25.0	1	35	

Round milling rotary burr form D for aluminium alloys

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high SI portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



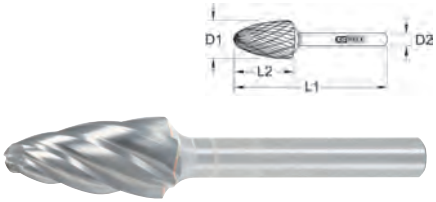
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3294	12.0	6.0	50.0	10.0	1	17

Round cone rotary burr form L for aluminium alloys, short

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high SI portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



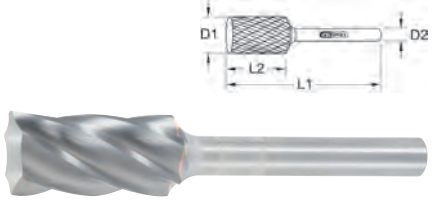
	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3295	12.0	6.0	65.0	25.0	1	25

Cylinder rotary burr form A without spur gearing

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high SI portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber



	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3296	12.0	6.0	65.0	25.0	1	35

Milling burr set for aluminum alloys in plastic case

- Minimal material adhesion
- Long life time
- Big removal rates and high cutting performance
- For cutting speed up to max 1100 m/min (max. speed 16.000 - 30.000 r.p.m.)
- Smooth running

To that filleted, edges break, plasters, welded seams and area preparation

Suitable for Aluminum alloys, hard Aluminum alloys (high SI portion), brass, copper, zinc, bronze, titanium, fiber-reinforced plastics GFK/CFK, thermoplastics, hard rubber

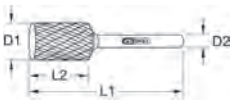
			g
515.3290	3 pcs	Milling burr set for aluminum alloys in plastic case	240

1 x		12 mm
1 x		12 mm
1 x		12 mm

Hard metal cylinder rotary burr form A without spur gearing

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Without spur gearing
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.



	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3221	3.0	3.0	38.5	13.0	1	3
515.3222	6.0	6.0	61.0	16.0	1	16
515.3223	8.0	6.0	65.0	20.0	1	21
515.3224	10.0	6.0	65.0	20.0	1	30
515.3225	12.0	6.0	70.0	25.0	1	57
515.3226	16.0	6.0	70.0	25.0	1	81

Hard metal cylinder rotary burr form A with spur gearing

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- With face gearing
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

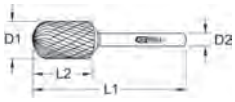
To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3231	3.0	3.0	38.5	13.0	1	3
515.3232	6.0	6.0	61.0	16.0	1	16
515.3233	8.0	6.0	65.0	20.0	1	21
515.3234	10.0	6.0	65.0	20.0	1	30
515.3235	12.0	6.0	70.0	25.0	1	57
515.3236	16.0	6.0	70.0	25.0	1	81

Hard metal round milling rotary burr form C

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

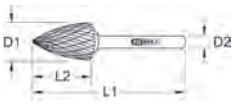


	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3241	3.0	3.0	38.5	13.0	1	3
515.3242	6.0	6.0	61.0	16.0	1	16
515.3243	8.0	6.0	65.0	20.0	1	22
515.3244	10.0	6.0	70.0	20.0	1	28
515.3245	12.0	6.0	70.0	25.0	1	40
515.3246	16.0	6.0	70.0	25.0	1	60

Hard metal pointed arch rotary burr form G

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

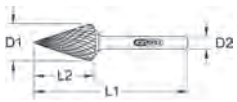


	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3251	3.0	3.0	38.5	13.0	1	3
515.3252	6.0	6.0	63.0	18.0	1	13
515.3253	8.0	6.0	65.0	20.0	1	19
515.3254	10.0	6.0	65.0	20.0	1	22
515.3255	12.0	6.0	70.0	25.0	1	33
515.3256	16.0	6.0	70.0	25.0	1	47

Hard metal tip cone milling burr form M

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.



	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3271	3.0	3.0	38.5	11.0	1	3
515.3272	6.0	6.0	63.0	18.0	1	12
515.3273	8.0	6.0	65.0	20.0	1	15
515.3274	10.0	6.0	65.0	20.0	1	18
515.3275	12.0	6.0	70.0	25.0	1	26
515.3276	16.0	6.0	70.0	25.0	1	37

Hard metal milling burr set in steel case

- High strength hinge
- 6 mm shank diameter
- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Surface without discolouration
- High performances steel with hard metal

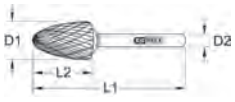
To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

			g
515.3203	3 pcs	Hard metal milling burr set in steel case	590
1 x		10 mm	
1 x		10 mm	
1 x		10 mm	

Hard metal round arch rotary burr form F

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

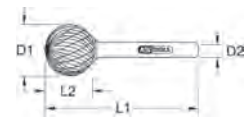


	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3261	3.0	3.0	38.5	13.0	1	3
515.3262	6.0	6.0	61.0	16.0	1	15
515.3263	8.0	6.0	65.0	20.0	1	20
515.3264	10.0	6.0	65.0	20.0	1	24
515.3265	12.0	6.0	70.0	25.0	1	32
515.3266	16.0	6.0	70.0	25.0	1	52

Hard metal ball milling burr form D

- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Suitable for a wide range of applications
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.



	D1 mm	D2 mm	L1 mm	L2 mm	Content	g
515.3281	3.0	3.0	38.5	2.7	1	3
515.3282	6.0	6.0	51.0	5.0	1	11
515.3283	8.0	6.0	53.0	7.0	1	12
515.3284	10.0	6.0	54.0	9.0	1	16
515.3285	12.0	6.0	56.0	10.0	1	24
515.3286	16.0	6.0	60.0	14.0	1	59

Hard metal milling burr set in steel case

- High strength hinge
- 3 mm shank diameter
- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

			g
515.3207	7 pcs	Hard metal milling burr set in steel case	590
1 x		3 mm	
1 x		3 mm	
1 x		3 mm	
1 x		3 mm	
1 x		3 mm	
1 x		3 mm	
1 x		3 mm	

Hard metal milling burr set in steel case

- High strength hinge
- 6 mm shank diameter
- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

			g
515.3210	10 pcs	Hard metal milling burr set in steel case	590

2 x		8 - 10 mm
2 x		8 - 10 mm
2 x		8 - 10 mm
1 x		10 mm
1 x		10 mm
1 x		10 mm
1 x		8 mm

Hard metal milling burr set in plastic case

- Stackable for storage
- With integral clasp
- High strength hinge
- 6 mm shank diameter
- Highest cutting edge stability
- Improved cutting performance due to staggered tooth system
- Surface without discolouration
- High performances steel with hard metal

To that filleted, edges break, plasters, welded seams and area preparation.
Usably in high alloyed, steel rustproof, acid and heat resistant, cast and plastics.

			g
515.3220	10 pcs	Hard metal milling burr set in plastic case	590

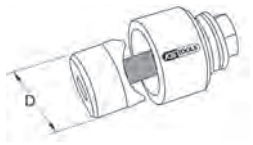
2 x		8 - 10 mm
2 x		8 - 10 mm
2 x		8 - 10 mm
1 x		10 mm
1 x		10 mm
1 x		10 mm
1 x		8 mm

SCREW HOLE PUNCHES

Screw hole punch

- 3 point gate
- High strength bolt
- Positive cutting edge geometry
- To that separating from thin sheet metals
- For difficult to access areas
- Burnished surface
- Special tool steel

Ideally usably in V2A sheet to 1.5 mm, aluminum, copper, steel as well as stainless steel and plastics. The sheet metal thicknesses can be exceeded at the expense of screw. Especially suited for burr free, clean, effortless and fast punching.

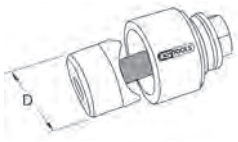


	D mm	Standard	Replacement tension screw	Tension srew		Tapping hole	Content	g
129.0012	12.5	ISO 12	129.0001	MF 8 x 1 x 55,0	9	1	72	
129.0013	12.7	PG7	129.0001	MF 8 x 1 x 55,0	9	1	73	
129.0015	15.2	PG 9	129.0001	MF 8 x 1 x 55,0	9	1	94	
129.0016	16.5	ISO 16	129.0001	MF 8 x 1 x 55,0	9	1	96	
129.0018	18.6	PG 11	129.0001	MF 8 x 1 x 55,0	9	1	112	
129.0020	20.4	PG 13	129.0002	MF 12 X 1,5 X 55	13	1	160	
129.0021	20.5	ISO 20	129.0002	MF 12 X 1,5 X 55	13	1	161	
129.0022	22.5	PG 16	129.0002	MF 12 X 1,5 X 65	13	1	164	
129.0025	25.4	ISO 12	129.0002	MF 12 X 1,5 X 65	13	1	185	
129.0026	25.5	ISO 25	129.0002	MF 12 X 1,5 X 65	13	1	186	
129.0028	28.3	PG 21	129.0002	MF 12 X 1,5 X 65	13	1	212	
129.0030	30.5	ISO 12	129.0002	MF 12 X 1,5 X 65	13	1	250	
129.0032	32.5	ISO 32	129.0002	MF 12 X 1,5 X 65	13	1	252	
129.0035	35.0	ISO 12	129.0002	MF 12 X 1,5 X 65	13	1	378	
129.0037	37.0	PG 29	129.0002	MF 12 X 1,5 X 65	13	1	380	
129.0038	38.0	ISO 12	129.0002	MF 12 X 1,5 X 65	13	1	394	
129.0040	40.5	ISO 40	129.0002	MF 12 X 1,5 X 65	13	1	398	
129.0047	47.0	PG 36	129.0003	MF 16 x 1,5 x 75,0	18	1	834	
129.0050	50.5	ISO 50	129.0003	MF 16 x 1,5 x 75,0	18	1	768	
129.0054	54.0	PG 42	129.0003	MF 16 x 1,5 x 75,0	18	1	964	

Screw hole punch with ball bearing

- Ball bearing
- 3 point gate
- High strength bolt
- Positive cutting edge geometry
- To that separating from thin sheet metals
- For difficult to access areas
- Burnished surface
- Special tool steel

Ideal for use in V2A steel plates up to 1,5 mm, aluminum, copper, steel and iron to 2,0 mm and stainless steel and plastic sinks. The sheet metal thicknesses can be exceeded at the expense of screw. Especially suited for burr free, clean, effortless and fast punching.



	D mm	Standard	Replacement ball bearing screw #	Ball bearing screw		Tapping hole	Content	g
129.0312	12.5	ISO 12	129.0301	MF 8 x 1 x 55,0	9	1	74	
129.0313	12.7	PG7	129.0301	MF 8 x 1 x 55,0	9	1	75	
129.0315	15.2	PG 9	129.0301	MF 8 x 1 x 55,0	9	1	96	
129.0316	16.5	ISO 16	129.0301	MF 8 x 1 x 55,0	9	1	98	
129.0318	18.6	PG 11	129.0301	MF 8 x 1 x 55,0	9	1	114	
129.0320	20.4	PG 13	129.0302	MF 12 x 1,5 x 55,0	13	1	174	
129.0321	20.5	ISO 20	129.0302	MF 12 x 1,5 x 55,0	13	1	175	
129.0322	22.5	PG 16	129.0302	MF 12 x 1,5 x 65,0	13	1	178	
129.0325	25.4		129.0302	MF 12 x 1,5 x 65,0	13	1	200	
129.0326	25.5	ISO 25	129.0302	MF 12 x 1,5 x 65,0	13	1	202	
129.0328	28.3	PG 21	129.0302	MF 12 x 1,5 x 65,0	13	1	226	
129.0330	30.5		129.0302	MF 12 x 1,5 x 65,0	13	1	264	
129.0332	32.5	ISO 32	129.0302	MF 12 x 1,5 x 65,0	13	1	266	
129.0335	35.0		129.0302	MF 12 x 1,5 x 65,0	13	1	392	
129.0337	37.0	PG 29	129.0302	MF 12 x 1,5 x 65,0	13	1	408	
129.0338	38.0		129.0302	MF 12 x 1,5 x 65,0	13	1	409	
129.0340	40.5	ISO 40	129.0302	MF 12 x 1,5 x 65,0	13	1	412	
129.0347	47.0	PG 36	129.0303	MF 16 x 1,5 x 75,0	18	1	890	
129.0350	50.5	ISO 50	129.0303	MF 16 x 1,5 x 75,0	18	1	780	
129.0354	54.0	PG 42	129.0303	MF 16 x 1,5 x 75,0	18	1	1020	
129.0360	60.0	PG 48	129.0304	MF 20 x 1,5 x 80,0	22	1	1084	
129.0363	63.5	ISO 63	129.0304	MF 20 x 1,5 x 80,0	22	1	1162	

HOLESAWS

HSS arbor accessories

- For HSS and HSS Co Bi metal hole saws
- Includes pilot drill
- High performance steel

	Ø mm	Shank mm	Profile	g
129.5501	14,0 - 30,0	6,4		60
129.5502	14,0 - 30,0	9,5		80
129.5503	14,0 - 30,0	11,0		80
129.5505	32,0 - 210,0	11,0		260
129.5504	32,0 - 210,0	16,0		250

Replacement pilot drills for HSS and HSS Co Bi metal hole saws

- For HSS and HSS Co Bi metal hole saws
- High performance steel

	Ø mm	L mm	Content	g
129.5525	6,3	105.0	1	20
129.5526	6,3	75.0	1	10

Extension for HSS and HSS Co Bi metal hole saws

- For HSS and HSS Co Bi metal hole saws
- High performance steel

	L mm	Content	g
129.5520	300.0	1	350

HSS Bi metal holesaws

- Variable tooth pitch
- Right hand cutting
- High concentricity accuracy
- Good chip removal
- HSS Bi metal

Suitable for low alloyed steel up to 700 N/mm² stability, plaster, light construction-, fibre and chipboard as well as wood processing, non ferrous metals and light alloys.

	D mm	Cutting depth mm	Passage Ø	Imperial tube Ø inch	Content	g
129.5014	14.0	38.0		9/16"	1	30
129.5016	16.0	38.0	PG9	5/8"	1	30
129.5017	17.0	38.0		11/16"	1	30
129.5019	19.0	38.0	PG11	3/4"	1	40
129.5020	20.0	38.0		25/32"	1	40
129.5021	21.0	38.0	PG13,5	13/16"	1	50
129.5022	22.0	38.0		7/8"	1	50
129.5024	24.0	38.0	PG16	15/16"	1	60
129.5025	25.0	38.0		1"	1	60
129.5027	27.0	36.0		1.1/16"	1	70
129.5029	29.0	36.0	PG21	1.1/8"	1	70
129.5030	30.0	36.0		1.3/16"	1	80
129.5032	32.0	36.0		1.1/4"	1	80
129.5033	33.0	36.0		1.5/16"	1	80
129.5035	35.0	36.0		1.3/8"	1	90
129.5037	37.0	36.0	PG29	1.7/16"	1	120
129.5038	38.0	36.0		1.1/2"	1	120
129.5040	40.0	36.0		1.9/16"	1	120
129.5041	41.0	36.0		1.5/8"	1	120
129.5043	43.0	36.0		1.11/16"	1	120
129.5044	44.0	36.0		1.3/4"	1	120
129.5045	45.0	36.0		1.25/32"	1	135
129.5046	46.0	36.0		1.13/16"	1	140
129.5048	48.0	36.0	PG36	1.7/8"	1	150
129.5050	50.0	32.0		1.31/32"	1	150
129.5051	51.0	32.0		2"	1	150
129.5052	52.0	32.0		2.1/16"	1	150
129.5054	54.0	32.0	PG42	2.1/8"	1	150
129.5055	55.0	32.0	PG9	2.3/16"	1	150
129.5057	57.0	32.0		2.1/4"	1	160
129.5059	59.0	32.0		2.5/16"	1	160
129.5060	60.0	32.0	PG48	2.3/8"	1	170
129.5064	64.0	32.0		2.1/2"	1	190
129.5065	65.0	32.0		2.9/16"	1	200
129.5067	67.0	32.0		2.5/8"	1	200
129.5068	68.0	32.0		2.22/32"	1	200
129.5070	70.0	32.0		2.3/4"	1	210
129.5073	73.0	32.0		2.7/8"	1	250
129.5075	75.0	32.0		2.31/32"	1	250
129.5076	76.0	32.0		3"	1	250
129.5079	79.0	32.0		3.1/8"	1	250
129.5083	83.0	32.0		3.1/4"	1	260
129.5086	86.0	32.0		3.3/8"	1	260
129.5089	89.0	32.0		3.1/2"	1	290
129.5092	92.0	32.0		3.5/8"	1	320
129.5095	95.0	32.0		3.3/4"	1	370
129.5098	98.0	32.0		3.7/8"	1	390
129.5100	100.0	32.0		3.31/32"	1	410
129.5102	102.0	32.0		4"	1	420
129.5105	105.0	32.0		4.1/8"	1	450
129.5108	108.0	32.0		4.1/4"	1	450
129.5111	111.0	32.0		4.3/8"	1	460
129.5114	114.0	32.0		4.1/2"	1	480
129.5121	121.0	32.0		4.3/4"	1	500
129.5127	127.0	32.0		5"	1	650
129.5140	140.0	32.0		5.1/2"	1	650
129.5146	146.0	32.0		5.3/4"	1	650
129.5152	152.0	32.0		6"	1	700

Electrians hole saw set in plastic box

- Includes hole saw arbor
- With integral clasp
- High strength hinge
- Variable tooth pitch
- Right hand cutting
- High concentricity accuracy
- Good chip removal
- HSS Bi metal

Suitable for high and low alloyed steel up to 700 N/mm² stability, plaster, light construction, MDF and chipboard as well as wood processing, non ferrous metal and light alloy.
For use within electrical trades.

			kg
129.5570	8 pcs	Electrians hole saw set in plastic box	1.35
6 x		22 - 29 - 35 - 44 - 51 - 68 mm	
1 x		14 - 30 mm	
1 x		32 - 152 mm	

Plumbing hole saw set in plastic box

- Includes hole saw arbor
- With integral clasp
- High strength hinge
- Variable tooth pitch
- Right hand cutting
- High concentricity accuracy
- Good chip removal
- HSS Bi metal

Suitable for high and low alloyed steel up to 700 N/mm² stability, plaster, light construction, MDF and chipboard as well as wood processing, non ferrous metal and light alloy.
For use within plumbing trades.

			kg
129.5575	9 pcs	Plumbing hole saw set in plastic box	1.38
7 x		19 - 22 - 29 - 38 - 44 - 51 - 57 mm	
1 x		14 - 30 mm	
1 x		32 - 152 mm	

Universal hole saw set in plastic box

- Inclusive hole saw arbor and extension
- With integral clasp
- High strength hinge
- Variable tooth pitch
- Right hand cutting
- High concentricity accuracy
- Good chip removal
- HSS Bi metal

Suitable for high and low alloyed steel up to 700 N/mm² stability, plaster, light construction, MDF and chipboard as well as wood processing, non ferrous metal and light alloy.
For the use in the areas electric, sanitary, plumbing building and heating.

			kg
129.5580	15 pcs	Universal hole saw set in plastic box	3.49
12 x		19 - 22 - 25 - 29 - 32 - 35 - 38 - 44 51 - 57 - 64 - 68 mm	
1 x		14 - 30 mm	
1 x		32 - 152 mm	
1 x		300 mm	

HANDSAWS

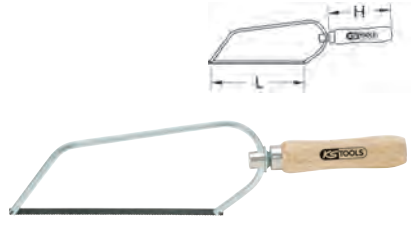
Small handsaw

- With 32 teeth
- For metal
- With wooden handle
- Includes saw blade

	L mm	H mm		g
997.1215	150.0	130.0	997.1214/16	100

Small handsaw with adjustable wooden handle

- With 32 teeth
- For metal
- With adjustable wooden handle
- Includes saw blade



	L mm	H mm		g
997.1217	150.0	90.0	997.1214/16	100

Sawblade

- With 32 teeth

Suitable for: all metals

	L mm	Content	g
997.1214	150.0	12	40

Sawblade

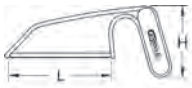
- With 25 teeth

Suitable for: wood, aluminium, plastics and plaster

	L mm	Content	g
997.1216	150.0	12	40

Small handsaw frame

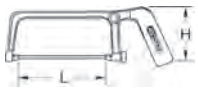
- With 24 teeth
- With red plastic handle cover
- Includes universal saw blade
- For wood, metal, aluminum, plastic and plaster
- Surface black powder coating



	L mm	H mm		g
997.1210	150.0	90.0	907.2131	130

Small hand saw frame

- With 24 teeth
- With black plastic handle cover
- Includes universal saw blade
- For plastic, metal and aluminium



	L mm	H mm		g
907.2130	150.0	90.0	907.2131	140

Universal sawblade for small handsaw frame

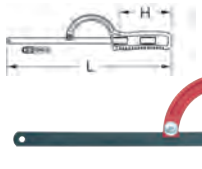
- With 24 teeth

For: plastic, metal and aluminium

	L mm	Content	g
907.2131	150.0	1	10

Metal handsaw frame

- Especially suitable for narrow hard to access areas
- Mode of operation such as key hole sawing
- With two component handle
- Includes universal saw blade
- For plastic, metal and aluminium



	L mm	H mm		g
907.2125	300.0	160.0	129.6620-24	110

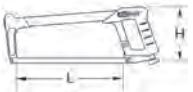
Hack saw frame

- Easy usage
- With hand protection and thumb support
- Includes magazine for saw blades
- With jigsaw function
- Saw blade can be set at 45° or 90°
- Includes HSS Bi metal sawblade

		H mm		g
907.2100	45 or 90	130.0	129.6620-24	270

Hack saw frame

- Easy usage
- With hand protection and thumb support
- Includes magazine for saw blades
- With jigsaw function
- Saw blade can be set at 45° or 90°
- With two component handle
- Includes HSS Bi metal sawblade



	L mm	H mm		g
907.2102	300.0	130.0	129.6620-24	270

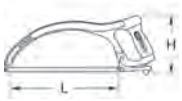
Quick release hacksaw frame

- With fast blade clamping device
- Easy usage
- With hand protection and thumb support
- Includes magazine for saw blades
- With jigsaw function
- Saw blade can be set at 45° or 90°
- With ergonomic handle
- Includes HSS Bi metal sawblade

	L mm	H mm		g
907.2110	300.0	135.0	129.6620-24	750

Hack saw frame

- With hand protection
- Includes jigsaw function
- With ergonomic handle
- Includes saw blade



	L mm	H mm		g
907.2115	300.0	130.0	129.6620-24	270

Hack saw frame set in display

- Including safety universal blade
- With hand protection
- Includes jigsaw function
- With ergonomic handle
- Includes saw blade

			kg
907.2103	3 pcs	Hack saw frame set in display	1.03

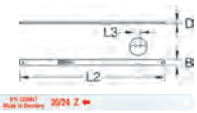
PVC handsaw

- With hand protection
- With ergonomic handle
- Includes saw blade

	L mm	H mm	g
907.1105	300.0	130.0	200
907.1106	450.0	190.0	360

HSS Bi Co 8 metal high performance saw blades

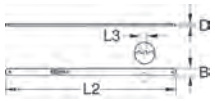
- Variable tooth pitch
- Very flexible
- For cutting metal and steel
- Cobalt alloyed HSS Bi metal



	No. teeth	B mm	D mm	L2 mm	L3 mm	Content	g
129.6620V	288	13.0	0,6	300.0	1,0-1,3	1	20

HSS Bi Co 8 metal high performance saw blades

- Very flexible
- For cutting metal and steel
- Cobalt alloyed HSS Bi metal



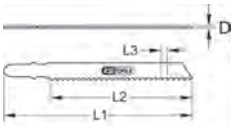
	No. teeth	B mm	D mm	L2 mm	L3 mm	Content	g
129.6620-18	216	13.0	0,6	300.0	1,4	1	20
129.6620-24	288	13.0	0,6	300.0	1,0	1	20
129.6620-32	384	13.0	0,6	300.0	0,8	1	20

JIGSAW BLADES

Jigsaw blades

- Cleaner, fast and fine cut
- Chrome vanadium

In the style of: AEG® 274351, Bosch® T101D, Metabo® 23635, Lenox® CF456S, Milwaukee® 48-42-5500
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

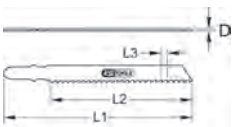
Suitable for:
- planned, hard and plywood 5 to 30 mm
- laminated wood composition board
- plastic

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3101	30	100.0	75.0	2,5	1,5	5	40

Jigsaw blades

- Cleaner, fast and fine cut
- Chrome vanadium

In the style of: AEG® 274351, Bosch® T101D, Metabo® 23635, Lenox® CF456S, Milwaukee® 48-42-5500
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

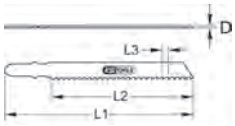
Suitable for:
- planned, hard and plywood 8 to 60 mm
- plastic
- wooden types

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3103	18	100.0	75.0	4,0	1,5	5	30

Jigsaw blades

- Very clean and fast cut
- Chrome vanadium

In the style of: Bosch® T301D, Metabo® 23654
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

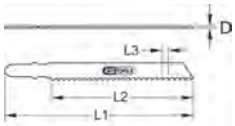
Suitable for:
- soft and hardwood 8 to 75 mm
- wood fibre board 8 to 75 mm
- plastic

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.31035	21	115.0	95.0	4,0	1,5	5	30

Jig saw blades

- Clean and fast cut
- Extra strong blade
- Ideal for angled and parallel cutting

In the style of: Bosch® T101DP, Metabo® 23655
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

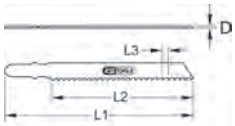
Suitable for:
- soft, hard and plywood
- wooden composites
- wood fibre board 6 to 60 mm
- Plastic

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3103S	18	100.0	75.0	4,0	1,7	5	30

Jigsaw blades

- Faster, straight and clean cut
- Chrome vanadium

In the style of: AEG® 213116, Bosch® T144D, Metabo® 23633, Milwaukee® 48-42-5421
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- planned, hard and plywood 8 to 60 mm
- MDF

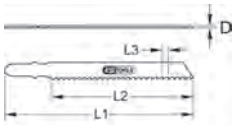
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3104	18	100.0	75.0	4,0	1,3	5	40

Jigsaw blades curved cut

- Fast and clean cut
- Ideal for curved cutting
- Chrome vanadium

In the style of: Bosch® T244D, Metabo® 23649, Milwaukee® 48-42-5512

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

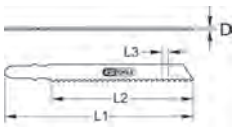
Suitable for:
- soft and hardwood 8 to 60 mm
- MDF

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3105	18	100.0	75.0	4,0	1,3	5	30

Jigsaw blade

- Fast coarse cut
- Chrome vanadium

In the style of: AEG 254071, Bosch T111C, Metabo 23632, Milwaukee 48-42-5200
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

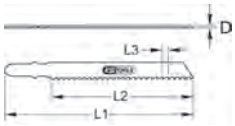
Suitable for:
- soft and hardwood 5 to 60 mm
- plastic

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3106	24	100.0	75.0	3,0	1,3	5	30

Bi metal jigsaw blades

- Variable tooth pitch
- Straight cut
- Extra long blade
- For different strength materials

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

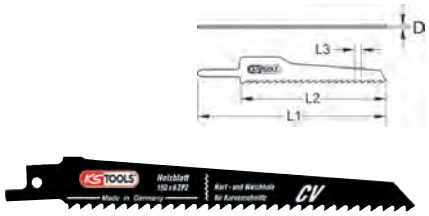
Suitable for:
- soft and hardwood 3 to 95 mm
- wood with nails and kitchen worktops
- steel and stainless steel

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3150F	63	132.0	110.0	1,8 - 2,5	1,3	5	50

Curved cut jigsaw blades

•Faster, cleaner, straighter and curve cut

In the style of: AEG® 318-126, Bosch® S644D, Black&Decker® 40109, Metabo® 31120, Dewalt® 40109, Milwaukee® 48-00-1031
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

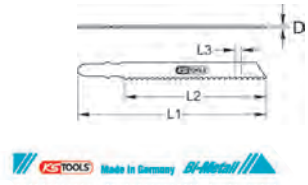
Suitable for:
- hardwood and softwood 6 to 100 mm
- chipboard and plywood
- plastic

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4011	30	150.0	130.0	4,2	1,3	5	100

Bi metal jigsaw blades

•For thin material
•Straight cut
•Flexible and shatter proof
•Long service life

In the style of: Bosch® T118AF, Metabo® 23971, Lenox® 324S, Milwaukee® 48-42-5161
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- mild steel and aluminum
- non ferrous metal and steel 1,5 to 3 mm
- stainless steel

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3111F	42	75.0	50.0	1,2	1,0	5	40

Jigsaw blades

•Clean cut
•Ideal for perspex
•High performance steel

In the style of: AEG® 274651, Bosch® T101A, Metabo® 23640
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®

Technical data:

Suitable for:
- non ferrous metal and aluminium 2 to 20 mm
- stainless steel 2 to 10 mm

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3116	36	100.0	75.0	2,0	1,27	5	40

Jigsaw blade

•Straight cut
•Ideal for very thin material
•High performance steel

In the style of: AEG® 274652, Bosch® T118G, Metabo® 23636
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®

Technical data:

Suitable for:
- wood and aluminium 0.9 to 1.2 mm
- thin sheet metals
- non ferrous metal

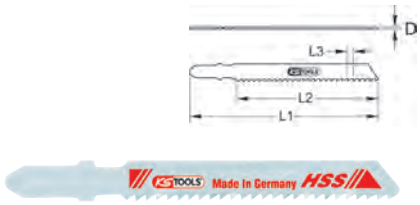
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3110	56	75.0	50.0	0,9	1,0	5	40

Bi metal jigsaw blades

•Straight cut
•For thick material

In the style of: AEG® 254064, Bosch® T118B, Metabo® 23638, Milwaukee® 48-42-5101

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- mild steel and aluminum from 3 to 6 mm
- fabric-base plastics
- non ferrous metal

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3113	24	75.0	50.0	2,0	1,0	5	30

Jigsaw blades

•Fast and exact cuts
•Ideal for aluminium

In the style of: AEG® 254315, Bosch® T127D, Metabo® 23639
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®

Technical data:

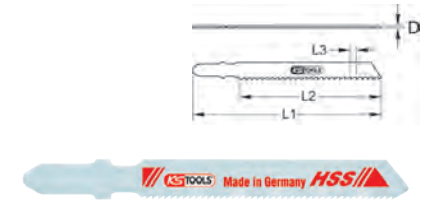
Suitable for:
- non ferrous metal and aluminium
- plastic and eternit 2 to 20 mm

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3118	24	100.0	75.0	3,0	1,15	5	40

Jigsaw blade

•Straight cut
•For thin material
•High performance steel

In the style of: AEG® 254063, Bosch® T118A, Metabo® 23637
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- mild steel and aluminum
- non ferrous metal 1.5 to 3.0 mm
- stainless steel

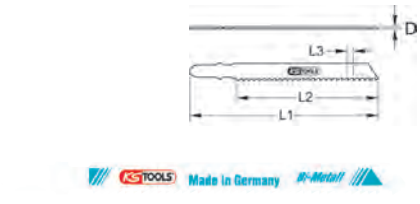
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3111	56	75.0	50.0	0,9	1,0	5	40

Bi metal jigsaw blades

•Straight cut
•Stainless steel

In the style of: Bosch® T111HF, Lenox® 410S

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- mild steel and aluminum
- steel and non ferrous metal
- stainless steel 3 to 12 mm
- wooden with nails

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.31135F	36	100.0	75.0	2,0	1,0	5	40

Bi metal jigsaw blades

•Faster and straight cut
•Flexible and shatter proof
•Ideal for aluminium
•Stainless steel

In the style of: Bosch® T127DF, Metabo® 23974, Lenox® 406S, Milwaukee® 48-42-5300
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®

Technical data:

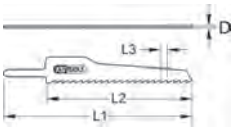
Suitable for:
- non ferrous metal and aluminium
- plastic and eternit 3 to 15 mm
- wooden with nails

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.3118F	24	100.0	75.0	3,0	1,27	5	40

Jigsaw blades curved cut

- Fast cut
- With hardened teeth
- Ideal for aluminium

In the style of: AEG® 318-127, Bosch® S811H, Metabo® 31123, Flex® 200778
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

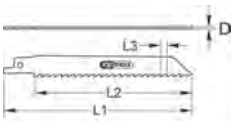
Suitable for:
non ferrous metal and aluminium
wood and chip chipboard 6 to 100 mm
plastic and eternit

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4010	66	150.0	130.0	4,2	1,3	5	240

Jigsaw blades

- Flexible and shatter proof
- Ideal for wood with nails

In the style of: Flex® 217190, Lenox® S810R
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
steel and steel tubes 3 to 12 mm
Aluminum and metal profile and pallet constrction 3 to 150 mm
wooden with nails

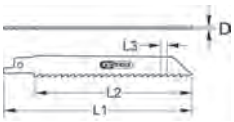
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4431	70	200.0	180.0	2,5	0,9	5	130

Jigsaw blades

- Flexible and shatter proof
- Ideal for wood with nails

In the style of: Bosch® S1211H, Metabo® 31125, Flex® 201928

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
steel and steel tubes 3 to 12 mm
non ferrous metal and insulation material
wood with nails 3 to 230 mm

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4432	110	300.0	280.0	2,5	0,9	5	200

Jigsaw blades

- Flexible and shatter proof
- Suitable for:
- Non ferrous metal and stainless steel
- Steel sheet and car body panels
- Compression moulded material and formica

Suitable for: Ober, KS, Pneutec, CP, KS 515.3000 und 515.3200

	No. teeth	TPI	D mm	L mm	Content	g
129.3740	80	32	1,0	100.0	5	30
129.3742	60	24	1,0	100.0	5	30
129.3744	45	18	1,0	100.0	5	30
129.3746	35	14	2,0	100.0	5	30

Jigsaw blades

- Flexible and shatter proof
- Suitable for:
- Non ferrous metal and stainless steel
- Steel sheet and car body panels
- Compression moulded material and formica

Suitable for: SIG und Flex

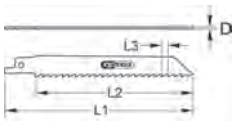
	No. teeth	TPI	D mm	L mm	Content	g
129.3750	80	32	0,7	100.0	5	20
129.3752	60	24	1,0	100.0	5	20
129.3754	45	18	1,4	100.0	5	20
129.3756	35	14	1,8	100.0	5	20

SABRE SAW BLADES

Sabre saw blades

- Fast cut
- Two sided cutting

In the style of: AEG® 318-131, Bosch® S828D, Black&Decker® 40127, Metabo® 31136, Flex® 206016, Milwaukee® 48-00-1052
Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
wood and plastic 6 to 100 mm
plasterborad and aerated concrete

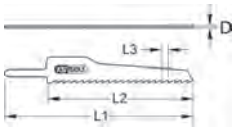
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4014	30	150.0	130.0	4,2	1,3	5	130

Bi metal sabre saw blades

- Fast cut
- Long service life
- Flexible and shatter proof
- Ideal for thick walled cast iron pipe

In the style of: Bosch® S611DF, Lenox® 656R, Milwaukee® 48-01-5035

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
wood with nails and hardwood
plasterborad and aerated concrete

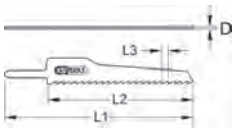
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4016	30	150.0	130.0	4,2	1,3	5	90

Sabre saw blades

- Especially suitable for fast cutting
- Fast, exact, coarse and curve cuts

In the style of: Bosch® S1617K

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
wood and greenwood
hardwood and softwood 20 to 150 mm

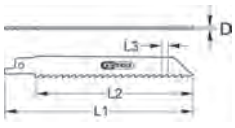
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4020	33	300.0	280.0	8,5	1,3	5	230

Sabre saw blades

- Coarse and fast cut
- Ideal for old building renovation
- Chrome vanadium

In the style of: Bosch® S1111K, Black&Decker® 40108

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for:
wood and greenwood
hardwood and softwood 20 to 150 mm

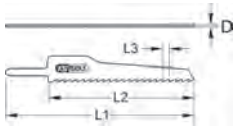
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4022	25	230.0	210.0	8,5	1,3	5	190

Sabre saw blades

- Coarse cut
- Especially suitable for fast cutting
- Ideal for old building renovation

In the style of: Flex® 200751

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: wood and plastic
20 to 100 mm
plasterboard

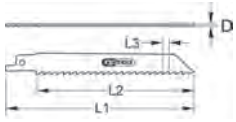
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4031	20	150.0	130.0	6,3	1,3	5	120

Sabre saw blades

- Faster and straight cut
- For thin material
- Flexible and shatter proof
- Stainless steel

In the style of: AEG® 318-129, Bosch® S922EF, Black&Decker® 40116, Metabo® 31132, Flex® 200735, Lenox® 618R, Milwaukee® 48-00-5184

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: steel and stainless steel
non-ferrous metal and steel tubes
1.5 to 12 mm

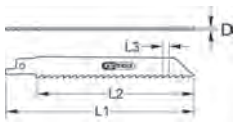
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4401	90	150.0	130.0	1,4	0,9	5	100

Sabre saw blades

- Faster and straight cut
- For thin material
- Flexible and shatter proof
- Stainless steel

In the style of: Bosch® S1122EF, Lenox® 818R, Milwaukee® 48-00-5188

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for: non-ferrous metal 1.5 to 3 mm
steel, profile and pipes

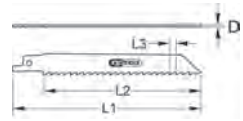
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4402	126	200.0	180.0	1,4	0,9	5	130

Sabre saw blades

- Faster and straight cut
- For thin materials
- Flexible and shatter proof
- Ideal for body constructions
- Stainless steel

In the style of: Bosch® S522GF, Black&Decker® 40127, Metabo® 31127, Flex® 200719

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: sheet steel and profile to 1 mm
car body panels

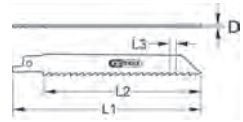
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4404	91	100.0	80.0	0,8	0,9	5	60

Sabre saw blades

- Faster and straight cut
- For thin materials
- Flexible and shatter proof
- Stainless steel

In the style of: AEG® 318-128, Bosch® S922AF, Black&Decker® 40125, Metabo® 31129, Flex® 200743, Lenox® 624R, Milwaukee® 48-00-5186

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: sheet steel and profile
non-ferrous metal up to 1 mm

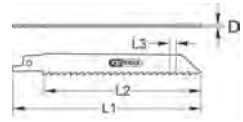
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4405	120	150.0	130.0	1,0	0,9	5	100

Sabre saw blades

- Faster and straight cut
- Flexible and shatter proof
- For thick material
- Stainless steel

In the style of: AEG® 318-130, Bosch® S644D, Black&Decker® 40113, Metabo® 31134, Flex® 200727, Lenox® 614R, Milwaukee® 48-00-5182

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: non-ferrous metal
steel and stainless steel
steel shet and steel tubes
2 to 8 mm

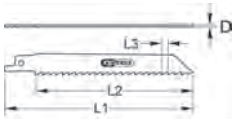
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4411	70	150.0	130.0	1,8	0,9	5	100

Sabre saw blades

- Faster and straight cut
- Flexible and shatter proof
- For thick material
- Stainless steel

In the style of: Metabo® 31135

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: non-ferrous metal
steel and stainless steel
steel shet and steel tubes 2 to 8 mm

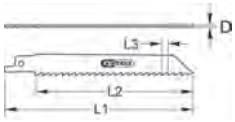
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4415	98	200.0	180.0	1,8	0,9	5	130

Sabre saw blades

- Clean cut
- Ideal for non ferrous metal

In the style of: Metabo® 31124

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®,Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for: steel and non ferrous metal
steel tube 2 to 8 mm
wooden with nails

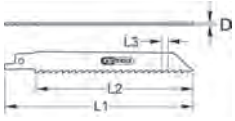
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4422	154	300.0	280.0	1,8	0,9	5	200

Sabre saw blades

- Flexible and shatter proof
- Ideal for wood with nails

In the style of: Bosch® S922HF, Metabo® 31131, Flex® 200778, Lenox®610R, Milwaukee® 48-00-5092

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for: non-ferrous metal
steel, profile and steel tubes 3 to 12 mm
wooden with nails
casement frames 3 to 12 mm

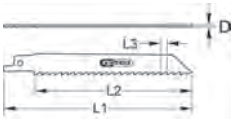
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4430	50	150.0	130.0	2,5	0,9	5	100

Sabre saw blades

- Variable tooth pitch
- Flexible and shatter proof
- For different materials

In the style of: Lenox® 650R

Suitable for: Bosch®, Black&Decker®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, DeWalt®, Hitachi®, Makita®, Rockwell®, Skil®, Flex®



Technical data:

Suitable for:
- tube and profile
- non ferrous metal 3 to 12 mm
- wood with nails from 3 to 100 mm

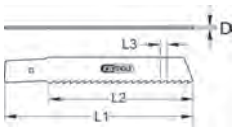
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4440V	70	150.0	130.0	1,8 - 2,5	1,3	5	130

Sabre saw blades

- Straight cut
- Ideal for cutting pipes
- Stainless steel

In the style of: Rems® 561003

Suitable for: Pipe cutting machines Rems®



Technical data:

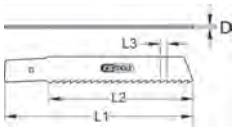
Suitable for:
- steel and non ferrous metal
- tube and profile up to 100 mm

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4454	98	200.0	180.0	1,8	0,9	5	180

Sabre saw blades

- Variable tooth pitch
- Straight cut
- Ideal for cutting pipes
- Stainless steel

Suitable for: Pipe cutting machines Rems®, Ridgid®, Rothenberger®, Virax®



Technical data:

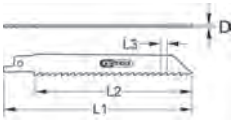
Suitable for:
- thick walled cast and steel pipe up to 50 mm
- non-ferrous metal and aluminium
- steel

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4483	45	140.0	120.0	2,5	1,7	5	220

Sabre saw blades

- Variable tooth pitch
- Flexible and shatter proof
- For different materials
- Stainless steel

Suitable for: Bosch®, AEG® (Atlas Copco), Metabo®, Lenox®, Milwaukee®, Elu®, Hitachi®, Holz-Her®, Mafell®, Makita®, Flex®, Sparky®



Technical data:

Suitable for:
- metal from 3 to 12 mm
- wood with nails from 3 to 190 mm
- plastic

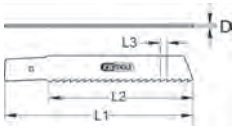
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4441V	98	200.0	180.0	1,8 - 2,5	1,3	5	40

Sabre saw blades

- Straight cut
- Ideal for cutting pipes
- Stainless steel

In the style of: Rems® 561004

Suitable for: Pipe cutting machines Rems®



Technical data:

Suitable for:
- steel and non ferrous metal 2 to 8 mm
- tube and profile up to 150 mm

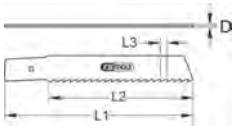
	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4457	154	300.0	280.0	1,8	0,9	5	270

Sabre saw blades

- Straight cut
- Ideal for cutting pipes
- Stainless steel

In the style of: Rems® 561002

Suitable for: Pipe cutting machines Rems®



Technical data:

Suitable for:
- steel and non ferrous metal
- thick walled cast and steel pipe up l to 10 mm

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4486	56	200.0	180.0	3,2	1,6	5	300

Sabre saw blades

- Straight cut
- Ideal for cutting pipes
- Stainless steel

In the style of: Rems® 561005

Suitable for: Pipe cutting machines Rems®

Technical data:

Suitable for:
- steel and non ferrous metal to 50 mm
- tube and profile

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4451	70	150.0	130.0	1,8	0,9	5	130

Sabre saw blades

- Straight cut
- Ideal for cutting pipes
- Stainless steel

In the style of: Rems® 561001

Suitable for: Pipe cutting machines Rems®

Technical data:

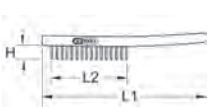
Suitable for:
- steel and non ferrous metal
- cast and steel pipe from 4 mm
- Aluminium

	No. teeth	L1 mm	L2 mm	L3 mm	D mm	Content	g
129.4482	36	140.0	120.0	3,2	1,6	5	220

HAND WIRE BRUSHES

Steel hand wire brush 3 rowed

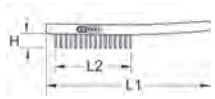
- 3 rowed
- Universal use
- Handle made out of wood
- For surface preparation
- With steel bristles



	H mm	L1 mm	L2 mm	g
201.2305	32.0	290.0	138.0	120

Steel hand wire brush 4 rowed

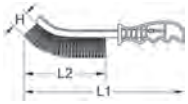
- 4 rowed
- Universal use
- Handle made out of wood
- For surface preparation
- With steel bristles



	H mm	L1 mm	L2 mm	g	
201.2311	32.0	290.0	138.0	120	

Stainless steel wire all purpose wire brush

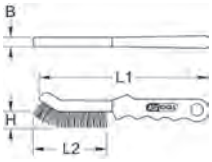
- With plastic handle
- For surface preparation
- Curled and rust free steel wire



	H mm	L1 mm	L2 mm	g	
201.2301	28.0	250.0	145.0	90	

Steel wire brake saddle wire brush 2 rowed, straight

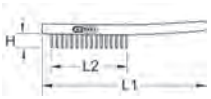
- 2 rowed
- Hanging hole
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Smooth steel wire



	B mm	H mm	L1 mm	L2 mm	g	
201.2320	12.0	22.0	225.0	90.0	90	

Stainless steel hand wire hand brush 3 rowed

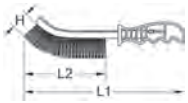
- 3 rowed
- Universal use
- Handle made out of wood
- For surface preparation
- With stainless steel bristles



	H mm	L1 mm	L2 mm	g	
201.2310	32.0	290.0	138.0	120	

Brass steel all purpose wire brush

- With plastic handle
- For surface preparation
- Curved brass wire



	H mm	L1 mm	L2 mm	g	
201.2302	28.0	250.0	145.0	90	

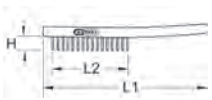
Steel wire brake saddle wire brush 2 rowed, straight and tapered point

- 2 rowed
- Hanging hole
- Tapered point
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Smooth steel wire

	B mm	H mm	L1 mm	L2 mm	g	
201.2321	12.0	14,0 - 22,0	225.0	90.0	90	

Stainless steel hand wire hand brush 4 rowed

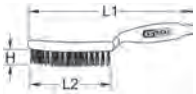
- 4 rowed
- Universal use
- Handle made out of wood
- For surface preparation
- With stainless steel bristles



	H mm	L1 mm	L2 mm	g	
201.2306	32.0	290.0	138.0	100	

Brass wire hand brush 3 rowed

- 3 rowed
- Universal usage
- Plastic hand grip casing
- For surface preparation
- Straight brass wire



	H mm	L1 mm	L2 mm	g	
201.2326	25.0	285.0	130.0	105	

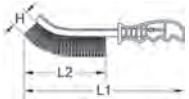
Brass wire brake saddle wire brush 2 rowed, straight

- 2 rowed
- Very narrow execution
- For narrow brake saddle shafts
- Robust stock
- Hanging hole
- Dual component handle
- For removing of stubborn brake dust
- For surface preparation
- Curved brass wire

	B mm	H mm	L1 mm	L2 mm	g	
201.2322	12.0	22.0	225.0	90.0	90	

Steel wire all purpose wire brush

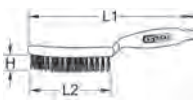
- With plastic handle
- For surface preparation
- Crimped steel wire



	H mm	L1 mm	L2 mm	g	
201.2300	28.0	250.0	145.0	90	

Steel wire hand brush 4 rowed

- 4 rowed
- Universal usage
- Plastic hand grip casing
- For surface preparation
- Straight steel wire



	H mm	L1 mm	L2 mm	g	
201.2325	25.0	285.0	130.0	120	

Brass wire spark plug wire brush 2 rowed

- 2 rowed
- For use with sparks plugs
- For surface preparation
- Brass wire

	H mm	L1 mm	L2 mm	g	
201.2316	14.8	170.0	24.5	20	

Steel wire spark plug wire brush 2 rowed

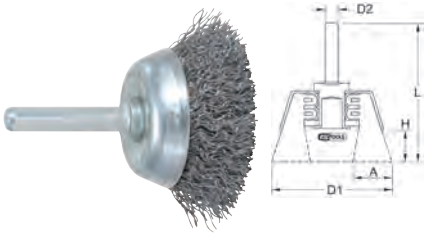
- 2 rowed
- For use with sparks plugs
- For surface preparation
- Steel wire

	H mm	L1 mm	L2 mm	g	
201.2315	14.8	170.0	24.5	20	

MACHINE OPERATED WIRE BRUSHES

Steel wire jar brush 0,3 mm

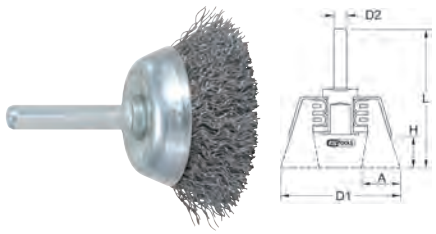
- With 6 mm mandril
- To enable with high rotary speed
- Long durability through compact border
- For use with drill machine
- For surface preparation
- Crimped steel wire



	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g	
340.0001	8000	10.0	38.0	6.0	20.0	55.0	50	
340.0002	10500	10.0	50.0	6.0	20.0	70.0	60	
340.0003	4500	10.0	63.0	6.0	20.0	88.0	70	
340.0004	4500	15.0	75.0	6.0	25.0	105.0	80	
340.0005	4500	15.0	80.0	6.0	25.0	112.0	90	

Rust free steel jar brush 0,3 mm

- With 6 mm mandril
- To enable with high rotary speed
- Long durability through compact border
- For use with drill machine
- For surface preparation
- Curled and rust free steel wire



	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g	
340.0011	8000	10.0	38.0	6.0	20.0	55.0	50	
340.0012	10500	10.0	50.0	6.0	20.0	70.0	60	
340.0013	4500	10.0	63.0	6.0	20.0	88.0	70	
340.0014	4500	15.0	75.0	6.0	25.0	105.0	80	
340.0015	4500	15.0	80.0	6.0	25.0	112.0	90	

Steel wire brush 0,3 mm

- With 6 mm mandril
- For use with drill machine
- For difficult to access areas
- For surface preparation
- Crimped steel wire

	RPM max	D1 mm	D2 mm	H mm	L mm	g	
340.0016	20000	17.0	6.0	22.0	65.0	30	
340.0017	18000	23.0	6.0	25.0	68.0	40	
340.0018	18000	30.0	6.0	25.0	68.0	50	

Paint brush steel wire brush 0,5 mm

- With 6 mm mandril
- For use with drill machine
- For difficult to access areas
- For surface preparation
- Crimped steel wire

	RPM max	D1 mm	D2 mm	H mm	L mm	g	
340.0019	20000	17.0	6.0	22.0	65.0	30	
340.0020	18000	23.0	6.0	25.0	68.0	40	
340.0021	18000	30.0	6.0	25.0	68.0	40	

Steel wire jar brush 0,5 mm

- Braided design
- With thread arbor
- For use in one hand angle grinder
- Ideal for heavy brush works
- For surface preparation
- Crimped steel wire

	RPM max	mm	D mm	H mm	L mm	No. plaits	g	
340.0022	12500	M14 x 2,0	65.0	20.0	55.0	18	160	
340.0023	11500	M14 x 2,0	80.0	22.0	68.0	20	200	
340.0024	11500	M14 x 2,0	90.0	22.0	77.0	20	240	

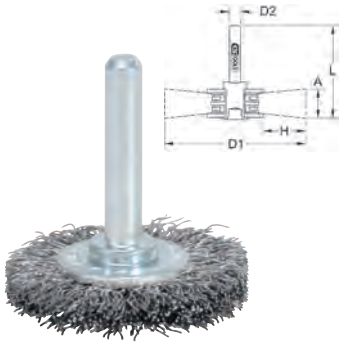
Rust free stainless steel wire jar brush 0,5 mm

- Braided design
- With thread arbor
- For use in one hand angle grinder
- Ideal for heavy brush works
- For surface preparation
- Curled and rust free steel wire

	RPM max	mm	D mm	H mm	L mm	No. plaits	g	
340.0025	12500	M14 x 2,0	65.0	20.0	55.0	18	160	
340.0026	11500	M14 x 2,0	80.0	22.0	68.0	20	200	
340.0027	11500	M14 x 2,0	90.0	22.0	77.0	20	240	

Steel wire brush disc 0,3 mm

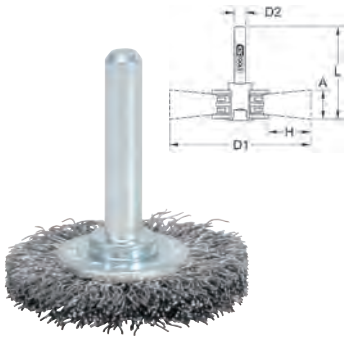
- With 6 mm mandril
- Especially longlife industry version
- For use with drill machine
- For surface preparation
- Curled steel wire



	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g	
340.0028	20000	9.0	30.0	6.0	6.0	45.0	40	
340.0029	15000	14.0	50.0	6.0	12.0	45.0	40	
340.0030	15000	14.0	60.0	6.0	17.0	45.0	60	
340.0031	15000	16.0	70.0	6.0	19.0	45.0	80	
340.0032	15000	18.0	80.0	6.0	20.0	45.0	100	

Rust free steel wire brush disc 0,3 mm

- With 6 mm mandril
- Especially longlife industry version
- For use with drill machine
- For surface preparation
- Curled and rust free steel wire



	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g	
340.0033	20000	9.0	30.0	6.0	6.0	45.0	40	
340.0034	15000	14.0	50.0	6.0	12.0	45.0	40	
340.0035	15000	14.0	60.0	6.0	17.0	45.0	60	
340.0036	15000	16.0	70.0	6.0	19.0	45.0	80	
340.0037	15000	18.0	80.0	6.0	20.0	45.0	100	

Steel wire circular brush 0,3 mm

- Braided design
- With 12 mm mandril
- Especially longlife industry version
- For use in with drill machine
- For removing of underbody coating
- For surface preparation
- Flat steel wire

	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g
340.0038	25000	12.0	75.0	6.0	15.0	43.0	100

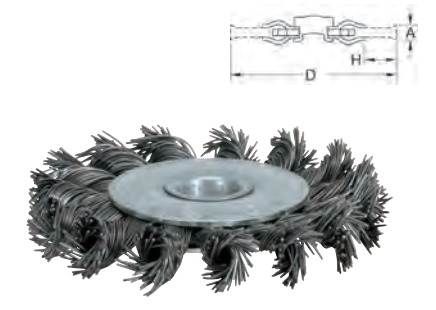
Steel wire circular brush 0,5 mm

- Braided design
- With 12 mm mandril
- Especially longlife industry version
- For use in with drill machine
- For removing of underbody coating
- For surface preparation
- Flat steel wire

	RPM max	A mm	D1 mm	D2 mm	H mm	L mm	g
340.0039	15000	12.0	75.0	6.0	15.0	43.0	100

Steel wire circular brush 0,5 mm

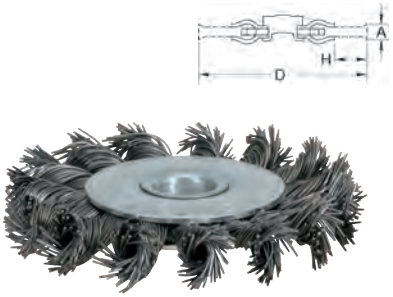
- Braided design
- With 22,2 mm bore reception
- Longlife industry version
- For use in one hand angle grinder
- For removing of rubber, grate and lacquer residue
- For surface preparation
- Flat steel wire



	RPM max	A mm	D mm	H mm	No. plaits	g
340.0040	12500	11.0	75.0	16.0	15	90
340.0041	12500	11.0	100.0	20.5	18	120
340.0042	12500	11.0	115.0	23.5	20	140
340.0043	12500	11.0	125.0	24.5	22	150

Stainless steel and brushed steel 0,5 mm

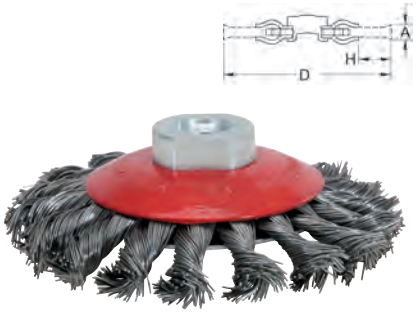
- Braided design
- With 22,2 mm bore reception
- Longlife industry version
- For use in one hand angle grinder
- For removing of rubber, grate and lacquer residue
- For surface preparation
- Flat and grate free steel wire



	RPM max	A mm	D mm	H mm	No. plaits	g
340.0044	12500	11.0	75.0	16.0	15	90
340.0045	12500	11.0	100.0	20.5	18	120
340.0046	12500	11.0	115.0	23.5	20	140
340.0047	12500	11.0	125.0	24.5	22	150

Cone design steel wire circular brush 0,5 mm

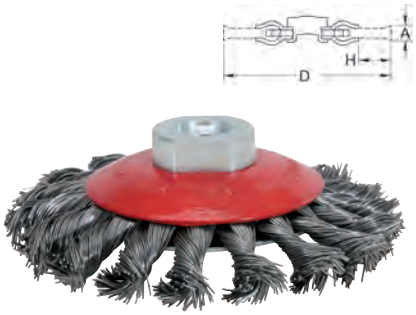
- Braided design
- With thread arbor
- Especially longlife industry version
- For use in one hand angle grinder
- For hard to reach places
- For surface preparation
- Flat steel wire



	RPM max	mm	A mm	D mm	H mm	No. plaits	g
340.0048	12500	M 14 x 2,0	12.0	100.0	20.0	18	190
340.0049	15000	M 14 x 2,0	12.0	115.0	24.0	20	210

Rust free cone design steel wire circular brush 0,5 mm

- Braided design
- With thread arbor
- Especially longlife industry version
- For use in one hand angle grinder
- For hard to reach places
- For surface preparation
- Flat and grate free steel wire



	RPM max	mm	A mm	D mm	H mm	No. plaits	g
340.0050	12500	M 14 x 2,0	12.0	100.0	20.0	18	190
340.0051	15000	M 14 x 2,0	12.0	115.0	24.0	20	210

CUT OFF AND FLAP WHEELS

Clamping mandrel

- High performances thin disks
- Special steel

	Shank mm	Profile	g
515.3017	6,0	round	72

High performances thin cutting disk

- Exact and clean cut
- No deburring necessary
- Very short cutting times
- Machine load reduced
- Inox stainless steel

Ideal for use in very thin materials until 2.5 mm, tool steel, sheet metal, thin walled pipes and profiles all type suited for locksmiths, car body building, sanitary and heating fitting, plumbing, sheet metal processing, carpentry, joinery, roofing, metal processing and all motor vehicles businesses.

	RPM max	D1 mm	D2 mm	H mm	Content	g
337.2005	13300	50,0	22.2	1.0	25	100
337.2010	15250	100,0	16.0	1.6	25	1200
337.2015	13300	115,0	22.2	1.0	25	730
337.2025	12200	125,0	22.2	1.0	25	800

Allround flap wheel, curved

- For universal usage
- Zirconium aluminum oxide on a glassfibre plate
- Fan like and radial arrangement of the multi purpose disc
- High level of flexibilty
- Consistent high cutting power

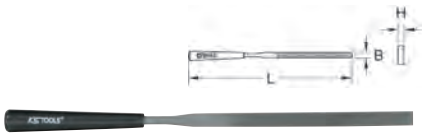
Ideal for use in metal, stainless steel, wood and plastic.

	RPM max	D1 mm	D2 mm	Grain	H mm	Content	g
337.2050	13300	115,0	22.2	40	7.2	10	730
337.2055	13300	115,0	22.2	60	7.2	10	730
337.2060	13300	115,0	22.2	80	7.2	10	730
337.2065	12200	125,0	22.2	40	7.2	10	800
337.2070	12200	125,0	22.2	60	7.2	10	800
337.2075	12200	125,0	22.2	80	7.2	10	800

FILES

Flat needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel



	B mm	H mm	L mm	g	
140.3051	5.0	1.0	145.0	10	

Half round needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	D mm	L mm	g	
140.3058	5.0	145.0	10	

Round needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	D mm	L mm	g	
140.3052	3.0	145.0	10	

Square needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	B mm	L mm	g	
140.3056	2.0	145.0	10	

Three square needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	B mm	L mm	g	
140.3054	3.0	145.0	10	

Square needle file, extra slim

- High cutting rate
- Extra slim execution
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	B mm	L mm	g	
140.3055	2.0	90.0	10	

Oval needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	B mm	L mm	g	
140.3059	5.0	145.0	10	

Insert needle files

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	B mm	L mm	g	
140.3057	5.0	145.0	10	

Tapered needle file

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

	D mm	L mm	g	
140.3053	5.0	145.0	10	

Needle file set in soft plastic storage case, 12 pcs

- High cutting rate
- With solid plastic handle
- For working in the area of the fine mechanics
- Special steel

			g	
140.3050	12 pcs	Needle file set in soft plastic storage case, 12 pcs	900	

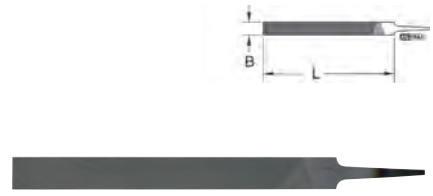
Flat file

- DIN 7261 form B
- With two component handle
- With hanging hole
- Special steel

		L1 mm	L2 mm	B mm	File blade	g	
157.0025	1	315.0	200.0	20.0	161.0025	230	
157.0026	1	380.0	250.0	25.0	161.0026	350	
157.0027	1	420.0	300.0	30.0	161.0027	510	
157.0028	1	470.0	350.0	35.0	161.0028	690	
157.0004	2	230.0	150.0	15.0	161.0004	160	
157.0005	2	315.0	200.0	20.0	161.0005	200	
157.0006	2	380.0	250.0	25.0	161.0006	350	
157.0007	2	420.0	300.0	30.0	161.0007	510	
157.0008	2	470.0	350.0	35.0	161.0008	690	
157.0014	3	230.0	150.0	15.0	161.0014	160	
157.0015	3	315.0	200.0	20.0	161.0015	230	
157.0016	3	380.0	250.0	25.0	161.0016	350	

Flat file insert

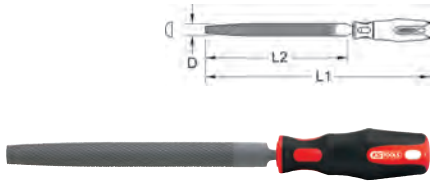
- DIN 7261 form B
- Special steel



		L mm	B mm		g	
161.0025	1	200.0	20.0	161.0011	130	
161.0026	1	250.0	25.0	161.0010	250	
161.0027	1	300.0	30.0	161.0010	410	
161.0004	2	150.0	15.0	161.0012	60	
161.0005	2	200.0	20.0	161.0010	100	
161.0006	2	250.0	25.0	161.0010	250	
161.0007	2	300.0	30.0	161.0010	410	
161.0008	2	350.0	35.0	161.0010	590	
161.0014	3	150.0	15.0	161.0012	60	
161.0015	3	200.0	20.0	161.0010	130	
161.0016	3	250.0	25.0	161.0010	250	

Half round file

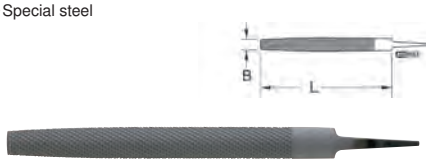
- DIN 7261 form E
- With two component handle
- With hanging hole
- Special steel



		L1 mm	L2 mm	D mm	File blade	g	
157.0125	1	315.0	200.0	20.0	161.0125	230	
157.0126	1	380.0	250.0	25.0	161.0126	340	
157.0127	1	420.0	300.0	30.0	161.0127	510	
157.0128	1	470.0	350.0	35.0	161.0128	750	
157.0104	2	260.0	150.0	15.0	161.0104	160	
157.0105	2	315.0	200.0	20.0	161.0105	230	
157.0106	2	380.0	250.0	25.0	161.0106	340	
157.0107	2	420.0	300.0	30.0	161.0107	510	
157.0114	3	260.0	150.0	15.0	161.0114	160	
157.0115	3	315.0	200.0	20.0	161.0115	230	
157.0116	3	380.0	250.0	25.0	161.0116	340	

Half round file insert

- DIN 7261 form E
- Special steel



		L mm	B mm		g
161.0125	1	200.0	20.0	161.0010	130
161.0126	1	250.0	25.0	161.0010	240
161.0127	1	300.0	30.0	161.0010	410
161.0128	1	350.0	35.0	161.0010	650
161.0104	2	150.0	15.0	161.0012	60
161.0105	2	200.0	20.0	161.0011	130
161.0106	2	250.0	25.0	161.0010	240
161.0107	2	300.0	30.0	161.0010	410
161.0114	3	150.0	15.0	161.0012	60
161.0115	3	200.0	20.0	161.0010	130
161.0116	3	250.0	25.0	161.0010	240

Round file

- DIN 7261 form F
- With two component handle
- With hanging hole
- Special steel

		L1 mm	L2 mm	D mm	File blade	g
157.0224	1	230.0	150.0	6.0	161.0224	130
157.0225	1	315.0	200.0	7.5	161.0225	150
157.0226	1	370.0	250.0	9.5	161.0226	200
157.0204	2	230.0	150.0	6.0	161.0204	130
157.0205	2	315.0	200.0	7.5	161.0205	150
157.0206	2	370.0	250.0	9.5	161.0206	200
157.0214	3	230.0	150.0	6.0	161.0214	130
157.0215	3	315.0	200.0	7.5	161.0215	150

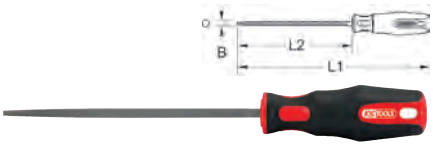
Round file insert

- DIN 7261 form F
- Special steel

		L mm	D mm		g
161.0224	1	150.0	6.0	161.0012	30
161.0225	1	200.0	7.5	161.0013	50
161.0226	1	250.0	9.5	161.0011	100
161.0204	2	150.0	6.0	161.0012	30
161.0205	2	200.0	7.5	161.0013	50
161.0206	2	250.0	9.5	161.0011	100
161.0214	3	150.0	6.0	161.0012	30
161.0215	3	200.0	7.5	161.0013	50

Square file

- DIN 7261 form D
- With two component handle
- With hanging hole
- Special steel



		L1 mm	L2 mm	B mm	File blade	g
157.0324	1	230.0	150.0	6.0	161.0324	130
157.0325	1	320.0	200.0	8.0	161.0325	170
157.0326	1	370.0	250.0	10.0	161.0326	250
157.0304	2	230.0	150.0	6.0	161.0304	130
157.0305	2	320.0	200.0	8.0	161.0305	170
157.0306	2	370.0	250.0	10.0	161.0306	250
157.0314	3	230.0	150.0	6.0	161.0314	130
157.0315	3	320.0	200.0	8.0	161.0315	170

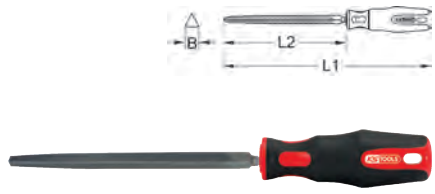
Square file insert

- DIN 7261 form D
- Special steel

		L mm	B mm		g
161.0324	1	150.0	6.0	161.0012	30
161.0325	1	200.0	8.0	161.0013	70
161.0326	1	250.0	10.0	161.0011	150
161.0304	2	150.0	6.0	161.0012	30
161.0305	2	200.0	8.0	161.0013	70
161.0306	2	250.0	10.0	161.0011	150
161.0314	3	150.0	6.0	161.0012	30
161.0315	3	200.0	8.0	161.0013	70

Three square file

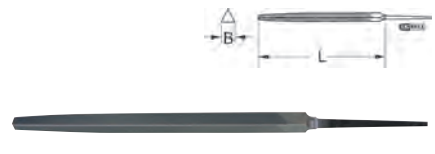
- DIN 7261 form C
- With two component handle
- With hanging hole
- Special steel



		L1 mm	L2 mm	B mm	File blade	g
157.0424	1	230.0	150.0	11.0	161.0424	170
157.0425	1	320.0	200.0	15.0	161.0425	240
157.0426	1	370.0	250.0	17.5	161.0426	380
157.0427	1	420.0	300.0	20.0	161.0427	520
157.0404	2	230.0	150.0	11.0	161.0404	170
157.0405	2	320.0	200.0	15.0	161.0405	240
157.0406	2	370.0	250.0	17.5	161.0406	380
157.0407	2	420.0	300.0	20.0	161.0407	520
157.0414	3	230.0	150.0	11.0	161.0414	170
157.0415	3	320.0	200.0	15.0	161.0415	240
157.0416	3	370.0	250.0	17.5	161.0416	200

Three square file insert

- DIN 7261 form C
- Special steel



		L mm	B mm		g
161.0424	1	150.0	11.0	161.0012	70
161.0425	1	200.0	15.0	161.0013	140
161.0426	1	250.0	17.5	161.0011	280
161.0427	1	300.0	20.0	161.0011	420
161.0405	2	200.0	15.0	161.0013	140
161.0406	2	250.0	17.5	161.0010	300
161.0407	2	300.0	20.0	161.0011	420
161.0414	3	150.0	11.0	161.0012	70
161.0415	3	200.0	15.0	161.0013	140
161.0416	3	250.0	17.5	161.0010	300

File handle

- For rectangle and round reception
- With two component handle
- With hanging hole

		D mm	L mm	g
161.0010	▭	39.0	120.0	80
161.0011	◯	39.0	120.0	80
161.0012	◯	28.0	80.0	40
161.0013	◯	35.0	106.0	70

Workshop file set, 5 pcs

- DIN 7261 form B, C, D, E, F
- Second cut
- 200 mm long
- With two component handle
- With hanging hole
- Special steel

Includes one flat, halfround, round, square and triangular file with a length of 200 mm and second cut

			g
140.3000	5 pcs	Workshop file set, 5 pcs	900
1 x		200 mm	
1 x		200 mm	
1 x		200 mm	
1 x		200 mm	
1 x		200 mm	

THREAD FILES

Thread file, metric

- For the restoration of defective internal and external threads
- Suitable for right and left handed threads
- Two sided serviceable
- Special steel

Suitable for thread pitch: 0.8 - 3.0 mm

	L mm	g
150.1340	230.0	130

Thread file, imperial

- For the restoration of defective internal and external threads
- Suitable for right and left handed threads
- Two sided serviceable
- Special steel

Suitable for thread pitch: 24 - 10 pitch imperial

	L mm	g
150.1345	230.0	130