



# TAPER AND DEBURRING COUNTERSINKERS

FASCINATION  PRECISION®

# Range and applications overview:













Material	Surface	DIN	Shape	Countersink angle	Cutting edges	Shank	Ø mm	Article no.	Miscellaneous	Page
HSS		DIN 335	C	90°			6,3 - 31,0 mm	102 767 - 102 785		112 - 115
HSS	RUNa TEC	DIN 335	C	90°			6,3 - 31,0 mm	102 767 P - 102 785 P		112 - 115
HSSE Co 5		DIN 335	C	90°			6,3 - 31,0 mm	102 767 E - 102 785 E		112 - 115
HSSE Co 5	RUNa TEC	DIN 335	C	90°			6,3 - 31,0 mm	102 767 EP - 102 785 EP		112 - 115
HSS		DIN 335	C	90°			4,3 - 40,0 mm	102 101 - 102 174		116 - 118
HSS		DIN 335	C	90°			6,3 - 31,0 mm	102 107 A - 102 125 A		116 - 118
HSSE Co 5		DIN 335	C	90°			4,3 - 31,0 mm	102 101 E - 102 125 E		116 - 118
HSS	TiN	DIN 335	C	90°			4,3 - 40,0 mm	102 101 T - 102 174 T		116 - 118
HSS	TiAlN	DIN 335	C	90°			4,3 - 40,0 mm	102 101 F - 102 174 F		116 - 118
TC		DIN 335	C	90°			6,3 - 31,0 mm	102 261 - 102 268		116 - 118
ASP		DIN 335	C	90°			6,3 - 31,0 mm	102 107 ASP - 102 125 ASP		119
HSS		DIN 335	C	90°			6,3 - 25,0 mm	102 271 - 102 288		120
HSS		DIN 335	D	90°			15,0 - 80,0 mm	102 126 - 102 141		121
HSS		DIN 335	C	82°			1/4" - 1"	102 182 - 102 191	<b>Inch</b>	122
HSS		DIN 334	C	60°			6,3 - 25,0 mm	102 201 - 102 207		123
HSS		DIN 334	D	60°			16,0 - 80,0 mm	102 208 - 102 215		123
HSS			C	75°			6,3 - 25,0 mm	102 221 - 102 227		124
HSS			D	75°			16,5 - 40,0 mm	102 228 - 102 232		124



# Range and applications overview:



Material	Surface	DIN	Shape	Countersink angle	Cutting edges	Shank	Ø mm	Article no.	Miscellaneous	Page
HSS			C	120°			6,3 - 25,0 mm	102 241 - 102 247		125
HSS			D	120°			16,5 - 40,0 mm	102 248 - 102 252		125
HSS			C	90°			6,0 - 50,0 mm	102 521 - 102 530		126
HSS							2/5 - 20/25	102 301 - 102 305		127
HSSE Co 5							1/4 - 20/25	102 300 E - 102 305 E		127
HSS	TiN						2/5 - 20/25	102 301 T - 102 305 T		127
HSS				90°			6,3 - 20,5 mm	W102 313 - W102 318		128
HSS	TiN			90°			6,3 - 20,5 mm	W102 313T - W102 318T		128
HSS				90°			6,3 - 20,5 mm	102 313 - 102 318		129
HSS	TiN			90°			6,3 - 20,5 mm	102 313T - 102 318T		129
HSS				180°			M3 - M12	102 401 - 102 421		130 - 131
HSS	TiN			180°			M3 - M12	102 401 T - 102 421 T		130 - 131
HSS				180°			M10 - M22	102 422 - 102 442		132
HSS		DIN 8374 DIN 8376 DIN 8378	N				M3 - M12	102 601 - 102 619	118°	134
HSS			N				M3 - M12	102 620 - 102 638	118°	135

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

# Technically perfected.

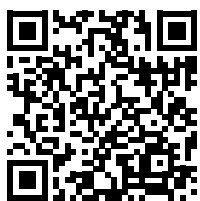
The new RUKO  
**ULTIMATECUT**®  
Countersink

- **Up to 30% time saving**
- **Twice as many countersink holes**
  - **Excellent, smooth countersink results**



# OUT NOW

Information  
and videos



**RUna  
TEC**

# ULTIMATECUT<sup>®</sup>

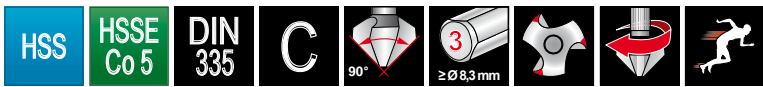


## **More precise. More powerful. Faster.**

The specially developed flute parameters, such as the angle, the transition radius as well as the extra-wide chip flute, ensures optimal chip and heat removal and therefore enables a high wear resistance. Furthermore, the new geometry prevents material welding and reduces the countersinking force.

The variably running relief grinding was specially developed and ensures a very quiet countersinking procedure and a perfect surface quality, which guarantees the best results. (The new RUnATEC coating increases the quality additionally)





## ULTIMATECUT Taper and deburring countersinker DIN 335 type C 90°

The **ULTIMATECUT** countersink is a high performance tool which stands for best performance: up to 30% time savings, twice as many countersinks as standard tools and excellent, smooth countersinking results in almost all materials.

The specially developed countersink from RUKO achieves this through its unique cutting edge geometry, with the specially developed variably running relief grinding, transition radius and the extra-wide chip flute.



Packing unit: in plastic tubes of 1

- achieves the best performance in almost all materials and applications
- considerably less feed force required
- up to 60% longer service life
- up to 30% faster countersinking
- extremely quiet running
- optimal and smooth surface
- perfect chip removal

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

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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	Countersinkings as per DIN 74	HSS	HSS RUna TEC	HSSE Co 5	HSSE Co 5 RUna TEC	
6,3	1,5	45,0	5,0	M 3	102 767	102 767 P	102 767 E	102 767 EP	1
8,3	2,0	50,0	6,0	M 4	102 771	102 771 P	102 771 E	102 771 EP	1
10,4	2,5	50,0	6,0	M 5	102 774	102 774 P	102 774 E	102 774 EP	1
12,4	2,8	56,0	8,0	M 6	102 776	102 776 P	102 776 E	102 776 EP	1
15,0	3,2	60,0	10,0	M 8	102 778	102 778 P	102 778 E	102 778 EP	1
16,5	3,2	60,0	10,0	M 8	102 779	102 779 P	102 779 E	102 779 EP	1
19,0	3,5	63,0	10,0	M 10	102 780	102 780 P	102 780 E	102 780 EP	1
20,5	3,5	63,0	10,0	M 10	102 781	102 781 P	102 781 E	102 781 EP	1
23,0	3,8	67,0	10,0	M 12	102 782	102 782 P	102 782 E	102 782 EP	1
25,0	3,8	67,0	10,0	M 12	102 783	102 783 P	102 783 E	102 783 EP	1
31,0	4,2	71,0	12,0	M 16	102 785	102 785 P	102 785 E	102 785 EP	1







## ULTIMATECUT Taper and deburring countersinker sets HSS DIN 335 type C 90° in plastic case

	HSS	HSS RUna TEC
6-piece set of <b>ULTIMATECUT</b> taper and deburring countersinkers HSS (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 790 RO	102 790 PRO
5-piece set of <b>ULTIMATECUT</b> taper and deburring countersinkers HSS (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 791 RO	102 791 PRO



## ULTIMATECUT Taper and deburring countersinker sets HSSE-Co 5 DIN 335 type C 90° in plastic case

	HSSE Co 5	HSSE Co 5 RUna TEC
6-piece set of <b>ULTIMATECUT</b> taper and deburring countersinkers HSSE-Co 5 (DIN 335) type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 790 ERO	102 790 EPRO
5-piece set of <b>ULTIMATECUT</b> taper and deburring countersinkers HSSE-Co 5 (DIN 335) type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 791 ERO	102 791 EPRO

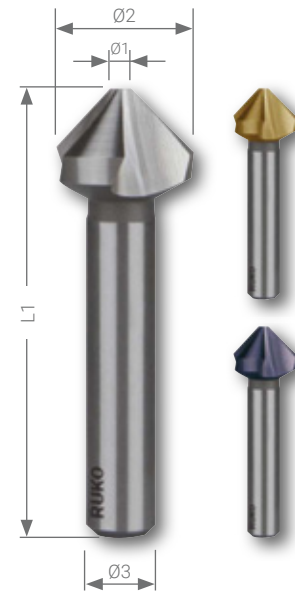




## Taper and deburring countersinkers DIN 335 type C 90°

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

Packing unit: in plastic tubes of 1



To increase the service life - reduce speed!  
Cooling while countersinking!

Steel (N/mm2) < 900	■	□	■	■	■	■
Steel (N/mm2) < 1100			■	□	■	■
Steel (N/mm2) < 1300						■
Rust-resistant steel			■	□	■	■
Aluminium	■	■	■		■	■

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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	Countersinkings as per DIN 74									
				AF	BF								
4,3	1,3	40,0	4,0			102 101	—	102 101 E	102 101 T	102 101 F	—	1	
4,8	1,5	40,0	4,0			102 102	—	—	102 102 T	102 102 F	—	1	
5,0	1,5	40,0	4,0	M 2,5		102 103	—	102 103 E	102 103 T	102 103 F	—	1	
5,3	1,5	40,0	4,0			102 104	—	102 104 E	102 104 T	102 104 F	—	1	
5,8	1,5	45,0	5,0			102 105	—	—	102 105 T	102 105 F	—	1	
6,0	1,5	45,0	5,0	M 3		102 106	—	102 106 E	102 106 T	102 106 F	—	1	
6,3	1,5	45,0	5,0		M 3	102 107	102 107 A	102 107 E	102 107 T	102 107 F	102 261	1	
7,0	1,8	50,0	6,0	M 3,5		102 108	—	—	102 108 T	102 108 F	—	1	
7,3	1,8	50,0	6,0			102 109	—	—	102 109 T	102 109 F	—	1	
8,0	2,0	50,0	6,0	M 4		102 110	—	102 110 E	102 110 T	102 110 F	—	1	
8,3	2,0	50,0	6,0		M 4	102 111	102 111 A	102 111 E	102 111 T	102 111 F	102 262	1	
9,4	2,2	50,0	6,0			102 112	—	—	102 112 T	102 112 F	—	1	
10,0	2,5	50,0	6,0	M 5		102 113	—	102 113 E	102 113 T	102 113 F	—	1	
10,4	2,5	50,0	6,0		M 5	102 114	102 114 A	102 114 E	102 114 T	102 114 F	102 263	1	
11,5	2,8	56,0	8,0	M 6		102 115	—	102 115 E	102 115 T	102 115 F	—	1	
12,4	2,8	56,0	8,0		M 6	102 116	102 116 A	102 116 E	102 116 T	102 116 F	102 264	1	
13,4	2,9	56,0	8,0			102 117	—	—	102 117 T	102 117 F	—	1	
15,0	3,2	60,0	10,0	M 8		102 118	—	102 118 E	102 118 T	102 118 F	—	1	
16,5	3,2	60,0	8,0		M 8	102 119	102 119 A	102 119 E	102 119 T	102 119 F	—	1	
16,5	3,2	60,0	10,0		M 8	102 119-1	102 119-1 A	102 119-1 E	102 119-1 T	102 119-1 F	102 265	1	
19,0	3,5	63,0	10,0	M 10		102 120	—	102 120 E	102 120 T	102 120 F	—	1	
20,5	3,5	63,0	10,0		M 10	102 121	102 121 A	102 121 E	102 121 T	102 121 F	102 266	1	
23,0	3,8	67,0	10,0	M 12		102 122	—	102 122 E	102 122 T	102 122 F	—	1	
25,0	3,8	67,0	10,0		M 12	102 123	102 123 A	102 123 E	102 123 T	102 123 F	102 267	1	
26,0	3,9	71,0	12,0	M 14		102 171	—	—	102 171 T	102 171 F	—	1	
28,0	4,0	71,0	12,0		M 14	102 124	—	102 124 E	102 124 T	102 124 F	—	1	
30,0	4,1	71,0	12,0	M 16		102 172	—	—	102 172 T	102 172 F	—	1	
31,0	4,2	71,0	12,0		M 16	102 125	102 125 A	102 125 E	102 125 T	102 125 F	102 268	1	
37,0	4,8	90,0	12,0			102 173	—	—	102 173 T	102 173 F	—	1	
40,0	10,0	80,0	15,0			102 174	—	—	102 174 T	102 174 F	—	1	



## Taper and deburring countersinker sets DIN 335 type C 90° HSS, HSSE-Co 5 and tungsten carbide K 20 in steel case

	HSS	HSS	HSSE Co 5	HSS	HSS	TC
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm)	102 154	102 154 A	102 154 E	102 154 T	102 154 F	—
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm (Ø 16,5 mm = shank-Ø 10,0 mm)	102 152	102 152 A	102 152 E	102 152 T	102 152 F	102 152 HM



## Taper and deburring countersinker sets DIN 335 type C 90° HSS in wooden case

	HSS
17-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 4,3 - 5,0 - 6,0 - 6,3 - 7,0 - 8,0 - 8,3 - 10,0 - 10,4 - 11,5 - 12,4 - 15,0 - 16,5 - 19,0 - 20,5 - 23,0 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm) in wooden case	102 155

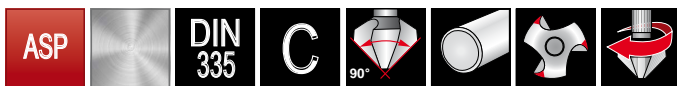




## Taper and deburring countersinker sets DIN 335 type C 90° HSS, HSSE-Co 5 and tungsten carbide K 20 in plastic case

	HSS	HSS	HSSE Co 5	HSS	HSS	TC
5-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm)	102 154 RO	–	102 154 ERO	102 154 TRO	102 154 FRO	–
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm (Ø 16,5 mm = shank-Ø 10,0 mm)	102 152 RO	–	102 152 ERO	102 152 TRO	102 152 FRO	102 152 HMRO
17-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 4,3 - 5,0 - 6,0 - 6,3 - 7,0 - 8,0 - 8,3 - 10,0 - 10,4 - 11,5 - 12,4 - 15,0 - 16,5 - 19,0 - 20,5 - 23,0 - 25,0 mm (Ø 16,5 mm = shank-Ø 10,0 mm)	102 155 RO	–	–	–	–	–
6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm (Ø 16,5 mm = shank-Ø 8,0 mm) + 1x cutting paste, 50 g	102 142	102 142 A	102 142 E	102 142 T	–	–





## Taper and deburring countersinkers DIN 335 type C 90° ASP

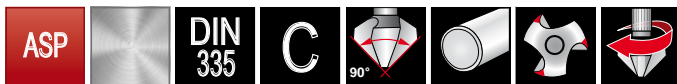
The taper and deburring countersinker DIN 335 form C 90° ASP is made of powder-metallurgical metal and thus has a higher cutting edge stability. Best results in VA steels, Hardox 400 steels, titanium and titanium alloys.

Packing unit: in plastic tubes of 1



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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	Countersinkings as per DIN 74 / BF	ASP		
6,3	1,5	45,0	5,0	M 3	102 107 ASP		1
8,3	2,0	50,0	6,0	M 4	102 111 ASP		1
10,4	2,5	50,0	6,0	M 5	102 114 ASP		1
12,4	2,8	56,0	8,0	M 6	102 116 ASP		1
16,5	3,2	60,0	10,0	M 8	102 119-1 ASP		1
20,5	3,5	63,0	10,0	M 10	102 121 ASP		1
25,0	3,8	67,0	10,0	M 12	102 123 ASP		1
31,0	4,2	71,0	12,0	M 16	102 125 ASP		1



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

	ASP
6-piece set of taper and deburring countersinkers DIN 335 type C 90° ASP Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 152 ASP
5-piece set of taper and deburring countersinkers DIN 335 type C 90° ASP Ø 6,3 - 10,4 - 16,5 - 20,5 - 25,0 mm	102 154 ASP



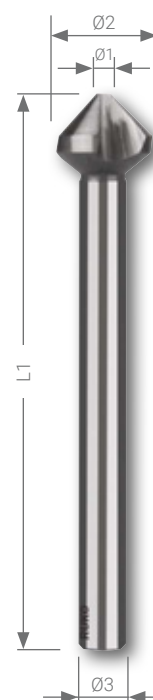


## Taper and deburring countersinkers DIN 335 type C 90° HSS, with long cylindrical shank

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

Packing unit: in plastic tubes of 1

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



Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	Countersinkings as per DIN 74			
				AF	BF		
6,3	1,5	85,0	5,0	-	M 3	102 271	1
8,3	2,0	85,0	6,0	-	M 4	102 272	1
10,4	2,5	88,0	6,0	-	M 5	102 273	1
12,4	2,8	108,0	8,0	-	M 6	102 274	1
15,0	3,2	110,0	10,0	M 8	-	102 275	1
16,5	3,2	112,0	10,0	-	M 8	102 276	1
20,5	3,5	115,0	10,0	-	M 10	102 277	1
25,0	3,8	118,0	10,0	-	M 12	102 278	1

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	Countersinkings as per DIN 74			
				AF	BF		
6,3	1,5	154,0	5,0	-	M 3	102 281	1
8,3	2,0	155,0	6,0	-	M 4	102 282	1
10,4	2,5	157,0	6,0	-	M 5	102 283	1
12,4	2,8	158,0	8,0	-	M 6	102 284	1
15,0	3,2	158,0	10,0	M 8	-	102 285	1
16,5	3,2	161,0	10,0	-	M 8	102 286	1
20,5	3,5	164,0	10,0	-	M 10	102 287	1
25,0	3,8	164,0	10,0	-	M 12	102 288	1



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

6-piece set of taper and deburring countersinkers DIN 335 type C 90° Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm	102 158 RO

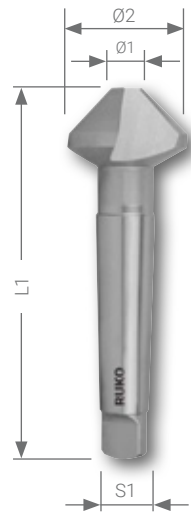




## Taper and deburring countersinkers DIN 335 type D 90° HSS

Packing unit: in plastic tubes of 1

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



Ø2 mm	Ø1 mm	L1 mm	Shank S1	Senkungen nach DIN 74		HSS	
				AF	BF		
15,0	3,2	85,0	MT 1	M 8	-	102 126	1
16,5	3,2	85,0	MT 1	-	M 8	102 127	1
19,0	3,5	100,0	MT 2	M 10	-	102 128	1
20,5	3,5	100,0	MT 2	-	M 10	102 129	1
23,0	3,8	106,0	MT 2	M 12	-	102 130	1
25,0	3,8	106,0	MT 2	-	M 12	102 131	1
26,0	3,8	106,0	MT 2	M 14	-	102 132	1
28,0	4,0	112,0	MT 2	-	M 14	102 133	1
30,0	4,2	112,0	MT 2	M 16	-	102 134	1
31,0	4,2	112,0	MT 2	-	M 16	102 135	1
34,0	4,5	118,0	MT 2	M 18	M 18	102 136	1
37,0	4,8	118,0	MT 2	M 20	M 20	102 137	1
40,0	10,0	140,0	MT 3	-	-	102 138	1
50,0	14,0	150,0	MT 3	-	-	102 139	1
63,0	16,0	180,0	MT 4	-	-	102 140	1
80,0	22,0	190,0	MT 4	-	-	102 141	1



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

Packing unit: in plastic tubes of 1

	HSS	
Hand deburrer with countersinker Ø 12,4 mm	102 143	1
Hand deburrer with countersinker Ø 15,0 mm	102 144	1
Hand deburrer with countersinker Ø 16,5 mm	102 145	1
Hand deburrer with countersinker Ø 20,5 mm	102 146	1
Hand deburrer with countersinker Ø 25,0 mm	102 147	1

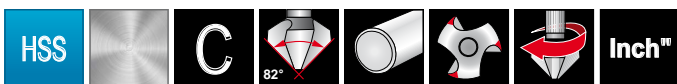


## Universal handle to fit countersinkers

Packing unit: in plastic tubes of 1

	HSS	
Universal handle for countersinker with 8,0 mm shank Ø	102 148	1
Universal handle for countersinker with 10,0 mm shank Ø	102 149	1
Universal handle for countersinker with 1/4" hexagon socket	102 320	1



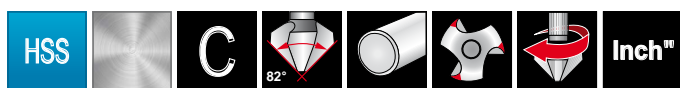


## Taper and deburring countersinkers type C 82° HSS, inch size

Packing unit: in plastic tubes of 1

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

Ø2		Ø1		Ø3		L1		HSS		
inch	mm	inch	inch	inch	mm	inch	mm			
1/4	6,4	3/64	3/16	5,0	1 3/4	45,0	102 182	1		
5/16	7,9	4/64	1/4	6,0	2"	50,0	102 183	1		
3/8	9,5	5/64	1/4	6,0	2"	50,0	102 184	1		
1/2	12,7	6/64	5/16	8,0	2 3/16	56,0	102 186	1		
5/8	15,9	7/64	3/8	10,0	2 3/8	60,0	102 188	1		
3/4	19,1	8/64	3/8	10,0	2 1/2	63,0	102 189	1		
7/8	22,2	9/64	3/8	10,0	2 5/8	67,0	102 190	1		
1	25,4	9/64	3/8	10,0	2 5/8	76,0	102 191	1		



## Taper and deburring countersinker set type C 82° HSS, inch size, in plastic case

5-piece set of taper and deburring countersinkers type C 82° HSS Ø 1/4 - 3/8 - 1/2 - 3/4 - 1 inch	102 193 RO



## i

### Coolants and lubricants

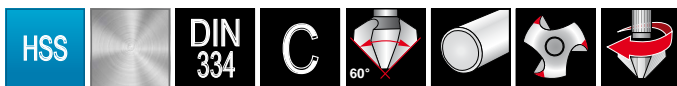
RUKO high performance coolants and lubricants with outstanding cooling and anti-separation qualities. Increases tool life even with hard and brittle materials. High heat resistance ensures good lubrication and cooling, even at high temperatures. Good adhesion quality improves lubrication.

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

Perfectly matched for use with RUKO metal working tools.  
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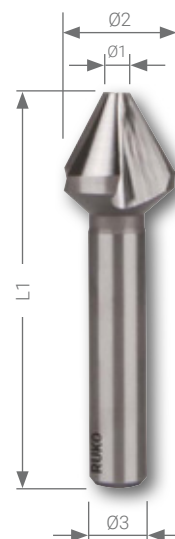


## Taper and deburring countersinkers DIN 334 type C 60° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	HSS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6,3	1,6	45,0	5,0	102 201	1	
8,0	2,0	50,0	6,0	102 202	1	
10,0	2,5	50,0	6,0	102 203	1	
12,5	3,2	56,0	8,0	102 204	1	
16,0	4,0	63,0	10,0	102 205	1	
20,0	5,0	67,0	10,0	102 206	1	
25,0	6,3	71,0	10,0	102 207	1	

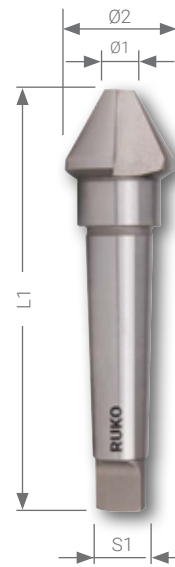


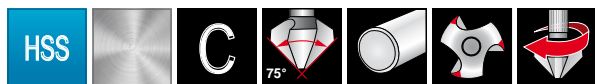
## Taper and deburring countersinkers DIN 334 type D 60° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Shank S1	HSS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
16,0	4,0	90,0	MT 1	102 208	1	
20,0	5,0	106,0	MT 2	102 209	1	
25,0	6,3	112,0	MT 2	102 210	1	
31,5	10,0	118,0	MT 2	102 211	1	
40,0	12,5	150,0	MT 3	102 212	1	
50,0	16,0	160,0	MT 3	102 213	1	
63,0	20,0	190,0	MT 4	102 214	1	
80,0	25,0	200,0	MT 4	102 215	1	



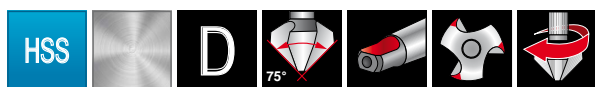
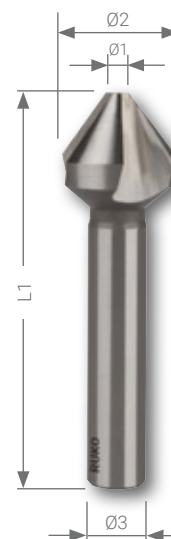


## Taper and deburring countersinkers type C 75° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	HSS		
6,3	1,6	45,0	5,0	102 221		1
8,3	2,0	50,0	6,0	102 222		1
10,4	2,5	50,0	6,0	102 223		1
12,4	3,2	56,0	8,0	102 224		1
16,5	4,0	63,0	10,0	102 225		1
20,5	5,0	67,0	10,0	102 226		1
25,0	6,3	71,0	10,0	102 227		1

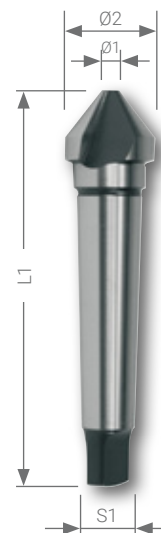


## Taper and deburring countersinkers type D 75° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Shank S1	HSS		
16,5	3,5	87,0	MT 1	102 228		1
20,5	4,5	102,0	MT 2	102 229		1
25,0	5,0	109,0	MT 2	102 230		1
31,0	5,0	116,0	MT 2	102 231		1
40,0	10,0	145,0	MT 3	102 232		1





## Taper and deburring countersinkers type C 120° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Ø3 mm	HSS		
6,3	1,5	45,0	5,0	102 241		1
8,3	2,0	50,0	6,0	102 242		1
10,4	2,5	50,0	6,0	102 243		1
12,4	3,0	56,0	8,0	102 244		1
16,5	3,5	63,0	10,0	102 245		1
20,5	4,0	67,0	10,0	102 246		1
25,0	5,0	71,0	10,0	102 247		1



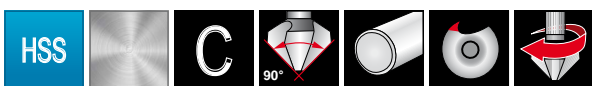
## Taper and deburring countersinkers type D 120° HSS

Packing unit: in plastic tubes of 1

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

Ø2 mm	Ø1 mm	L1 mm	Shank S1	HSS		
16,5	3,5	87,0	MT 1	102 248		1
20,5	4,5	102,0	MT 2	102 249		1
25,0	5,0	109,0	MT 2	102 250		1
31,0	5,0	116,0	MT 2	102 251		1
40,0	10,0	145,0	MT 3	102 252		1





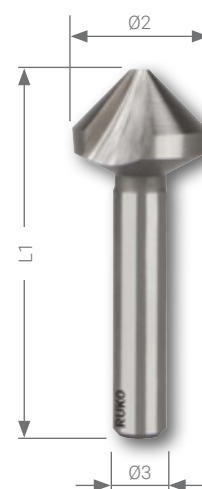
## Taper and deburring countersinkers type C 90° HSS

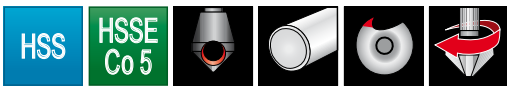
Only countersinking and deburring possible.  
Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1

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

Ø2 mm	L1 mm	Ø3 mm	HSS		
6,0	45,0	5,0	102 521		1
8,0	50,0	6,0	102 522		1
10,0	50,0	6,0	102 523		1
12,0	56,0	8,0	102 524		1
16,0	60,0	10,0	102 525		1
20,0	63,0	10,0	102 526		1
25,0	67,0	10,0	102 527		1
30,0	71,0	12,0	102 528		1
40,0	89,0	15,0	102 529		1
50,0	98,0	15,0	102 530		1

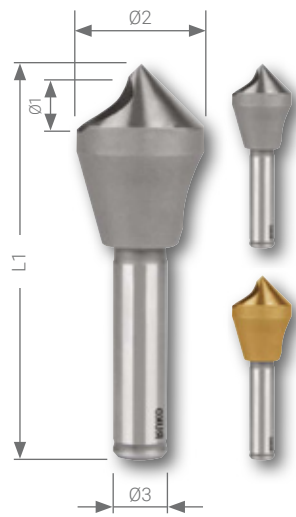




## Slotted taper and deburring countersinkers 90° HSS, HSSE-Co 5 and HSS-TiN

Peeling cut. Chip removal through the slot prevents chips from clogging the workpiece. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds. Countersink with a blade not recommended for full countersinking.

Packing unit: in plastic tubes of 1



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

Size no.	Ø1 mm	Ø2 mm	Ø3 mm	L1 mm				
1/4	1,0 - 4,0	6,35	6,35	45,0	—	102 300 E	—	1
2/5	2,0 - 5,0	10,00	6,00	45,0	102 301	102 301 E	102 301 T	1
5/10	5,0 - 10,0	14,00	8,00	48,0	102 302	102 302 E	102 302 T	1
10/15	10,0 - 15,0	21,00	10,00	65,0	102 303	102 303 E	102 303 T	1
15/20	15,0 - 20,0	28,00	12,00	85,0	102 304	102 304 E	102 304 T	1
20/25	20,0 - 25,0	35,00	12,00	102,0	102 305	102 305 E	102 305 T	1

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

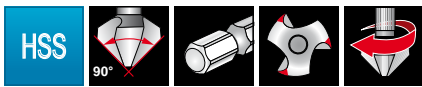
6-piece set of slotted taper and deburring countersinkers 90° in polystyrene case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 cutting paste, 50 g	—	102 310 E	—
5-piece set of slotted taper and deburring countersinkers 90° in steel case nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20 + 1 cutting paste, 30 g	102 312	102 312 E	102 312 T



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

4-piece set of slotted taper and deburring countersinkers 90° nominal Ø mm: 2/5 - 5/10 - 10/15 - 15/20	102 312 RO	102 312 ERO	102 312 TRO

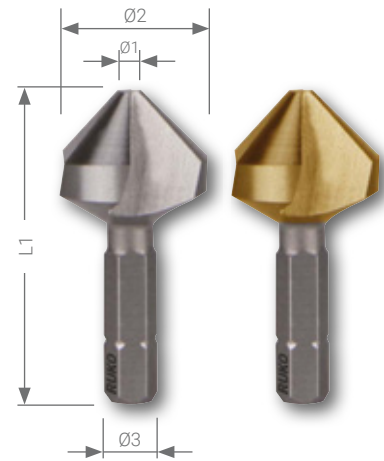




## Taper and deburring countersinker bits 90° "short series" HSS / HSS-TiN with 1/4" hexagonal shank

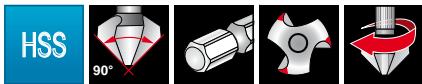
Rapid tool-changing thanks to hexagonal bit holder. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1



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

Ø2 mm	Ø1 mm	L1 mm	Ø3 inch	Countersinkings as per DIN 74				
				AF	BF			
6,3	1,5	31,0	1/4"	-	M 3	W 102 313	W 102 313T	1
8,3	2,0	31,0	1/4"	-	M 4	W 102 314	W 102 314T	1
10,4	2,5	34,0	1/4"	-	M 5	W 102 315	W 102 315T	1
12,4	2,8	35,0	1/4"	-	M 6	W 102 316	W 102 316T	1
16,5	3,2	40,0	1/4"	-	M 8	W 102 317	W 102 317T	1
20,5	3,5	41,0	1/4"	-	M 10	W 102 318	W 102 318T	1



## Taper and deburring countersinker bits 90° "short series" HSS / HSS-TiN with 1/4" hexagonal shank in steel case

7-piece set of taper and deburring countersinker bits 90° 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with 1/4" hexagon socket	W102 319	W102 319 T

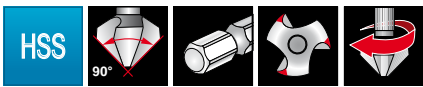


## Magnetic bit holder for 1/4" hexagonal shank tools

Packing unit: in plastic tubes of 1

Magnetic bit holder	270 013	1

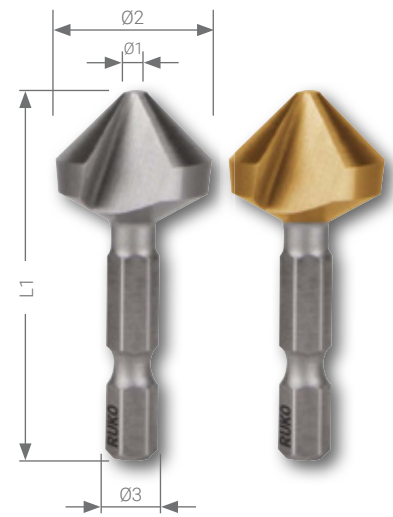




## Taper and deburring countersinker bits 90° "long series" HSS / HSS-TiN with 1/4" hexagonal shank

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

Packing unit: in plastic tubes of 1



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

Ø2 mm	Ø1 mm	L1 mm	Ø3 inch	Countersinkings as per DIN 74				
				AF	BF			
6,3	1,5	38,0	1/4"	-	M 3	102 313	102 313 T	1
8,3	2,0	38,0	1/4"	-	M 4	102 314	102 314 T	1
10,4	2,5	41,0	1/4"	-	M 5	102 315	102 315 T	1
12,4	2,8	42,0	1/4"	-	M 6	102 316	102 316 T	1
16,5	3,2	47,0	1/4"	-	M 8	102 317	102 317 T	1
20,5	3,5	48,0	1/4"	-	M 10	102 318	102 318 T	1



## Taper and deburring countersinker bits 90° "long series" HSS / HSS-TiN with 1/4" hexagonal shank in steel case

7-piece set of taper and deburring countersinker bits 90° 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with 1/4" hexagon socket	102 319	102 319 T



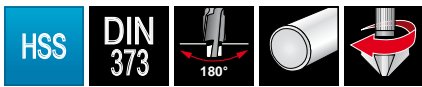
102 319

## Taper and deburring countersinker bits 90° "long series" HSS / HSS-TiN with 1/4" hexagonal shank in plastic case

8-piece set of taper and deburring countersinker bits 90° 6 taper and deburring countersinker bits Ø 6,3 - 8,3 - 10,4 - 12,4 - 16,5 - 20,5 mm + 1 universal handle with 1/4" hexagon socket + 1 cutting paste, 30 g	102 319 RO	102 319 TRO



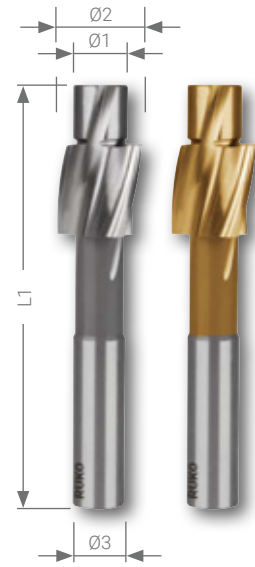
102 319 TRO



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

For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws. Ideal for burr- and chatter-free deburring and countersinking. Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1



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

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

## Fine grade for through hole

For thread	Ø2 mm	Ø1 mm	Ø3 mm	L1 mm			
M 3	6,0	3,2	5,0	71,0	102 401	102 401 T	1
M 4	8,0	4,3	5,0	71,0	102 402	102 402 T	1
M 5	10,0	5,3	8,0	80,0	102 403	102 403 T	1
M 6	11,0	6,4	8,0	80,0	102 404	102 404 T	1
M 8	15,0	8,4	12,5	100,0	102 405	102 405 T	1
M 10	18,0	10,5	12,5	100,0	102 406	102 406 T	1
M 12	20,0	13,0	12,5	100,0	102 407	102 407 T	1

## Medium grade for through hole

For thread	Ø2 mm	Ø1 mm	Ø3 mm	L1 mm			
M 3	6,0	3,4	5,0	71,0	102 408	102 408 T	1
M 4	8,0	4,5	5,0	71,0	102 409	102 409 T	1
M 5	10,0	5,5	8,0	80,0	102 410	102 410 T	1
M 6	11,0	6,6	8,0	80,0	102 411	102 411 T	1
M 8	15,0	9,0	12,5	100,0	102 412	102 412 T	1
M 10	18,0	11,0	12,5	100,0	102 413	102 413 T	1
M 12	20,0	13,5	12,5	100,0	102 414	102 414 T	1




## For thread core hole

For thread	Ø2 mm	Ø1 mm	Ø3 mm	L1 mm			
M 3	6,0	2,5	5,0	71,0	102 415	102 415 T	1
M 4	8,0	3,3	5,0	71,0	102 416	102 416 T	1
M 5	10,0	4,2	8,0	80,0	102 417	102 417 T	1
M 6	11,0	5,0	8,0	80,0	102 418	102 418 T	1
M 8	15,0	6,8	12,5	100,0	102 419	102 419 T	1
M 10	18,0	8,5	12,5	100,0	102 420	102 420 T	1
M 12	20,0	10,2	12,5	100,0	102 421	102 421 T	1








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

	HSS 	HSS  
6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 450	102 450 T
6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 451	102 451 T
6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 452	102 452 T



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

	HSS 	HSS  
6-piece set of flat countersinkers for through holes, fine grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 450 RO	102 450 TRO
6-piece set of flat countersinkers for through holes, medium grade, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 451 RO	102 451 TRO
6-piece set of flat countersinkers for core holes, for threads: M 3 - M 4 - M 5 - M 6 - M 8 - M 10	102 452 RO	102 452 TRO





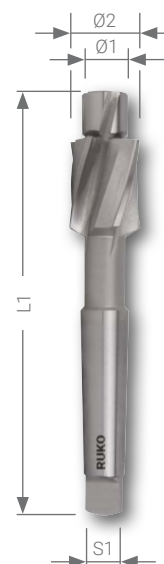
## Flat countersinkers HSS with fixed guide

For producing countersinkings for cylinderhead screws, thread-cutting screws and thread-furrowing screws. Ideal for burr- and chatter-free deburring and countersinking.

Applicable for steel, cast iron, non-ferrous and light metals. Best results at low cutting speeds.

Packing unit: in plastic tubes of 1

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



## Fine grade for through hole

For thread	Ø2 mm	Ø1 mm	Shank S1	L1 mm			
M 10	18,0	10,5	MT 2	150,0	102 422		1
M 12	20,0	13,0	MT 2	150,0	102 423		1
M 14	24,0	15,0	MT 2	160,0	102 424		1
M 16	26,0	17,0	MT 3	190,0	102 425		1
M 18	30,0	19,0	MT 3	190,0	102 426		1
M 20	33,0	21,0	MT 3	190,0	102 427		1
M 22	36,0	23,0	MT 3	205,0	102 428		1

## Medium grade for through hole

For thread	Ø2 mm	Ø1 mm	Shank S1	L1 mm			
M 10	18,0	11,0	MT 2	150,0	102 429		1
M 12	20,0	13,5	MT 2	150,0	102 430		1
M 14	24,0	15,5	MT 2	160,0	102 431		1
M 16	26,0	17,5	MT 3	190,0	102 432		1
M 18	30,0	20,0	MT 3	190,0	102 433		1
M 20	33,0	22,0	MT 3	190,0	102 434		1
M 22	36,0	24,0	MT 3	205,0	102 435		1

## For thread core hole

For thread	Ø2 mm	Ø1 mm	Shank S1	L1 mm			
M 10	18,0	8,5	MT 2	150,0	102 436		1
M 12	20,0	10,2	MT 2	150,0	102 437		1
M 14	24,0	12,0	MT 2	160,0	102 438		1
M 16	26,0	14,0	MT 3	190,0	102 439		1
M 18	30,0	15,5	MT 3	190,0	102 440		1
M 20	33,0	17,5	MT 3	190,0	102 441		1
M 22	36,0	19,5	MT 3	205,0	102 442		1



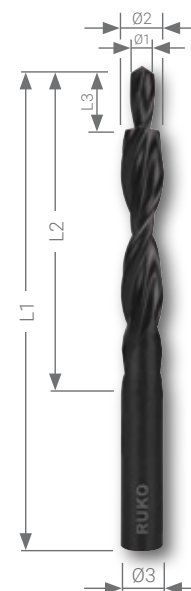


## Subland drills long type N HSS

Enables drilling and sinking combined in one step. Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit: in plastic tubes of 1

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



## 90° fine grade for through hole

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

For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	3,2	6,0	9,0	57,0	93,0	102 601	1	
M 4	4,3	8,0	11,0	75,0	117,0	102 602	1	
M 5	5,3	10,0	13,0	87,0	133,0	102 603	1	
M 6	6,4	11,5	15,0	94,0	142,0	102 604	1	
M 8	8,4	15,0	19,0	114,0	169,0	102 605	1	
M 10	10,5	19,0	23,0	135,0	198,0	102 606	1	



## 180° medium grade for through hole

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

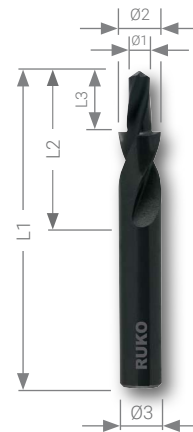
For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	3,4	6,0	9,0	57,0	93,0	102 607	1	
M 4	4,5	8,0	11,0	75,0	117,0	102 608	1	
M 5	5,5	10,0	13,0	87,0	133,0	102 609	1	
M 6	6,6	11,0	15,0	94,0	142,0	102 610	1	
M 8	9,0	15,0	19,0	114,0	169,0	102 611	1	
M 10	11,0	18,0	23,0	130,0	191,0	102 612	1	



## 90° for thread core hole

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

For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	2,5	3,4	8,8	39,0	70,0	102 613	1	
M 4	3,3	4,5	11,4	47,0	80,0	102 614	1	
M 5	4,2	5,5	13,6	57,0	93,0	102 615	1	
M 6	5,0	6,6	16,5	63,0	101,0	102 616	1	
M 8	6,8	9,0	21,0	81,0	125,0	102 617	1	
M 10	8,5	11,0	25,5	94,0	142,0	102 618	1	
M 12	10,2	13,5	30,0	108,0	160,0	102 619	1	

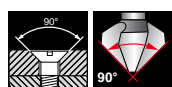


## Subland drills short type N HSS

Short and torsion stable drill, suitable for the use on CNC or NC machines. The drilling and countersinking is made in one step. Application: adjust the cutting speed according to the big diameter and the feed rate according to the small diameter.

Packing unit: in plastic tubes of 1

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



## 90° fine grade for through hole

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

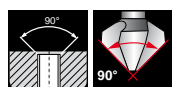
For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	3,2	6,0	9,0	28,0	66,0	102 620		1
M 4	4,3	8,0	11,0	37,0	79,0	102 621		1
M 5	5,3	10,0	13,0	43,0	89,0	102 622		1
M 6	6,4	11,5	15,0	47,0	95,0	102 623		1
M 8	8,4	15,0	19,0	56,0	111,0	102 624		1
M 10	10,5	19,0	23,0	64,0	127,0	102 625		1



## 180° medium grade for through hole

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

For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	3,4	6,0	9,0	28,0	66,0	102 626		1
M 4	4,5	8,0	11,0	37,0	79,0	102 627		1
M 5	5,5	10,0	13,0	43,0	89,0	102 628		1
M 6	6,6	11,0	15,0	47,0	95,0	102 629		1
M 8	9,0	15,0	19,0	56,0	111,0	102 630		1
M 10	11,0	18,0	23,0	62,0	123,0	102 631		1



## 90° for thread core hole

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

For thread	Ø1 mm	Ø2 / Ø3 mm	L3 mm	L2 mm	L1 mm	HSS		
M 3	2,5	3,4	8,8	20,0	52,0	102 632		1
M 4	3,3	4,5	11,4	24,0	58,0	102 633		1
M 5	4,2	5,5	13,6	28,0	66,0	102 634		1
M 6	5,0	6,6	16,5	31,0	70,0	102 635		1
M 8	6,8	9,0	21,0	40,0	84,0	102 636		1
M 10	8,5	11,0	25,5	47,0	95,0	102 637		1
M 12	10,2	13,5	30,0	54,0	107,0	102 638		1

## Table of recommended cutting speeds for taper and deburring countersinkers

Material:	High carbon struc. steel up to 700 N/mm <sup>2</sup>	High carbon struc. steel up to 700 N/mm <sup>2</sup>	Alloyed steel up to 1000 N/mm <sup>2</sup>	Cast iron up to 250 N/mm <sup>2</sup>	Cast iron over 250 N/mm <sup>2</sup>	CuZn alloy brittle	CuZn alloy tough	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics
Vc = m/min	20	15	10	10	8	40	20	20	15	10
Cooling lubricant	Cutting spray	Cutting spray	Cutting spray	Compressed air	Compressed air	Compressed air	Compressed air	Cutting spray	Water	Compressed air
Ø mm	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.	r.p.m.
4,3	1481	1111	741	741	593	2963	1481	1481	1111	741
5,0	1274	955	637	637	510	2548	1274	1274	955	637
5,3	1202	901	601	601	481	2404	1202	1202	901	601
5,8	1098	824	549	549	439	2196	1098	1098	824	549
6,0	1062	796	531	531	425	2123	1062	1062	796	531
6,3	1011	758	506	506	404	2022	1011	1011	758	506
7,0	910	682	455	455	364	1820	910	910	682	455
7,3	873	654	436	436	349	1745	873	873	654	436
8,0	796	597	398	398	318	1592	796	796	597	398
8,3	767	576	384	384	307	1535	767	767	576	384
9,4	678	508	339	339	271	1355	678	678	508	339
10,0	637	478	318	318	255	1274	637	637	478	318
10,4	612	459	306	306	245	1225	612	612	459	306
11,5	554	415	277	277	222	1108	554	554	415	277
12,0	531	398	265	265	212	1062	531	531	398	265
12,4	514	385	257	257	205	1027	514	514	385	257
12,5	510	382	255	255	204	1019	510	510	382	255
13,4	475	356	238	238	190	951	475	475	356	238
15,0	425	318	212	212	170	849	425	425	318	212
16,0	398	299	199	199	159	796	398	398	299	199
16,5	386	290	193	193	154	772	386	386	290	193
19,0	335	251	168	168	134	670	335	335	251	168
20,0	318	239	159	159	127	637	318	318	239	159
20,5	311	233	155	155	124	621	311	311	233	155
23,0	277	208	138	138	111	554	277	277	208	138
25,0	255	191	127	127	102	510	255	255	191	127
26,0	245	184	122	122	98	490	245	245	184	122
28,0	227	171	114	114	91	455	227	227	171	114
30,0	212	159	106	106	85	425	212	212	159	106
31,0	205	154	103	103	82	411	205	205	154	103
31,5	202	152	101	101	81	404	202	202	152	101
34,0	187	141	94	94	75	375	187	187	141	94
37,0	172	129	86	86	69	344	172	172	129	86
40,0	159	119	80	80	64	318	159	159	119	80
50,0	127	96	64	64	51	255	127	127	96	64
63,0	101	76	51	51	40	202	101	101	76	51
80,0	80	60	40	40	32	159	80	80	60	40

## Countersinkings as per DIN 74 for countersunk screws as per DIN

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



# Table of recommended cutting speeds for Solid TC countersinkers

Material:	High carbon struc. steel up to 700 N/mm <sup>2</sup>	High carbon struc. steel up to 700 N/mm <sup>2</sup>	Alloyed steel up to 1200 N/mm <sup>2</sup>	Cast iron up to 250 N/mm <sup>2</sup>	Cast iron over 250 N/mm <sup>2</sup>	CuZn alloy brittle	CuZn alloy tough	Aluminium alloy up to 11% Si	Thermo-plastics	Duro-plastics										
Vc = m/min	15	12	8	12	10	25	15	20	20	10										
Ø mm	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f	r.p.m.	f
6,3	758	0,10	606	0,10	404	0,10	606	0,15	505	0,15	1263	0,13	758	0,13	1011	0,13	1011	0,13	505	0,13
8,3	575	0,15	460	0,15	307	0,15	460	0,20	384	0,20	959	0,16	575	0,16	767	0,16	767	0,18	384	0,18
10,4	459	0,15	367	0,15	245	0,15	367	0,20	306	0,20	765	0,16	459	0,16	612	0,16	612	0,20	306	0,20
12,4	385	0,20	308	0,20	205	0,20	308	0,25	257	0,25	642	0,20	385	0,20	513	0,20	513	0,20	257	0,20
16,5	289	0,20	231	0,20	154	0,20	231	0,25	193	0,25	482	0,22	289	0,22	386	0,22	386	0,25	193	0,25
20,5	233	0,25	186	0,25	124	0,25	186	0,30	155	0,30	388	0,25	233	0,25	311	0,25	311	0,25	155	0,25
25,0	191	0,30	153	0,30	102	0,30	153	0,30	127	0,30	318	0,25	191	0,25	255	0,25	255	0,30	127	0,30
31,0	154	0,35	123	0,35	82	0,35	123	0,35	103	0,35	257	0,30	154	0,30	205	0,30	205	0,35	103	0,35

f in mm/rev = feed per revolution

## Countersinkings as per DIN 74, Sheet 2

### Countersinkings, type H

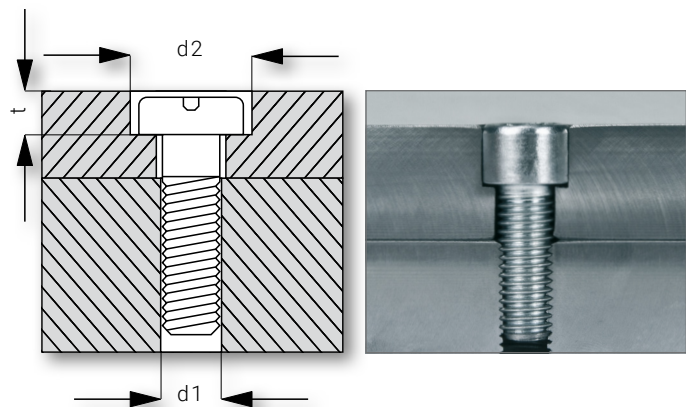
for cylinder-head screws as per DIN 84 and DIN 7984  
for thread-cutting screws as per DIN 7513, Type B  
for thread-furrowing screws as per DIN 7500, Type B

### Countersinkings, type J

for cylinder-head screws as per DIN 6912

### Countersinkings, type K

for cylinder-head screws as per DIN 912



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

### Type A for:

- countersunk screws as per DIN 963 and DIN 965,
- raised countersunk head screws as per DIN 964 and DIN 966,
- thread forming screws type F and G as per DIN 7513 and type D and E as per DIN 7516,
- countersunk tapping screws type K, L, M and N as per DIN 7500,
- wood screws as per DIN 97 and DIN 7997
- oval head wood screws as per DIN 95 DIN 7997

### Type B for:

countersunk screws with hexagon socket DIN 7991

