

Cutting Tools

STRAIGHT SHANK SHELL REAMER ARBOR

Size	Shank Dia.	Fits Shell Reamer	Model No.
#4	1/2"	21/32"-25/32"	331-2204
#5	5/8"	13/16"-1-1/32"	331-2205
#6	3/4"	1-1/16"-1-9/32"	331-2206
#7	7/8"	1-5/16"-1-5/8"	331-2207
#8	1-1/8"	1-11/16"-2"	331-2208
#9	1-3/8"	2-1/16"-2-1/2"	331-2209
#10	1-5/8"	2-9/16"-3"	331-2210
#11	2"	3-1/16"-3-1/2"	331-2211
#12	2-1/8"	3-9/16"-4"	331-2212



TAPER SHANK SHELL REAMER ARBOR

Morse			
Size	Taper	Fits Shell Reamer	Model No.
#4	MT2	21/32"-25/32"	331-2304
#5	MT2	13/16"-1-1/32"	331-2305
#6	MT3	1-1/16"-1-9/32"	331-2306
#7	MT3	1-5/16"-1-5/8"	331-2307
#8	MT4	1-11/16"-2"	331-2308
#9	MT4	2-1/16"-2-1/2"	331-2309
#10	MT5	2-9/16"-3"	331-2310
#11	MT5	3-1/16"-3-1/2"	331-2311
#12	MT5	3-9/16"-4"	331-2312



COUNTERSINKS & DEBURRING TOOL WITH HOLE

High Speed Steel



Sets

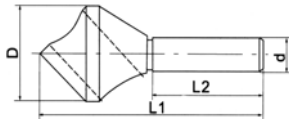
Description	Plastic Stand		Wooden stand Model No.
	Model No.	Model No.	
60; 5Pcs 1 each of: 1/16" to 9/16"	380-0811	380-0810	380-0810
82; 5Pcs 1 each of: 1/16" to 9/16"	380-1811	380-1810	380-1810
90; 5Pcs 1 each of: 1/16" to 9/16"	380-2811	380-2810	380-2810

Individual

Range	Shank		Description	60°	82°	90°
	Dia.	Description		Model No.	Model No.	Model No.
1/16 - 15/64	1/4"	0 double end	380-0815	380-1815	380-2815	
5/32 - 13/32	1/4"	1 single end	380-0816	380-1816	380-2816	
3/16 - 17/32	1/4"	2 single end	380-0817	380-1817	380-2817	
3/16 - 25/32	1/2"	3 single end	380-0818	380-1818	380-2818	
9/16 - 1-1/16	1/2"	4 single end	380-0819	380-1819	380-2819	
5/8 - 1-15/32	1/2"	5 single end	380-0822	380-1822	380-2822	
3/4 - 1-3/4	5/8"	6 single end	380-0823	380-1823	380-2823	
1 - 2	5/8"	7 single end	380-0824	380-1824	380-2824	
1-1/4 - 2-1/2	3/4"	8 single end	380-0825	380-1825	380-2825	

COUNTERSINKS & DEBURRING TOOL WITH HOLE

High Speed Steel



Sets

Description	Model No.
60; 4Pcs 1 each of 2/5 - 15/20	380-3402
82; 4Pcs 1 each of 2/5 - 15/20	380-3404
90; 4Pcs 1 each of 2/5 - 15/20	380-3406
60; 5Pcs 1 each of 1/4 - 15/20	380-3502
82; 5Pcs 1 each of 1/4 - 15/20	380-3604
90; 5Pcs 1 each of 1/4 - 15/20	380-3606
60; 5Pcs 1 each of 2/5 - 20/25	380-3602
82; 5Pcs 1 each of 2/5 - 20/25	380-3604
90; 5Pcs 1 each of 2/5 - 20/25	380-3606

Individual

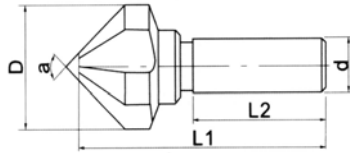
Range	Head Shank			60° Model No.	82° Model No.	90° Model No.
	Dia.	Dia.	Length			
1-4mm	6.35	6.35	45	380-3001	380-3101	380-3201
2-5mm	10	6	45	380-3002	380-3102	380-3202
5-10mm	14	8	48	380-3005	380-3105	380-3205
10-15mm	21	10	65	380-3010	380-3110	380-3210
15-20mm	28	12	85	380-3015	380-3115	380-3215
20-25mm	35	15	102	380-3020	380-3120	380-3220
25-30mm	44	15	115	380-3025	380-3125	380-3225
30-35mm	48	15	127	380-3030	380-3130	380-3230
35-40mm	53	15	136	380-3035	380-3135	380-3235
40-50mm	64	18	166	380-3040	380-3140	380-3240

BLANK FOR COUNTERSINKS 90° WITH HOLE

Size	M2HSS	M35HSS
	Model No.	Model No.
1 - 4mm	351-1001	351-2001
2 - 5mm	351-1002	351-2002
5 - 10mm	351-1005	351-2005
10 - 15mm	351-1010	351-2010
15 - 20mm	351-1015	351-2015
20 - 25mm	351-1020	351-2020
25 - 30mm	351-1025	351-2025
30 - 35mm	351-1030	351-2030
35 - 40mm	351-1035	351-2035
40 - 50mm	351-1040	351-2040



3 FLUTE COUNTERSINK, HSS



Individual

Size	Total Length	Shank ϕ	Angle	M2HSS Model No.
4.3	40	4	90°	353-0043
5	40	4	90°	353-0050
5.3	40	4	90°	353-0053
5.8	45	5	90°	353-0058
6	45	5	90°	353-0060
6.3	45	5	90°	353-0063
7	50	6	90°	353-0070
7.3	50	6	90°	353-0073
8	50	6	90°	353-0080
8.3	50	6	90°	353-0083
9.4	50	6	90°	353-0094
10	50	6	90°	353-0100
10.4	50	6	90°	353-0104
11.5	56	8	90°	353-0115
12.4	56	8	90°	353-0124
13.4	56	8	90°	353-0134
15	60	10	90°	353-0150
16.5	60	8	90°	353-0165
16.5	60	10	90°	353-0166
19	63	10	90°	353-0190
20.5	63	10	90°	353-0205
23	67	10	90°	353-0230
25	67	10	90°	353-0250
26	67	10	90°	353-0260
28	71	12	90°	353-0280
30	71	12	90°	353-0300
31	71	12	90°	353-0310

Sets (packed in wooden box)

Pieces/Set	Size	Angle	Model No.
5	5,6,8,10,12,mm	90°	353-0505
5	15,16.5,20.5,23,25mm	90°	353-0510
6	6.3,8.3,10.4,12.4,16.5,20.5mm	90°	353-0515
10	5.6,8,10,12,15,16.5,20.5,23,25mm	90°	353-0520

BLANKS FOR 3 FLUTE COUNTERSINKS

Note: the angles of 82° and 60° are also available

M2 HSS

Size	Shank ϕ	Model No.
4.3mm	4.0mm	351-0043
4.8mm	4.0mm	351-0048
5.0mm	4.0mm	351-0050
5.3mm	4.0mm	351-0053
5.8mm	5.0mm	351-0058
6.0mm	5.0mm	351-0060
6.3mm	5.0mm	351-0063
7.0mm	6.0mm	351-0070
7.3mm	6.0mm	351-0073
8.0mm	6.0mm	351-0080
8.3mm	6.0mm	351-0083
9.4mm	6.0mm	351-0094
10.0mm	6.0mm	351-0100
10.4mm	6.0mm	351-0104
11.5mm	8.0mm	351-0115

Size	Shank ϕ	Model No.
12.4mm	8.0mm	351-0124
13.4mm	8.0mm	351-0134
15.0mm	10.0mm	351-0150
15.0mm	8.0mm	351-0151
16.5mm	10.0mm	351-0165
16.5mm	8.0mm	351-0166
19.0mm	10.0mm	351-0190
20.5mm	10.0mm	351-0205
23.0mm	10.0mm	351-0230
25.0mm	10.0mm	351-0250
26.0mm	10.0mm	351-0260
28.0mm	12.0mm	351-0280
30.0mm	12.0mm	351-0300
31.0mm	12.0mm	351-0310

M35HSS

Size	Shank ϕ	Model No.
4.3mm	4.0mm	351-2043
4.8mm	4.0mm	351-2048
5.0mm	4.0mm	351-2050
5.3mm	4.0mm	351-2053
5.8mm	5.0mm	351-2058
6.0mm	5.0mm	351-2060
6.3mm	5.0mm	351-2063
7.0mm	6.0mm	351-2070
7.3mm	6.0mm	351-2073
8.0mm	6.0mm	351-2080
8.3mm	6.0mm	351-2083
9.4mm	6.0mm	351-2094
10.0mm	6.0mm	351-2100
10.4mm	6.0mm	351-2104

Size	Shank ϕ	Model No.
11.5mm	8.0mm	351-2115
12.4mm	8.0mm	351-2124
13.4mm	8.0mm	351-2134
15.0mm	1.0mm	351-2150
15.0mm	8.0mm	351-2151
16.5mm	10.0mm	351-2165
16.5mm	8.0mm	351-2190
19.0mm	10.0mm	351-2205
20.5mm	10.0mm	351-2230
23.0mm	10.0mm	351-2250
25.0mm	10.0mm	351-2260
26.0mm	10.0mm	351-2280
28.0mm	12.0mm	351-2300
30.0mm	12.0mm	351-2310
31.0mm	12.0mm	351-2310

SOLID CARBIDE BLANK 90°

Size	Final ϕ	Shank ϕ	Total Length	Model No.
6.6mm	6.3mm	5.0mm	45mm	351-4063
8.6mm	8.3mm	6.0mm	50mm	351-4083
10.7mm	10.4mm	6.0mm	50mm	351-4104

SOLID CARBIDE BLANK 90°

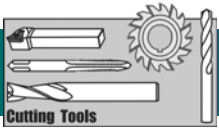
WITH SOLDERED SHANK

Size	Final ϕ	Shank ϕ	Total Length	Model No.
12.8mm	12.4mm	8.0mm	56mm	351-4124
15.4mm	15.0mm	10.0mm	60mm	351-4150
16.9mm	16.5mm	10.0mm	60mm	351-4165
21.1mm	20.5mm	10.0mm	63mm	351-4205
25.6mm	25.0mm	10.0mm	67mm	351-4250
31.6mm	31.0mm	12.0mm	71mm	351-4310

CARBIDE BLANK 60°

WITH SOLDERED SHANK

Size	Final ϕ	Shank ϕ	Total Length	Model No.
12.8mm	12.4mm	8.0mm	56mm	351-5124
16.9mm	16.5mm	10.0mm	60mm	351-5165

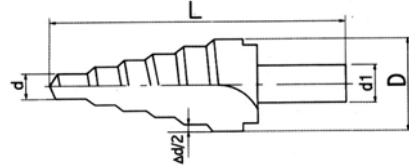


Cutting Tools

STEP DRILLS WITH 2 FLUTES, HSS

Individual

Drilling Range	Total Length	Steps	Steps Dias	Shank	
				¢	Model No.
4-12mm	65.0mm	5	4-12 by 2mm	6	354-5005
4-12mm	65.0mm	9	4-12 by 1mm	6	354-5010
4-20mm	75.0mm	9	4-20 by 2mm	8	354-5011
4-30mm	100.0mm	14	4-30 by 2mm	10	354-5012
4-39mm	107.0mm	13	4,6-39 by 3mm	10	354-5013
4.8-10.65mm	54.0mm	5	4.8,6.4,7.2,9.6,10.65mm	6	354-5014
5-28mm	69.0mm	7	5.0,8.8,11.8,15.3,19,24.5,28.0mm	10	354-5016
6-25mm	65.0mm	7	6,9,12,16,20,22.5,25mm	10	354-5017
6-26.7mm	75.0mm	8	6,9,11.4,14,17.25,19,21.25,26.75mm	10	354-5018
6-30.5mm	80.0mm	13		10	354-5019
6-32mm	75.0mm	8	6-30 by 2mm	10	354-5021
6-37mm	100.0mm	12	6.,9,11.2,14.5,18.2,22.3,27.9,32mm	10	354-5022
			6,9,12.5,15.2,18.6,20.4,22.5,		
6-38mm	100.0mm	12	26,28.3,30.5,34,37mm	10	354-5023
			6,9,13,16,19,21,23,26,29,32,		
6-40mm	105.0mm	16	35,38mm	13	354-5024
			6,11,17,23, 29-40 by 1mm		



Sets (packed in wooden box)

Pieces/Set	Size	Model No.
3	4-12mm (9 steps), 4-20mm(9 steps), 4-30mm (14 steps)	354-5030

INDEXABLE COUNTERSINK & CHAMFERING TOOL

- Overall Length 2-3/8"
- Positive rake for smooth cutting without chatter.
- Use standard inserts.



Sets

Descriptions	3PCS	
	Model No.	
60 $\frac{1}{16}$ " with Stand.	380-4000	
82 $\frac{1}{16}$ " with Stand.	380-4100	
90 $\frac{1}{16}$ " with Stand.	380-4200	

Individual

Cutter body	Shank	Insert	60°	82°	90°
			Model No.	Model No.	Model No.
1/4 - 3/4"	1/2"	TPGH321	380-4010	380-4110	380-4210
1/2 - 1-3/4"	1/2"	SPGH433	380-4015	380-4115	380-4215
1-1/4 - 2-1/2"	3/4"	SPGH433	380-4020	380-4120	380-4220

Insert

	Radius	I.C.	Thickness	Model No.
TPGH321	1/64"	3/8"	1/8"	380-4310
SPGH433	3/16"	1/2"	1/8"	380-4320

Replacement Hold Down Screw

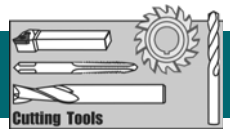
Model No.: 380-4300

HSS COUNTERSINK WITH HEXAGO SHANK

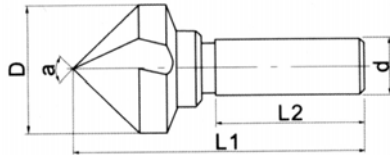


Metric Size

Size	Shank ¢	Shank Length	Total Length	Model No.
6.3	6.35	20	31	351-3063
8.3	6.35	20	32	351-3083
10.4	6.35	20	34	351-3104
12.4	6.35	20	35.5	351-3124
16.5	6.35	20	40	351-3165
20.5	6.35	20	40	351-3205



SINGLE FLUTE COUNTERSINK,HSS



Metric

Size mm	Total Length	Shank ϕ	Angle	M2HSS Model No.
6	45	5	90°	353-8060
8	50	6	90°	353-8080
10	50	6	90°	353-8100
12	56	8	90°	353-8120
16	60	10	90°	353-8160
20	63	10	90°	353-8200
25	67	10	90°	353-8250
30	71	12	90°	353-8300
32	80	12	90°	353-8320
40	89	15	90°	353-8400
50	98	15	90°	353-8500

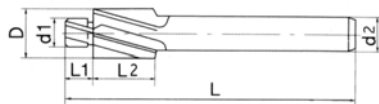
Inch

Size mm	Total Length	Shank ϕ	Angle	Model No.
3/16"	1-1/2"	3/16"	82°	353-8606
1/4"	2"	1/4"	82°	353-8608
5/16"	2"	1/4"	82°	353-8610
3/8"	2"	1/4"	82°	353-8612
1/2"	2"	1/4"	82°	353-8616
5/8"	2-1/4"	1/2"	82°	353-8620
3/4"	2-3/4"	1/2"	82°	353-8624
7/8"	2-3/4"	1/2"	82°	353-8628
1"	2-3/4"	1/2"	82°	353-8632
1-1/4"	3"	3/4"	82°	353-8638
1-1/2"	3-1/2"	3/4"	82°	353-8648
2"	3-1/2"	3/4"	82°	353-8664

Sets (packed in wooden box)

Pieces/Set	Size	Angle	Model No.
7	6-8-10-12-16-20-25mm	90°	353-8701
11	6-8-10-12-12-20-25-30-32-40-50mm	90°	353-8705
7	1/4"-5/16"-3/8"-1/2"-5/8"-3/4"-1"	82°	353-8801
11	1/4"-5/16"-3/8"-1/2"-5/8"-7/8"-3/4" 1"- 1-1/4"- 1-1/2"- 2"	82°	353-8805

CYLINDRICAL COUNTERBORES,HSS



Metric

Size	D	d1	d2	L1	L2	L	Model No.
M3	5.9	3.2	6	3	10	45	354-4003
M4	7.4	4.2	6	4	12	48	354-4004
M5	8.9	5.2	6	5	13	51	354-4005
M6	10.4	6.2	8	6	15	58	354-4006
M8	13.4	8.2	10	8	16	67	354-4008
M10	16.8	10.3	12	10	16	74	354-4010
M12	18.8	12.4	12	12	20	83	354-4012
M14	24	14.4	12	14	25	90	354-4014
M16	26	16.5	16	16	28	100	354-4016

Sets (packed in wooden box)

Pieces/Set	Size	Model No.
7	M3,M4,M5,M6,M8,M10,M12	354-4090

BLANK FOR CYLINDRICAL COUNTERBORES

Size	M2HSS Model No.	M35HSS Model No.
M3	354-0003	354-1003
M4	354-0004	354-1004
M5	354-0005	354-1005
M6	354-0006	354-1006
M8	354-0008	354-1008
M10	354-0010	354-1010
M12	354-0012	354-1012

Inch

Size	D	d1	d2	L1	L2	L	Model No.
M1/4	7/16	1/4	5/16	1/4	5/16	2-1/2	354-4050
M5/16	1/2	5/16	3/8	5/16	3/8	2-1/2	354-4055
M3/8	5/8	3/8	3/8	5/16	1/2	3	354-4060
M1/2	3/4	1/2	1/2	3/8	5/8	3	354-4065
M5/8	7/8	5/8	1/2	1/2	5/8	3-1/2	354-4070
M3/4	1	3/4	3/4	1/2	5/8	3-1/2	354-4075