

COMBINED DRILL & COUNTERSINK

HSS 60°
Plain type



5pcs/set include:(1#-5#)

Model No. 217-0005

8pcs/set include:(1#-8#)

Model No. 217-0008

- Used for centering work ends, where the workpiece is to be revolved on machine centers, 60° countersink angle fits all standard centers

Size	Body Dia.	Drill Dia.	Overall Length	HSS Ground Model No.	Cobalt Ground Model No.
1#	1/8"	3/64"	1-1/4"	217-9001	217-9101
2#	3/16"	5/64"	1-7/8"	217-9002	217-9102
3#	1/4"	7/64"	2"	217-9003	217-9103
4#	5/16"	1/8"	2-1/8"	217-9004	217-9104
5#	7/16"	3/16"	2-3/4"	217-9005	217-9105
6#	1/2"	7/32"	3"	217-9006	217-9106
7#	5/8"	1/4"	3-1/4"	217-9007	217-9107
8#	3/4"	5/16"	3-1/2"	217-9008	217-9108

Plain Type
82° & 90° Angle,
HSS, Ground



Size	Body Dia.	Drill Dia.	Overall Length	82° HSS Model No.	82° Cobalt Model No.	90° HSS Model No.	90° Cobalt Model No.
1#	1/8"	3/64"	1-1/4"	217-9301	217-9401	217-9501	217-9601
2#	3/16"	5/64"	1-7/8"	217-9302	217-9402	217-9502	217-9602
3#	1/4"	7/64"	2"	217-9303	217-9403	217-9503	217-9603
4#	5/16"	1/8"	2-1/8"	217-9304	217-9404	217-9504	217-9604
5#	7/16"	3/16"	2-3/4"	217-9305	217-9405	217-9505	217-9605
6#	1/2"	7/32"	3"	217-9306	217-9406	217-9506	217-9606
7#	5/8"	1/4"	3-1/4"	217-9307	217-9407	217-9507	217-9607
8#	3/4"	5/16"	3-1/2"	217-9308	217-9408	217-9508	217-9608

Bell Type
60° Angle,
HSS



Size	Body Dia.	Drill Dia.	Bell Dia.	Overall Length	Milled Model No.	Ground Model No.
11#	1/8"	3/54"	3/64"	1-1/4"	217-7001	217-8001
12#	3/16"	1/16"	1/16"	1-7/8"	217-7002	217-8002
13#	1/4"	3/32"	3/32"	2"	217-7003	217-8003
14#	5/16"	7/64"	7/64"	2-1/8"	217-7004	217-8004
15#	7/16"	5/32"	5/32"	2-3/4"	217-7005	217-8005
16#	1/2"	3/16"	3/16"	3"	217-7006	217-8006
17#	5/8"	7/32"	7/32"	3-1/4"	217-7007	217-8007
18#	3/4"	1/4"	1/4"	3-1/2"	217-7008	217-8008

Long Plain Type
60° Angle,
HSS, Ground

- Used for producing a center hole on a workpiece
- For turning and cylindrical grinding



Size	Body Dia.	Drill Dia.	Overall Length	Model No.
1	1/8"	3/64"	3"	217-7103
1	1/8"	3/64"	4"	217-7104
1	1/8"	3/64"	5"	217-7105
1	1/8"	3/64"	6"	217-7106
2	3/16"	5/64"	3"	217-7203
2	3/16"	5/64"	4"	217-7204
2	3/16"	5/64"	5"	217-7205
2	3/16"	5/64"	6"	217-7206
3	1/4"	7/64"	4"	217-7304
3	1/4"	7/64"	5"	217-7305
3	1/4"	7/64"	6"	217-7306

Size	Body Dia.	Drill Dia.	Overall Length	Model No.
4	5/16"	1/8"	4"	217-7404
4	5/16"	1/8"	5"	217-7405
4	5/16"	1/8"	6"	217-7406
5	7/16"	3/16"	4"	217-7504
5	7/16"	3/16"	5"	217-7505
5	7/16"	3/16"	6"	217-7506
6	1/2"	7/32"	4"	217-7604
6	1/2"	7/32"	5"	217-7605
6	1/2"	7/32"	6"	217-7606
7	5/8"	1/4"	6"	217-7706
8	3/4"	5/16"	6"	217-7806

Milssile & Aircraft Mini Type
60° Angle,
HSS, Ground



Size	Body Dia.	Drill Dia.	Overall Length	HSS Model No.	Cobalt Model No.
000	1/8"	.020"	1-1/4"	217-5000	217-5100
00	1/8"	.025"	1-1/4"	217-5001	217-5101
0	1/8"	1/32"	1-1/4"	217-5002	217-5102

METRIC CENTER DRILLS

HSS 60° Angle
Ground



Dia	Working Length	Ground Model No.
1.0	3.15mm	217-1010
1.6	4.0mm	217-1016
2.0	5.0mm	217-1020
2.5	6.3mm	217-1025
3.15	8.0mm	217-1032
4.0	10mm	217-1040
5.0	12.5mm	217-1050
6.3	16.0mm	217-1060

Drills

60° Angle
Bell Type
HSS, Ground

Dia	Working Length	Model No.
1.6	4.0mm	217-4016
2.0	5.0mm	217-4020
2.5	6.3mm	217-4025
3.15	8.0mm	217-4032
4.0	10.0mm	217-4040
5.0	12.5mm	217-4050
6.3	16.0mm	217-4060



DIN333A,
Ground
Right Hand,
High Speed Steel

Size (mm)	Shank Dia.(mm)	Overall Length(mm)	Model No.
0.8	3.15	0.8	212-0080
1.0	3.15	1.0	212-0100
1.25	3.15	1.25	212-0125
1.6	4.0	1.6	212-0160
2.0	5.0	2.0	212-0200
2.50	6.3	2.50	212-0250
3.15	8.0	3.15	212-0315
4.0	10.0	4.0	212-0400
5.0	12.5	5.0	212-0500
6.30	16.0	6.30	212-0630
8.00	20.0	8.00	212-0800
10.0	25.0	10.0	212-1000

EXTRA SHORT SPOT DRILLS

High Speed Steel



Size	Flute Length	Overall Length	Model No.
3.1mm	16	40	213-0031
3.2mm	16	40	213-0032
3.3mm	16	41	213-0033
4.1mm	16	44	213-0041
4.2mm	16	44	213-0042
4.7mm	20	48	213-0047
4.8mm	20	48	213-0048
4.9mm	22	50	213-0049
5.0mm	24	52	213-0050
5.2mm	24	52	213-0052

DOUBLE END SHEET METAL DRILLS

High Speed Steel



Size	Flute Length	Overall Length	Model No.
3.0mm	46	11	216-0030
3.1mm	49	11	216-0031
3.2mm	49	11	216-0032
3.25mm	49	11	216-0033
3.3mm	49	11	216-0034
3.5mm	52	14	216-0035
4.0mm	55	14	216-0040
4.1mm	55	14	216-0041
4.2mm	55	14	216-0042
4.5mm	58	17	216-0045
4.8mm	62	17	216-0048
5.0mm	62	17	216-0050
5.2mm	62	17	216-0052

INCH STEP DRILLS

High Speed Steel



3 piece sets

Specification	HSS Model No.	Tin Coated Model No.
1/8-1/2", 3/16-1/2", 1/4-3/4" Blister card	218-1000	217-2000

- Requires no center punch to start drilling
- Automatically deburrs drilled hole

Individuals

Size Range	Step	Step Thickness	No. of Hole	Shank Dia.	Straight Shank		Hexagon Shank	
					HSS Model No.	Tin Coated Model No.	HSS Model No.	Tin Coated Model No.
1/8-1/2"	1/32	1/8	13	1/4	218-1001	218-2001	218-1011	218-2011
3/16-1/2	1/16	3/8	6	1/4	218-1002	218-2002	218-1012	218-2012
1/4-3/4	1/16	1/8	9	3/8	218-1003	218-2003	218-1013	218-2013
3/16-7/8	1/16	1/8	12	3/8	218-1004	218-2004	218-1014	218-2014
1/4-1-3/8	1/8	1/8	10	1/2	218-1005	218-2005	218-1015	218-2015



3 piece sets

Specification	HSS Model No.	Tin Coated Model No.
4-12, 6-20, 6-30mm Wood Case	218-3000	218-4000
4-12, 6-20, 6-30mm Metal Case	218-3100	218-4100
4-12, 4-20, 6-30mm Wood Case	218-3200	218-4200
4-12, 4-20, 6-30mm Metal Case	218-3300	218-4300

METRIC STEP DRILLS

Individuals

Size Range (mm)	Step (mm)	No. of Hole	Shank Dia. (mm)	Straight Shank		Hexagon Shank	
				HSS Model No.	Tin Coated Model No.	HSS Model No.	Tin Coated Model No.
4-12	1	9	6	218-3001	218-3101	218-4001	218-4101
4-12	1	9	6.5	218-3002	218-3102	218-4002	218-4102
4-12	2	5	6	218-3003	218-3103	218-4003	218-4103
4-12	2	5	6.5	218-3004	218-3104	218-4004	218-4104
6-18	2	7	10	218-3005	218-3105	218-4005	218-4105
6-20	2	8	8	218-3006	218-3106	218-4006	218-4106
6-30	2-3	12	10	218-3007	218-3107	218-4007	218-4107
4-20	2	9	10	218-3008	218-3108	218-4008	218-4108
4-22	2	10	10	218-3009	218-3109	218-4009	218-4109
5-35	2-3	13	13	218-3010	218-3110	218-4010	218-4110

End Mill

3/16" SHANK END MILLS

High Speed Steel

2 Flute Double End Mills



Regular Length							Stub Length						
Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.	Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
1/32"	3/32"	2-1/4"	720-1630	721-1630	722-1630	723-1630	1/32"	3/64	2"	720-1600	721-1600	722-1600	723-1600
3/64	9/64	2-1/4"	720-1632	721-1632	722-1632	723-1632	3/64	1/16	2"	720-1602	721-1602	722-1602	723-1602
1/16	3/16	2-1/4"	720-1634	721-1634	722-1634	723-1634	1/16	3/32	2"	720-1604	721-1604	722-1604	723-1604
5/64	15/64	2-1/4"	720-1636	721-1636	722-1636	723-1636	5/64	1/8	2"	720-1606	721-1606	722-1606	723-1606
3/32	9/32	2-1/4"	720-1638	721-1638	722-1638	723-1638	3/32	9/64	2"	720-1608	721-1608	722-1608	723-1608
7/64	21/64	2-1/4"	720-1640	721-1640	722-1640	723-1640	7/64	5/32	2"	720-1610	721-1610	722-1610	723-1610
1/8	3/8	2-1/4"	720-1642	721-1642	722-1642	723-1642	1/8	3/16	2"	720-1612	721-1612	722-1612	723-1612
9/64	13/32	2-1/4"	720-1644	721-1644	722-1644	723-1644	9/64	7/32	2"	720-1614	721-1614	722-1614	723-1614
5/32	7/16	2-1/4"	720-1646	721-1646	722-1646	723-1646	5/32	15/64	2"	720-1616	721-1616	722-1616	723-1616
11/64	1/2	2-1/4"	720-1648	721-1648	722-1648	723-1648	11/64	1/4	2"	720-1618	721-1618	722-1618	723-1618
3/16	1/2	2-1/4"	720-1650	721-1650	722-1650	723-1650	3/16	9/32	2"	720-1620	721-1620	722-1620	723-1620

3/16" SHANK END MILLS

High Speed Steel

2 Flute Ball Nose Double End Mills



Regular Length							Stub Length						
Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.	Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
1/32"	3/32"	2-1/4"	720-1730	721-1730	722-1730	723-1730	1/32"	3/64	2"	720-1700	721-1700	722-1700	723-1700
3/64	9/64	2-1/4"	720-1732	721-1732	722-1732	723-1732	3/64	1/16	2"	720-1702	721-1702	722-1702	723-1702
1/16	3/16	2-1/4"	720-1734	721-1734	722-1734	723-1734	1/16	3/32	2"	720-1704	721-1704	722-1704	723-1704
5/64	15/64	2-1/4"	720-1736	721-1736	722-1736	723-1736	5/64	1/8	2"	720-1706	721-1706	722-1706	723-1706
3/32	9/32	2-1/4"	720-1738	721-1738	722-1738	723-1738	3/32	9/64	2"	720-1708	721-1708	722-1708	723-1708
7/64	21/64	2-1/4"	720-1740	721-1740	722-1740	723-1740	7/64	5/32	2"	720-1710	721-1710	722-1710	723-1710
1/8	3/8	2-1/4"	720-1742	721-1742	722-1742	723-1742	1/8	3/16	2"	720-1712	721-1712	722-1712	723-1712
9/64	27/64	2-1/4"	720-1744	721-1744	722-1744	723-1744	9/64	7/32	2"	720-1714	721-1714	722-1714	723-1714
5/32	7/16	2-1/4"	720-1746	721-1746	722-1746	723-1746	5/32	15/64	2"	720-1716	721-1716	722-1716	723-1716
11/64	1/2	2-1/4"	720-1748	721-1748	722-1748	723-1748	11/64	1/4	2"	720-1718	721-1718	722-1718	723-1718
3/16	1/2	2-1/4"	720-1750	721-1750	722-1750	723-1750	3/16	9/32	2"	720-1720	721-1720	722-1720	723-1720

3/16" SHANK END MILLS

High Speed Steel

4 Flute Double End Mills



Regular Length							Stub Length						
Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.	Size	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
1/16	3/16	2-1/4"	720-4318	721-4318	722-4318	723-4318	1/16	3/32	2"	720-4300	721-4300	722-4300	723-4300
5/64	15/64	2-1/4"	720-4320	721-4320	722-4320	723-4320	5/64	5/32	2"	720-4302	721-4302	722-4302	723-4302
3/32	9/32	2-1/4"	720-4322	721-4322	722-4322	723-4322	3/32	9/64	2"	720-4303	721-4303	722-4303	723-4303
7/64	21/64	2-1/4"	720-4324	721-4324	722-4324	723-4324	3/32	5/32	2"	720-4304	721-4304	722-4304	723-4304
1/8	3/8	2-1/4"	720-4326	721-4326	722-4326	723-4326	7/64	5/32	2"	720-4306	721-4306	722-4306	723-4306
9/64	13/32	2-1/4"	720-4328	721-4328	722-4328	723-4328	1/8	3/16	2"	720-4308	721-4308	722-4308	723-4308
5/32	7/16	2-1/4"	720-4330	721-4330	722-4330	723-4330	9/64	7/32	2"	720-4310	721-4310	722-4310	723-4310
11/64	1/2	2-1/4"	720-4332	721-4332	722-4332	723-4332	5/32	15/64	2"	720-4311	721-4311	722-4311	723-4311
3/16	1/2	2-1/4"	720-4334	721-4334	722-4334	723-4334	5/32	1/4	2"	720-4312	721-4312	722-4312	723-4312

Long Length							Long Length						
Size	Length Below Shank	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Size	Length Below Shank	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.
1/16	3/8	7/32"	2-1/2"	720-4336	721-4336	722-4336	1/16	3/8	7/32"	2-1/2"	720-4336	721-4336	722-4336
5/64	3/8	1/4	2-1/2"	720-4338	721-4338	722-4338	5/64	3/8	1/4	2-1/2"	720-4338	721-4338	722-4338
3/32	1/2	9/32	2-5/8"	720-4340	721-4340	722-4340	3/32	1/2	9/32	2-5/8"	720-4340	721-4340	722-4340
7/64	1/2	9/32	2-5/8"	720-4342	721-4342	722-4342	7/64	1/2	9/32	2-5/8"	720-4342	721-4342	722-4342
1/8	3/4	3/4	3-1/8"	720-4344	721-4344	722-4344	1/8	3/4	3/4	3-1/8"	720-4344	721-4344	722-4344
9/64	3/4	3/4	3-1/8"	720-4346	721-4346	722-4346	9/64	3/4	3/4	3-1/8"	720-4346	721-4346	722-4346
5/32	7/8	7/8	3-1/4"	720-4348	721-4348	722-4348	5/32	7/8	7/8	3-1/4"	720-4348	721-4348	722-4348
11/64	7/8	7/8	3-1/4"	720-4350	721-4350	722-4350	11/64	7/8	7/8	3-1/4"	720-4350	721-4350	722-4350
3/16	1	1	3-3/8"	720-4352	721-4352	722-4352	3/16	1	1	3-3/8"	720-4352	721-4352	722-4352

Drills



AIRCRAFT EXTENSION DRILL SETS - 6",12" LENGTHS

High Speed Steel, 118° Point, Right Hand

Description	Model No.
1/16 to 1/4" by 64ths, 13pcs, 6" length	434-0301
1/16 to 1/2" by 64ths, 29pcs, 12" length	434-0302
No.1 to 60, 60pcs, 6" length	434-0303
No.1 to 60, 60pcs, 12" length	434-0304

CUTTERS

M2 Cutters Weldon shank 3/4", 1-1/4"



Cutter Dia.(in)	Max. drilling depth			Cutter Dia.(in)	Max. drilling depth		
	1" Model No.	2" Model No.	3" Model No.		1" Model No.	2" Model No.	3" Model No.
1/2	202-6004	202-6104	/	1-13/16	202-6065	202-6165	202-6265
9/16	202-6006	202-6106	/	1-7/8	202-6066	202-6166	202-6266
5/8	202-6010	202-6110	/	1-15/16	202-6067	202-6167	202-6267
11/16	202-6012	202-6112	/	2"	202-6068	202-6168	202-6268
3/4	202-6016	202-6116	202-6216	2-1/16	202-6069	202-6169	202-6269
13/16	202-6020	202-6120	202-6220	2-1/8	202-6070	202-6170	202-6270
7/8	202-6022	202-6122	202-6222	2-3/16	202-6071	202-6171	202-6271
15/16	202-6026	202-6126	202-6226	2-1/4	202-6072	202-6172	202-6272
1"	202-6028	202-6128	202-6228	2-5/16	202-6073	202-6173	202-6273
1-1/16	202-6030	202-6130	202-6230	2-3/8	202-6074	202-6174	202-6274
1-1/8	202-6036	202-6136	202-6236	2-7/16	202-6075	202-6175	202-6275
1-3/16	202-6038	202-6138	202-6238	2-1/2	202-6076	202-6176	202-6276
1-1/4	202-6042	202-6142	202-6242	2-9/16	202-6077	202-6177	202-6277
1-5/16	202-6044	202-6144	202-6244	2-5/8	202-6078	202-6178	202-6278
1-3/8	202-6048	202-6148	202-6248	2-11/16	202-6079	202-6179	202-6279
1-7/16	202-6050	202-6150	202-6250	2-3/4	202-6080	202-6180	202-6280
1-1/2	202-6054	202-6154	202-6254	2-13/16	202-6081	202-6181	202-6281
1-9/16	202-6056	202-6156	202-6256	2-7/8	202-6082	202-6182	202-6282
1-5/8	202-6060	202-6160	202-6260	2-15/16	202-6083	202-6183	202-6283
1-11/16	202-6062	202-6162	202-6262	3"	202-6084	202-6184	202-6284
1-3/4	202-6064	202-6164	202-6264	3-1/16	202-6085	202-6185	202-6285

Sliver & Deming Drill Sets



Piece of	Shank	Drills	Description	Wooden Case Model No.	Plastic Case Model No.	Wooden Stand Model No.	Without Box Model No.
1/2"	5	17/32", 9/16", 5/8", 3/4", 1"		301-0204			
1/2	5	9/16", 5/8", 3/4", 7/8", 1"		301-0205	301-0215		301-0203
1/2	6	1-1/8" to 1-1/2" by 16th ,exclude 7/16"		301-0206			
1/2	8	9/16-1" by 16th		301-0218	301-0208		301-0207
1/2	8	1-1/16 to 1-1/2" by 16th		301-0288	301-0298		301-0280
1/2	10	9/16 to 1" by 16th ,1-1/8",1-1/4"		301-0230		301-0210	301-0211
1/2	12	9/16 to 1-1/4" by 16th		301-0212			
1/2	13	17/32 to 1" by 16th & 32nd		301-0234		301-0213	301-0214
1/2	16	17/32 to 1" by 32nd		301-0216			
1/2	17	17/32 to 1-1/32" by 32nd		301-0217			
1/2	32	33/64 to 1" by 64th		301-0232			
1/2	40	33/64" to 1"x64th & 1-1/16" to 1-1/2"x16th		301-0240			
3/4	5	1,1-1/8,1-1/4,1-3/8,1-1/2"		301-0225	301-0235		
1/4	16	17/64 to 1/2 by 64th				301-0010	

Drills Set

JOBBER LENGTH DRILL SETS

HSS Bright, Black oxide & Tin Coated

Inch 13 PCS



Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
13pcs 1/16-1/4" by 1/64th metal box	118°	201-0004	206-0004	207-0004
13pcs 1/16-1/4" by 1/64th plastic box	118°	201-0003	206-0003	207-0003

Inch 15 PCS



Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
15pcs 1/16-1/2" by 32nds in metal box	118°	201-0015	206-0015	207-0015

Inch 20 PCS



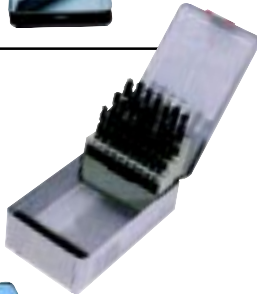
Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
20pcs #61-80 HSS with metal box	118°	201-0019	206-0019	207-0019

Inch 21 PCS



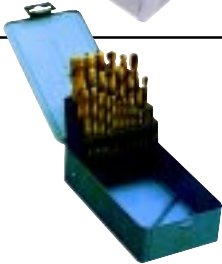
Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
21pcs 1/16" to 3/8" by 1/64th metal box	118°	201-0006	206-0006	207-0006

Inch 26 PCS



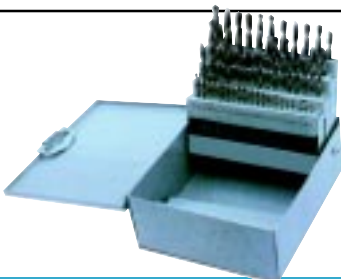
Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
26pcs A-Z black oxide with metal box	118°	201-0026	206-0026	207-0026

Inch 29 PCS



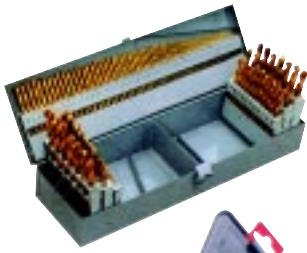
Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
29pcs 1/16-1/2" by 1/64th metal box	118°	201-0008	206-0008	207-0008
29pcs 1/16-1/2" by 1/64th metal box	135°	201-1018	206-1018	207-1018

Inch 60 PCS



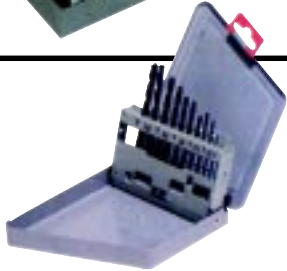
Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
60pcs #1-60 HSS with metal box	118°	201-0018	206-0018	207-0018

Drills Set



Inch 115 PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
115pcs 1/16-1/2" by 1/64th A-Z, #1-60 W /metal box	118 118	201-0010	206-0010	207-0010



Metric 11PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
11pcs 1-6mm by .5mm in metal box	118 118	201-0011	206-0011	207-0011



Metric 13 PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
13pcs 1.5-6.5mm by .5mm metal box	118 118	201-0002	206-0002	207-0002
13pcs 1.5-6.5mm by .5mm plastic box	118 118	201-0001	206-0001	207-0001



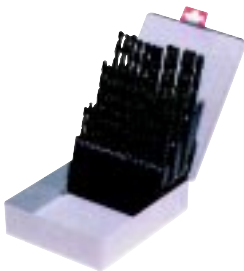
Metric 19PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
19pcs 1 to 10mm by .5mm metal box	118 118	201-0005	206-0005	207-0005



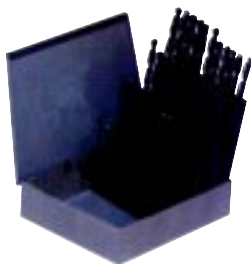
Metric 25PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
25pcs 1-13mm by .5mm metal box	118 118	201-0007	206-0007	207-0007



Metric 41PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
41pcs 6mm-10mm by .1mm in metal box	118 118	201-0016	206-0016	207-0016



Metric 51PCS

Description	Drill Point	Rolled Black Oxide Model No.	Ground Bright Model No.	Ground Tin-Coated Model No.
51pcs 1-6.0mm by .1mm in metal box	118 118	201-0017	206-0017	207-0017

End Mills

2FLUTE SINGLE END MILLS

- Use for milling slots, pockets and plunge cuts.
- 2 Flutes allows maximum space for chip ejection.
- Suitable for use in a wide range of ferrous and non-ferrous materials.
- TiN coating improves tool life and allows elevated speeds and feeds.



Regular Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/8	3/8	3/8	2-5/16	720-1001	721-1001	722-1001	723-1001
9/64	3/8	3/8	2-5/16	720-1003	721-1003	722-1003	723-1003
5/32	3/8	7/16	2-5/16	720-1005	721-1005	722-1005	723-1005
11/64	3/8	7/16	2-5/16	720-1007	721-1007	722-1007	723-1007
3/16	3/8	7/16	2-5/16	720-1009	721-1009	722-1009	723-1009
13/64	3/8	7/16	2-5/16	720-1011	721-1011	722-1011	723-1011
7/32	3/8	1/2	2-5/16	720-1012	721-1012	722-1012	723-1012
7/32	3/8	1/2	2-3/8	720-1013	721-1013	722-1013	723-1013
15/64	3/8	1/2	2-3/8	720-1015	721-1015	722-1015	723-1015
1/4	3/8	3/8	2-1/4	720-1016	721-1016	722-1016	723-1016
1/4	3/8	1/2	2-5/16	720-1017	721-1017	722-1017	723-1017
17/64	3/8	9/16	2-3/8	720-1019	721-1019	722-1019	723-1019
9/32	3/8	1/2	2-5/16	720-1020	721-1020	722-1020	723-1020
9/32	3/8	9/16	2-3/8	720-1021	721-1021	722-1021	723-1021
19/64	3/8	9/16	2-3/8	720-1023	721-1023	722-1023	723-1023
5/16	3/8	9/16	2-5/16	720-1025	721-1025	722-1025	723-1025
21/64	3/8	9/16	2-3/8	720-1027	721-1027	722-1027	723-1027
11/32	3/8	9/16	2-5/16	720-1028	721-1028	722-1028	723-1028
11/32	3/8	9/16	2-3/8	720-1029	721-1029	722-1029	723-1029
23/64	3/8	9/16	2-3/8	720-1031	721-1031	722-1031	723-1031
3/8	3/8	9/16	2-5/16	720-1033	721-1033	722-1033	723-1033
13/32	3/8	13/16	2-1/2	720-1035	721-1035	722-1035	723-1035
7/16	3/8	13/16	2-1/2	720-1037	721-1037	722-1037	723-1037
15/32	3/8	13/16	2-1/2	720-1036	721-1036	722-1036	723-1036
15/32	1/2	7/8	2-1/2	720-1038	721-1038	722-1038	723-1038
15/32	1/2	1"	3"	720-1039	721-1039	722-1039	723-1039
1/2	3/8	13/16	2-1/2	720-1041	721-1041	722-1041	723-1041
1/2	3/8	1"	3"	720-1042	721-1042	722-1042	723-1042
1/2	1/2	1"	3"	720-1043	721-1043	722-1043	723-1043
1/2	1/2	1-1/8	3-1/8	720-1044	721-1044	722-1044	723-1044
17/32	1/2	1-1/8	3-1/8	720-1045	721-1045	722-1045	723-1045
9/16	1/2	1-1/8	3-1/8	720-1047	721-1047	722-1047	723-1047
19/32	1/2	1-1/8	3-1/8	720-1049	721-1049	722-1049	723-1049
5/8	1/2	1-1/8	3-1/8	720-1051	721-1051	722-1051	723-1051
5/8	5/8	1-5/16	3-7/16	720-1053	721-1053	722-1053	723-1053
21/32	1/2	1-5/16	3-5/16	720-1055	721-1055	722-1055	723-1055
11/16	1/2	1-5/16	3-5/16	720-1057	721-1057	722-1057	723-1057
11/16	5/8	1-5/16	3-7/16	720-1059	721-1059	722-1059	723-1059
23/32	1/2	1-5/16	3-5/16	720-1061	721-1061	722-1061	723-1061
3/4	1/2	1-5/16	3-5/16	720-1063	721-1063	722-1063	723-1063
3/4	5/8	1-5/16	3-7/16	720-1065	721-1065	722-1065	723-1065
3/4	3/4	1-5/16	3-7/16	720-1066	721-1066	722-1066	723-1066
3/4	3/4	1-5/16	3-9/16	720-1067	721-1067	722-1067	723-1067
3/4	3/4	1-3/4	4"	720-1069	721-1069	722-1069	723-1069
25/32	1/2	1-1/2	3-1/2	720-1071	721-1071	722-1071	723-1071
13/16	1/2	1-1/2	3-5/16	720-1077	721-1077	722-1077	723-1077
13/16	1/2	1-1/2	3-5/8	720-1072	721-1072	722-1072	723-1072
13/16	5/8	1-1/2	3-5/8	720-1073	721-1073	722-1073	723-1073
13/16	3/4	1-1/2	3-3/4	720-1075	721-1075	722-1075	723-1075
27/32	1/2	1-1/2	3-1/2	720-1079	721-1079	722-1079	723-1079
7/8	1/2	1-1/2	3-1/2	720-1081	721-1081	722-1081	723-1081
7/8	1/2	1-1/2	3-5/8	720-1082	721-1082	722-1082	723-1082
7/8	5/8	1-1/2	3-5/8	720-1083	721-1083	722-1083	723-1083
7/8	3/4	1-1/2	3-3/4	720-1085	721-1085	722-1085	723-1085
7/8	7/8	1-1/2	3-3/4	720-1087	721-1087	722-1087	723-1087

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
29/32	1/2	1-1/2	3-1/2	720-1089	721-1089	722-1089	723-1089
15/16	1/2	1-1/2	3-5/8	720-1090	721-1090	722-1090	723-1090
15/16	5/8	1-1/2	3-5/8	720-1091	721-1091	722-1091	723-1091
15/16	3/4	1-1/2	3-3/4	720-1093	721-1093	722-1093	723-1093
15/16	7/8	1-1/2	3-3/4	720-1095	721-1095	722-1095	723-1095
31/32	1/2	1-1/2	3-1/2	720-1097	721-1097	722-1097	723-1097
1"	1/2	1-1/2	3-1/2	720-1099	721-1099	722-1099	723-1099
1"	1/2	1-1/2	3-5/8	720-1102	721-1102	722-1102	723-1102
1"	5/8	1-1/2	3-5/8	720-1101	721-1101	722-1101	723-1101
1"	3/4	1-1/2	3-3/4	720-1103	721-1103	722-1103	723-1103
1"	7/8	1-1/2	3-3/4	720-1105	721-1105	722-1105	723-1105
1"	1"	1-5/8	4-1/8	720-1107	721-1107	722-1107	723-1107
1-1/16	3/4	1-5/8	3-3/4	720-1109	721-1109	722-1109	723-1109
1-1/16	5/8	1-5/8	3-7/8	720-1100	721-1100	722-1100	723-1100
1-1/16	3/4	1-5/8	3-7/8	720-1108	721-1108	722-1108	723-1108
1-1/16	7/8	1-5/8	3-7/8	720-1110	721-1110	722-1110	723-1110
1-1/8	3/4	1-5/8	3-7/8	720-1111	721-1111	722-1111	723-1111
1-1/8	7/8	1-5/8	3-7/8	720-1113	721-1113	722-1113	723-1113
1-1/8	1"	1-5/8	4-1/8	720-1115	721-1115	722-1115	723-1115
1-3/16	3/4	1-5/8	3-7/8	720-1117	721-1117	722-1117	723-1117
1-3/16	1"	1-5/8	4-1/8	720-1098	721-1098	722-1098	723-1098
1-3/16	1"	1-5/8	4-1/8	720-1118	721-1118	722-1118	723-1118
1-1/4	3/4	1-5/8	3-7/8	720-1119	721-1119	722-1119	723-1119
1-1/4	7/8	1-5/8	3-7/8	720-1121	721-1121	722-1121	723-1121
1-1/4	1"	1-5/8	4-1/8	720-1123	721-1123	722-1123	723-1123
1-1/4	1-1/4	1-5/8	4-1/8	720-1125	721-1125	722-1125	723-1125
1-5/16	3/4	1-5/8	3-7/8	720-1127	721-1127	722-1127	723-1127
1-3/8	3/4	1-5/8	3-7/8	720-1129	721-1129	722-1129	723-1129
1-3/8	1"	1-5/8	4-1/8	720-1131	721-1131	722-1131	723-1131
1-7/16	3/4	1-5/8	3-7/8	720-1133	721-1133	722-1133	723-1133
1-1/2	3/4	1-5/8	3-7/8	720-1135	721-1135	722-1135	723-1135
1-1/2	3/4	1-5/8	4-1/8	720-1136	721-1136	722-1136	723-1136
1-1/2	1"	1-5/8	4-1/8	720-1137	721-1137	722-1137	723-1137
1-1/2	1-1/4	1-5/8	4-1/8	720-1139	721-1139	722-1139	723-1139
1-5/8	3/4	1-5/8	3-7/8	720-1141	721-1141	722-1141	723-1141
1-5/8	3/4	1-5/8	4-1/8	720-1142	721-1142	722-1142	723-1142
1-5/8	1-1/4	1-5/8	4-1/8	720-1143	721-1143	722-1143	723-1143
1-3/4	3/4	1-5/8	3-7/8	720-1145	721-1145	722-1145	723-1145
1-3/4	3/4	1-5/8	4-1/8	720-1146	721-1146	722-1146	723-1146
1-3/4	1-1/4	1-5/8	4-1/8	720-1147	721-1147	722-1147	723-1147
1-7/8	3/4	1-5/8	3-7/8	720-1149	721-1149	722-1149	723-1149
1-7/8	1-1/4	1-5/8	4-1/8	720-1151	721-1151	722-1151	723-1151
2"	3/4	1-5/8	3-7/8	720-1153	721-1153	722-1153	723-1153
2"	3/4	1-5/8	4-1/8	720-1154	721-1154	722-1154	723-1154
2"	1-1/4	1-5/8	4-1/8	720-1155	721-1155	722-1155	723-1155
2"	1-1/4	2-1/2	5"	720-1156	721-1156	722-1156	723-1156
2"	2"	2"	5-3/4	720-1157	721-1157	722-1157	723-1157
2"	2"	3"	6-3/4	720-1159	721-1159	722-1159	723-1159
2"	2"	4"	7-3/4	720-1160	721-1160	722-1160	723-1160
2-1/4	1-1/4	1-5/8	4-1/8	720-1161	721-1161	722-1161	723-1161
2-1/2	2"	4"	7-5/8	720-1162	721-1162	722-1162	723-1162
2-1/2	2"	4"	7-3/4	720-1163	721-1163	722-1163	723-1163
2-1/2	2"	6"	9-5/8	720-1164	721-1164	722-1164	723-1164
2-1/2	2"	6"	9-3/4	720-1165	721-1165	722-1165	723-1165
3"	2-1/2	4"	7-3/4	720-1167	721-1167	722-1167	723-1167

EXTENDED SHANK



Size	Shank Dia.	Below Shank Length	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/8	3/8	13/16	3/8	2-3/8	720-1171	721-1171	722-1171	723-1171
3/16	3/8	1-1/8	1/2	2-11/16	720-1173	721-1173	722-1173	723-1173
3/16	3/8	1-1/2	5/8	3-1/16	720-1172	721-1172	722-1172	723-1172
1/4	3/8	1"	5/8	3-1/16	720-1174	721-1174	722-1174	723-1174
1/4	3/8	1-1/2	5/8	3-1/16	720-1175	721-1175	722-1175	723-1175
5/16	3/8	1-3/4	3/4	3-5/16	720-1177	721-1177	722-1177	723-1177
5/16	3/8	1-1/2	3/4	3-1/4"	720-1178	721-1178	722-1178	723-1178
3/8	3/8	1-3/4	3/4	3-5/16	720-1179	721-1179	722-1179	723-1179
3/8	3/8	1-3/4	1-7/8	3-5/16	720-1180	721-1180	722-1180	723-1180
1/2	1/2	2-1/4	1"	4"	720-1181	721-1181	722-1181	723-1181

Length								
Shank	Below	Flute	Overall	HSS	M2Al	TiN-COAT	M42	
Size	Dia.	shank	Length	Length	Model No.	Model No.	Model No.	Model No.
1/2	1/2	2-1/4	1-7/8	4"	720-1182	721-1182	722-1182	723-1182
5/8	1/2	2-3/4	1-3/8	4-5/8	720-1184	721-1184	722-1184	723-1184
5/8	5/8	2-3/4	1-3/8	4-5/8	720-1183	721-1183	722-1183	723-1183
5/8	5/8	2-3/4	2"	4-5/8	720-1188	721-1188	722-1188	723-1188
3/4	1/2	3-3/8	1-5/8	5-3/8	720-1186	721-1186	722-1186	723-1186
3/4	3/4	3-3/8	1-5/8	5-3/8	720-1185	721-1185	722-1185	723-1185
7/8	7/8	4"	2"	6"	720-1187	721-1187	722-1187	723-1187
1"	1"	5"	2-1/2	7-1/4	720-1189	721-1189	722-1189	723-1189
1-1/4	1-1/4	5"	3"	7-1/4	720-1191	721-1191	722-1191	723-1191

End Mills

2FLUTE SINGLE END MILLS

- Use for milling slots, pockets and plunge cuts.
- TiN coating facilitates chip flow and allows elevated feeds.

Medium Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3/16	3/8	3/4	2-5/8	720-1201	721-1201	722-1201	723-1201
7/32	3/8	1-1/4	3-1/8	720-1203	721-1203	722-1203	723-1203
1/4	3/8	1"	2-3/4	720-1204	721-1204	722-1204	723-1204
1/4	3/8	1"	3-1/16	720-1205	721-1205	722-1205	723-1205
1/4	3/8	1-1/4	3-1/8	720-1207	721-1207	722-1207	723-1207
9/32	3/8	1-3/8	3-1/8	720-1209	721-1209	722-1209	723-1209
5/16	3/8	1-1/4	3"	720-1210	721-1210	722-1210	723-1210
5/16	3/8	1-1/4	3-5/16	720-1211	721-1211	722-1211	723-1211
5/16	3/8	1-3/8	3-1/8	720-1213	721-1213	722-1213	723-1213
11/32	3/8	1-1/2	3-1/4	720-1215	721-1215	722-1215	723-1215
3/8	3/8	1"	2-3/4	720-1217	721-1217	722-1217	723-1217
3/8	3/8	1-1/2	3-1/4	720-1219	721-1219	722-1219	723-1219
7/16	1/2	1-3/4	3-3/4	720-1221	721-1221	722-1221	723-1221
1/2	1/2	1-1/2	3-1/2	720-1223	721-1223	722-1223	723-1223
1/2	1/2	2"	4"	720-1225	721-1225	722-1225	723-1225
1/2	1/2	3"	5"	720-1226	721-1226	722-1226	723-1226
5/8	5/8	1-5/8	3-3/4	720-1227	721-1227	722-1227	723-1227
5/8	5/8	2"	4-1/8	720-1229	721-1229	722-1229	723-1229
5/8	5/8	2-3/8	4-1/2	720-1230	721-1230	722-1230	723-1230
5/8	5/8	2-1/2	4-5/8	720-1231	721-1231	722-1231	723-1231
5/8	5/8	3"	5-1/8	720-1233	721-1233	722-1233	723-1233
5/8	5/8	4"	6-1/8	720-1234	721-1234	722-1234	723-1234
3/4	3/4	1-3/4	4"	720-1235	721-1235	722-1235	723-1235
3/4	3/4	2-1/4	4-1/2	720-1237	721-1237	722-1237	723-1237
3/4	3/4	2-1/2	4-3/4	720-1239	721-1239	722-1239	723-1239
3/4	3/4	3"	5-1/4	720-1241	721-1241	722-1241	723-1241
3/4	3/4	3-1/2	5-3/4	720-1243	721-1243	722-1243	723-1243
3/4	3/4	4"	6-1/4	720-1244	721-1244	722-1244	723-1244
7/8	7/8	2"	4-1/4	720-1245	721-1245	722-1245	723-1245
7/8	7/8	2-1/2	4-3/4	720-1247	721-1247	722-1247	723-1247
7/8	7/8	3-1/2	5-3/4	720-1248	721-1248	722-1248	723-1248



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1"	1"	2"	4-1/2	720-1249	721-1249	722-1249	723-1249
1"	1"	2-1/4	4-3/4	720-1251	721-1251	722-1251	723-1251
1"	1"	2-1/2	5"	720-1253	721-1253	722-1253	723-1253
1"	1"	3"	5-1/2	720-1255	721-1255	722-1255	723-1255
1"	1"	3-1/2	6"	720-1257	721-1257	722-1257	723-1257
1"	1"	4"	6-1/2	720-1259	721-1259	722-1259	723-1259
1"	1"	4-5/8	7"	720-1261	721-1261	722-1261	723-1261
1-1/8	1"	2-1/4	4-3/4	720-1263	721-1263	722-1263	723-1263
1-1/8	1"	3"	4-3/4	720-1265	721-1265	722-1265	723-1265
1-1/8	1"	3"	5-1/2"	720-1266	721-1266	722-1266	723-1266
1-1/4	1"	2-1/4	4-3/4	720-1267	721-1267	722-1267	723-1267
1-1/4	1-1/4	2-1/4	5-1/2	720-1269	721-1269	722-1269	723-1269
1-1/4	1"	3"	5-1/2	720-1271	721-1271	722-1271	723-1271
1-1/4	1-1/4	3"	5-1/2	720-1273	721-1273	722-1273	723-1273
1-1/4	1-1/4	3-1/2	6"	720-1274	721-1274	722-1274	723-1274
1-1/4	1-1/4	4-3/4	7-1/4	720-1275	721-1275	722-1275	723-1275
1-3/8	1"	2-1/4	4-3/4	720-1277	721-1277	722-1277	723-1277
1-3/8	1"	3"	5-1/2	720-1279	721-1279	722-1279	723-1279
1-1/2	1-1/4	6"	8-1/2	720-1280	721-1280	722-1280	723-1280
1-1/2	1-1/4	2-1/4	4-3/4	720-1281	721-1281	722-1281	723-1281
1-1/2	1-1/4	3"	5-1/2	720-1283	721-1283	722-1283	723-1283
1-1/2	1-1/4	4"	6-1/2	720-1284	721-1284	722-1284	723-1284
1-5/8	1-1/4	2-1/4	4-3/4	720-1285	721-1285	722-1285	723-1285
1-5/8	1-1/4	3"	5-1/2	720-1287	721-1287	722-1287	723-1287
1-3/4	1-1/4	2-1/4	4-3/4	720-1289	721-1289	722-1289	723-1289
1-3/4	1-1/4	3"	5-1/2	720-1291	721-1291	722-1291	723-1291
1-7/8	1-1/4	2-1/4	4-3/4	720-1293	721-1293	722-1293	723-1293
1-7/8	1-1/4	3"	5-1/2	720-1295	721-1295	722-1295	723-1295
2"	1-1/4	2-1/4	4-3/4	720-1297	721-1297	722-1297	723-1297
2"	1-1/4	3"	5-1/2	720-1299	721-1299	722-1299	723-1299
2"	1-1/4	4"	6-1/2"	720-1300	721-1300	722-1300	723-1300

2FLUTE SINGLE END MILLS FOR ALUMINUM

REGULAR/LONG/EXTRA LONG FLUTE LENGTH

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/4	3/8	5/8	2-1/2	720-1501	721-1501	722-1501	723-1501
1/4	3/8	1-1/4	3-1/8	720-1503	721-1503	722-1503	723-1503
1/4	3/8	1-3/4	3-1/2	720-1505	721-1505	722-1505	723-1505
5/16	3/8	3/4	2-1/2	720-1507	721-1507	722-1507	723-1507
5/16	3/8	1-3/8	3-1/8	720-1509	721-1509	722-1509	723-1509
5/16	3/8	2"	3-3/4	720-1511	721-1511	722-1511	723-1511
3/8	3/8	3/4	2-1/2	720-1513	721-1513	722-1513	723-1513
3/8	3/8	1-1/2	3-1/4	720-1515	721-1515	722-1515	723-1515
3/8	3/8	2-1/2	4-1/4	720-1517	721-1517	722-1517	723-1517
7/16	3/8	1"	2-11/16	720-1519	721-1519	722-1519	723-1519
7/16	1/2	1-3/4	3-3/4	720-1521	721-1521	722-1521	723-1521
7/16	1/2	2-3/4	4-3/4	720-1523	721-1523	722-1523	723-1523
1/2	1/2	1"	3-1/4	720-1525	721-1525	722-1525	723-1525
1/2	1/2	2"	4"	720-1527	721-1527	722-1527	723-1527
1/2	1/2	3"	5"	720-1529	721-1529	722-1529	723-1529
5/8	1/2	1-3/8	3-3/8	720-1530	721-1530	722-1530	723-1530
5/8	5/8	1-5/8	3-3/4	720-1531	721-1531	722-1531	723-1531
5/8	5/8	2-1/2	4-5/8	720-1533	721-1533	722-1533	723-1533
5/8	5/8	4"	6-1/8	720-1535	721-1535	722-1535	723-1535
3/4	1/2	1-5/8	3-5/8	720-1536	721-1536	722-1536	723-1536

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3/4	3/4	1-5/8	3-7/8	720-1537	721-1537	722-1537	723-1537
3/4	3/4	3"	5-1/4	720-1539	721-1539	722-1539	723-1539
3/4	3/4	4"	6-1/4	720-1541	721-1541	722-1541	723-1541
7/8	7/8	1-7/8	4-1/8	720-1543	721-1543	722-1543	723-1543
7/8	7/8	3-1/2	5-3/4	720-1545	721-1545	722-1545	723-1545
7/8	7/8	5"	7-1/4	720-1547	721-1547	722-1547	723-1547
1"	3/4	1-7/8	4-1/8	720-1551	721-1551	722-1551	723-1551
1"	1"	2"	4-1/2	720-1553	721-1553	722-1553	723-1553
1"	1"	4"	6-1/2	720-1555	721-1555	722-1555	723-1555
1"	1"	6"	8-1/2	720-1557	721-1557	722-1557	723-1557
1-1/4	1-1/4	2"	4-1/2	720-1559	721-1559	722-1559	723-1559
1-1/4	1-1/4	4"	6-1/2	720-1561	721-1561	722-1561	723-1561
1-1/4	1-1/4	6"	8-1/2	720-1563	721-1563	722-1563	723-1563
1-1/2	1-1/4	2"	4-1/2	720-1565	721-1565	722-1565	723-1565
1-1/2	1-1/4	4"	6-1/2	720-1567	721-1567	722-1567	723-1567
1-1/2	1-1/4	8"	10-1/2	720-1569	721-1569	722-1569	723-1569
1-3/4	1-1/4	2"	4-1/2	720-1571	721-1571	722-1571	723-1571
1-3/4	1-1/4	4"	6-1/2	720-1573	721-1573	722-1573	723-1573
2"	1-1/4	2"	4-1/2	720-1575	721-1575	722-1575	723-1575
2"	1-1/4	4"	6-1/2	720-1577	721-1577	722-1577	723-1577



End Mills

2FLUTE METRIC SINGLE END MILLS

DIN327 e8

Regular Length



Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1	6	4	48	720-2301	721-2301	722-2301 723-2301
1.5	6	4	48	720-2350	721-2350	722-2350 723-2350
2	6	4	48	720-2302	721-2302	722-2302 723-2302
2.5	6	5	49	720-2352	721-2352	722-2352 723-2352
3	6	6	50	720-2303	721-2303	722-2303 723-2303
4	6	7	51	720-2304	721-2304	722-2304 723-2304
5	6	8	52	720-2305	721-2305	722-2305 723-2305
6	6	8	52	720-2306	721-2306	722-2306 723-2306
7	10	10	60	720-2307	721-2307	722-2307 723-2307
8	10	11	61	720-2308	721-2308	722-2308 723-2308
9	10	13	63	720-2309	721-2309	722-2309 723-2309
10	10	13	63	720-2310	721-2310	722-2310 723-2310
11	12	13	70	720-2311	721-2311	722-2311 723-2311
12	12	16	73	720-2312	721-2312	722-2312 723-2312
13	12	16	73	720-2313	721-2313	722-2313 723-2313
14	12	16	73	720-2314	721-2314	722-2314 723-2314
15	12	16	73	720-2315	721-2315	722-2315 723-2315

Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
16	16	19	79	720-2316	721-2316	722-2316 723-2316
17	16	19	79	720-2317	721-2317	722-2317 723-2317
18	16	19	79	720-2318	721-2318	722-2318 723-2318
19	16	19	79	720-2319	721-2319	722-2319 723-2319
20	20	22	88	720-2320	721-2320	722-2320 723-2320
21	20	22	88	720-2321	721-2321	722-2321 723-2321
22	20	22	88	720-2322	721-2322	722-2322 723-2322
23	20	22	88	720-2323	721-2323	722-2323 723-2323
24	25	26	102	720-2324	721-2324	722-2324 723-2324
25	25	26	102	720-2325	721-2325	722-2325 723-2325
26	25	26	102	720-2326	721-2326	722-2326 723-2326
28	25	26	102	720-2328	721-2328	722-2328 723-2328
30	25	26	102	720-2330	721-2330	722-2330 723-2330
32	32	32	112	720-2332	721-2332	722-2332 723-2332
36	32	32	112	720-2336	721-2336	722-2336 723-2336
40	40	38	130	720-2340	721-2340	722-2340 723-2340

Long Length

Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1.5	6	7	51	720-2360	721-2360	722-2360 723-2360
2	6	7	51	720-2361	721-2361	722-2361 723-2361
2.5	6	8	52	720-2362	721-2362	722-2362 723-2362
3	6	8	52	720-2363	721-2363	722-2363 723-2363
4	6	11	55	720-2364	721-2364	722-2364 723-2364
5	6	13	57	720-2365	721-2365	722-2365 723-2365
6	6	13	57	720-2366	721-2366	722-2366 723-2366
7	10	16	66	720-2367	721-2367	722-2367 723-2367
8	10	19	69	720-2368	721-2368	722-2368 723-2368
9	10	19	69	720-2369	721-2369	722-2369 723-2369
10	10	22	72	720-2370	721-2370	722-2370 723-2370
11	12	22	79	720-2371	721-2371	722-2371 723-2371
12	12	26	83	720-2372	721-2372	722-2372 723-2372
13	12	26	83	720-2373	721-2373	722-2373 723-2373
14	12	26	83	720-2374	721-2374	722-2374 723-2374
15	12	26	83	720-2375	721-2375	722-2375 723-2375

Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
16	16	19	79	720-2376	721-2376	722-2376 723-2376
17	16	19	79	720-2377	721-2377	722-2377 723-2377
18	16	19	79	720-2378	721-2378	722-2378 723-2378
19	16	19	79	720-2379	721-2379	722-2379 723-2379
20	20	22	88	720-2380	721-2380	722-2380 723-2380
21	20	22	88	720-2381	721-2381	722-2381 723-2381
22	20	22	88	720-2382	721-2382	722-2382 723-2382
23	20	22	88	720-2383	721-2383	722-2383 723-2383
24	25	26	102	720-2384	721-2384	722-2384 723-2384
25	25	26	102	720-2385	721-2385	722-2385 723-2385
26	25	26	102	720-2386	721-2386	722-2386 723-2386
28	25	26	102	720-2388	721-2388	722-2388 723-2388
30	25	26	102	720-2390	721-2390	722-2390 723-2390
32	32	32	112	720-2392	721-2392	722-2392 723-2392
36	32	32	112	720-2396	721-2396	722-2396 723-2396
40	40	38	130	720-2398	721-2398	722-2398 723-2398

2 FLUTE BALL NOSE SINGLE END MILLS

- Designed for milling radius bottom slots, fillets and special contours.
- Center cutting design is used to plunge into solid material at the beginning of a slotting cut.
- 2 Flute design provides excellent chip evacuation.

Regular Length



Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1/8"	3/8"	3/8"	2-5/16"	720-1401	721-1401	722-1401 723-1401
5/32	3/8"	7/16	2-5/16	720-1402	721-1402	722-1402 723-1402
3/16	3/8"	1/2	2-3/8	720-1403	721-1403	722-1403 723-1403
7/32	3/8"	1/2	2-3/8	720-1404	721-1404	722-1404 723-1404
1/4	3/8"	5/8	2-7/16	720-1405	721-1405	722-1405 723-1405
9/32	3/8"	9/16	2-3/8"	720-1406	721-1406	722-1406 723-1406
5/16	3/8"	3/4	2-1/2	720-1407	721-1407	722-1407 723-1407
11/32	3/8"	3/4	2-1/2	720-1408	721-1408	722-1408 723-1408
3/8	3/8"	3/4	2-1/2	720-1409	721-1409	722-1409 723-1409
7/16	1/2	1"	3"	720-1411	721-1411	722-1411 723-1411
1/2	1/2	1"	3"	720-1413	721-1413	722-1413 723-1413
9/16	1/2	1"	3"	720-1415	721-1415	722-1415 723-1415
5/8	1/2	1-1/8	3-1/8	720-1417	721-1417	722-1417 723-1417
5/8	5/8	1-3/8	3-3/8	720-1419	721-1419	722-1419 723-1419

Shank Size	Flute Dia.	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
3/4"	1/2"	1-5/8"	3-5/8"	720-1421	721-1421	722-1421 723-1421
3/4	3/4	1-5/8	3-7/8	720-1423	721-1423	722-1423 723-1423
13/16	3/4	2"	4-1/4	720-1425	721-1425	722-1425 723-1425
7/8	3/4	2"	4-1/4	720-1427	721-1427	722-1427 723-1427
7/8	7/8	2"	4-1/4	720-1429	721-1429	722-1429 723-1429
15/16	3/4	2-1/4	4-1/2	720-1431	721-1431	722-1431 723-1431
1"	3/4	2-1/4	4-9/16	720-1433	721-1433	722-1433 723-1433
1"	1"	2-1/4	4-3/4	720-1435	721-1435	722-1435 723-1435
1-1/8	1"	2-1/4	4-3/4	720-1437	721-1437	722-1437 723-1437
1-1/4	1-1/4	2-1/2	5"	720-1439	721-1439	722-1439 723-1439
1-3/8	1-1/4	2-1/2	5"	720-1441	721-1441	722-1441 723-1441
1-1/2	1-1/4	2-1/2	5"	720-1443	721-1443	722-1443 723-1443
2"	1-1/4	2-1/2	5"	720-1445	721-1445	722-1445 723-1445

End Mills

2 FLUTE BALL NOSE SINGLE END MILLS



Extended Shank

		Length			HSS Model No.	M2Al Model No.	TiN-Coat Model No.	M42 Model No.
Size	Shank Dia	Below Shank	Flute Length	Overall Length				
1/8"	3/8"	13/16"	3/8"	2-3/8"	720-1451	721-1451	722-1451	723-1451
3/16	3/8	1-1/8	1/2	2-11/16	720-1453	721-1453	722-1453	723-1453
1/4	3/8	1-1/2	5/8	3-1/16	720-1455	721-1455	722-1455	723-1455
5/16	3/8	1-3/4	3/4	3-5/16	720-1457	721-1457	722-1457	723-1457
3/8	3/8	1-3/4	3/4	3-5/16	720-1459	721-1459	722-1459	723-1459
7/16	1/2	1-7/8	1"	3-11/16	720-1461	721-1461	722-1461	723-1461
1/2	1/2	2-1/4	1"	4"	720-1463	721-1463	722-1463	723-1463
5/8	5/8	2-3/4	1-3/8	4-5/8	720-1465	721-1465	722-1465	723-1465
3/4	3/4	3-3/8	1-5/8	5-3/8	720-1467	721-1467	722-1467	723-1467
1"	1"	5"	2-1/2	7-1/4	720-1469	721-1469	722-1469	723-1469

2 FLUTE METRIC SIZE BALL NOSE SINGLE END MILLS

DIN327 e8

Regular Length



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
2	6	4	48	720-2402	721-2402	722-2402	723-2402
3	6	6	50	720-2403	721-2403	722-2403	723-2403
4	6	7	51	720-2404	721-2404	722-2404	723-2404
5	6	8	52	720-2405	721-2405	722-2405	723-2405
6	6	8	52	720-2406	721-2406	722-2406	723-2406
7	10	10	60	720-2407	721-2407	722-2407	723-2407
8	10	11	61	720-2408	721-2408	722-2408	723-2408
9	10	13	63	720-2409	721-2409	722-2409	723-2409
10	10	13	63	720-2410	721-2410	722-2410	723-2410
11	12	16	73	720-2411	721-2411	722-2411	723-2411
12	12	12	73	720-2412	721-2412	722-2412	723-2412
13	12	12	73	720-2413	721-2413	722-2413	723-2413

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
14	12	16	73	720-2414	721-2414	722-2414	723-2414
15	12	16	73	720-2415	721-2415	722-2415	723-2415
16	16	19	73	720-2416	721-2416	722-2416	723-2416
17	16	19	79	720-2417	721-2417	722-2417	723-2417
18	16	19	79	720-2418	721-2418	722-2418	723-2418
19	16	19	79	720-2419	721-2419	722-2419	723-2419
20	20	22	88	720-2420	721-2420	722-2420	723-2420
21	20	22	88	720-2421	721-2421	722-2421	723-2421
22	20	22	88	720-2422	721-2422	722-2422	723-2422
23	20	22	88	720-2423	721-2423	722-2423	723-2423
24	25	26	102	720-2424	721-2424	722-2424	723-2424
25	25	26	102	720-2425	721-2425	722-2425	723-2425

Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3	6	8	52	720-2501	721-2501	722-2501	723-2501
3.5	6	10	54	720-2502	721-2502	722-2502	723-2502
4	6	11	55	720-2504	721-2504	722-2504	723-2504
5	6	13	57	720-2505	721-2505	722-2505	723-2505
6	6	13	57	720-2506	721-2506	722-2506	723-2506
7	8	16	60	720-2507	721-2507	722-2507	723-2507
7	10	16	66	720-2503	721-2503	722-2503	723-2503
8	8	19	69	720-2508	721-2508	722-2508	723-2508
8	10	19	69	720-2509	721-2509	722-2509	723-2509
9	10	19	69	720-2510	721-2510	722-2510	723-2510
10	10	22	72	720-2511	721-2511	722-2511	723-2511

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
11	12	22	79	720-2512	721-2512	722-2512	723-2512
12	12	26	83	720-2513	721-2513	722-2513	723-2513
14	12	26	83	720-2514	721-2514	722-2514	723-2514
16	16	32	92	720-2515	721-2515	722-2515	723-2515
18	16	32	92	720-2516	721-2516	722-2516	723-2516
20	20	38	104	720-2517	721-2517	722-2517	723-2517
22	20	38	104	720-2518	721-2518	722-2518	723-2518
25	25	45	121	720-2519	721-2519	722-2519	723-2519
28	25	45	121	720-2520	721-2520	722-2520	723-2520
30	25	45	121	720-2521	721-2521	722-2521	723-2521

Extra Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
4	6	19	63	720-2601	721-2601	722-2601	723-2601
5	6	24	68	720-2602	721-2602	722-2602	723-2602
6	6	24	68	720-2603	721-2604	722-2604	723-2604
7	8	30	74	720-2604	721-2605	722-2605	723-2605
7	10	30	80	720-2605	721-2606	722-2606	723-2606
8	8	38	82	720-2606	721-2607	722-2607	723-2607
8	10	38	88	720-2607	721-2603	722-2603	723-2603
9	10	38	88	720-2608	721-2608	722-2608	723-2608
10	10	45	95	720-2610	721-2610	722-2610	723-2610
11	12	45	102	720-2611	721-2611	722-2611	723-2611

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
12	12	53	110	720-2612	721-2612	722-2612	723-2612
14	12	53	110	720-2614	721-2614	722-2614	723-2614
16	16	63	123	720-2616	721-2616	722-2616	723-2616
18	16	63	123	720-2618	721-2618	722-2618	723-2618
20	20	75	141	720-2620	721-2620	722-2620	723-2620
22	20	75	141	720-2622	721-2622	722-2622	723-2622
25	25	90	166	720-2625	721-2625	722-2625	723-2625
28	25	90	166	720-2628	721-2628	722-2628	723-2628
30	25	90	166	720-2630	721-2630	722-2630	723-2630

End Mills

2FLUTE SINGLE END MILLS



Inch Shank Metric Size

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
2mm	3/8	3/8	2-5/16	720-9020	721-9020	722-9020	723-9020
2.5mm	3/8	9/32	2-5/16	720-9025	721-9025	722-9025	723-9025
3mm	3/8	3/8	2-5/16	720-9030	721-9030	722-9030	723-9030
3.5mm	3/8	3/8	2-5/16	720-9035	721-9035	722-9035	723-9035
4mm	3/8	7/16	2-5/16	720-9040	721-9040	722-9040	723-9040
4.5mm	3/8	7/16	2-5/16	720-9045	721-9045	722-9045	723-9045
5mm	3/8	1/2	2-5/16	720-9050	721-9050	722-9050	723-9050
5.5mm	3/8	1/2	2-5/16	720-9055	721-9055	722-9055	723-9055
6mm	3/8	1/2	2-5/16	720-9060	721-9060	722-9060	723-9060
7mm	3/8	9/16	2-5/16	720-9070	721-9070	722-9070	723-9070
8mm	3/8	9/16	2-5/16	720-9080	721-9080	722-9080	723-9080
9mm	3/8	9/16	2-5/16	720-9090	721-9090	722-9090	723-9090
10mm	3/8	13/16	2-1/2	720-9100	721-9100	722-9100	723-9100
11mm	3/8	13/16	2-1/2	720-9110	721-9110	722-9110	723-9110
12mm	3/8	13/16	2-1/2	720-9120	721-9120	722-9120	723-9120
12.5mm	1/2	1	3	720-9125	721-9125	722-9125	723-9125
13mm	1/2	1	3	720-9130	721-9130	722-9130	723-9130
14mm	1/2	1-1/8	3-1/8	720-9140	721-9140	722-9140	723-9140
15mm	1/2	1-1/8	3-1/8	720-9150	721-9150	722-9150	723-9150
16mm	1/2	1-5/16	3-5/16	720-9160	721-9160	722-9160	723-9160
18mm	1/2	1-5/16	3-5/16	720-9180	721-9180	722-9180	723-9180
20mm	3/4	1-1/2	3-3/4	720-9200	721-9200	722-9200	723-9200
22mm	3/4	1-1/2	3-3/4	720-9220	721-9220	722-9220	723-9220
24mm	3/4	1-1/2	3-3/4	720-9240	721-9240	722-9240	723-9240
25mm	3/4	1-5/8	3-7/8	720-9250	721-9250	722-9250	723-9250
26mm	3/4	1-5/8	3-7/8	720-9260	721-9260	722-9260	723-9260
30mm	1	1-5/8	4-1/8	720-9300	721-9300	722-9300	723-9300
32mm	1	1-5/8	4-1/8	720-9320	721-9320	722-9320	723-9320
36mm	1	1-5/8	4-1/8	720-9360	721-9360	722-9360	723-9360

2 FLUTE BALL NOSE SINGLE END MILLS for ALUMINUM

REGULAR LONG & EXTRA LONG FLUTE LENGTH

- Recommended for mill radius bottom slots and special contours in aluminum and other non-ferrous materials.
- The high helix angle shears the material cleanly and helps eliminate chatter.
- TiN coating add lubricity to minimize chip packing in th flutes.



Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/4"	3/8"	5/8"	2-1/2"	720-1601	721-1601	722-1601	723-1601
1/4	3/8	1-1/4	3-1/8	720-1603	721-1603	722-1603	723-1603
1/4	3/8	1-3/4	3-1/2	720-1605	721-1605	722-1605	723-1605
5/16	3/8	3/4	2-1/2	720-1607	721-1607	722-1607	723-1607
5/16	3/8	1-3/8	3-1/8	720-1609	721-1609	722-1609	723-1609
5/16	3/8	2"	3-3/4	720-1611	721-1611	722-1611	723-1611
3/8	3/8	3/4	2-1/2	720-1613	721-1613	722-1613	723-1613
3/8	3/8	1-1/2	3-1/4	720-1615	721-1615	722-1615	723-1615
3/8	3/8	2-1/2	4-1/4	720-1617	721-1617	722-1617	723-1617
7/16	3/8	1"	2-11/16	720-1619	721-1619	722-1619	723-1619
7/16	1/2	1-3/4	3-3/4	720-1621	721-1621	722-1621	723-1621
7/16	1/2	2-3/4	4-3/4	720-1623	721-1623	722-1623	723-1623
1/2	1/2	1"	3-1/4	720-1625	721-1625	722-1625	723-1625
1/2	1/2	2"	4"	720-1627	721-1627	722-1627	723-1627
1/2"	1/2"	3"	5"	720-1629	721-1629	722-1629	723-1629
5/8	5/8	1-5/8	3-3/4	720-1631	721-1631	722-1631	723-1631
5/8	5/8	2-1/2	4-5/8	720-1633	721-1633	722-1633	723-1633
5/8	5/8	4"	6-1/8	720-1635	721-1635	722-1635	723-1635
3/4	3/4	1-5/8	3-7/8	720-1637	721-1637	722-1637	723-1637
3/4	3/4	3"	5-1/4	720-1639	721-1639	722-1639	723-1639
3/4	3/4	4"	6-1/4	720-1641	721-1641	722-1641	723-1641
7/8	1-7/8	1-7/8	4-1/8	720-1643	721-1643	722-1643	723-1643
7/8	7/8	3-1/2	5-3/4	720-1645	721-1645	722-1645	723-1645
7/8	7/8	5"	7-1/4	720-1647	721-1647	722-1647	723-1647
1"	3/4	1-7/8	4-1/8	720-1651	721-1651	722-1651	723-1651
1"	1"	2"	4-1/2	720-1653	721-1653	722-1653	723-1653
1"	1"	4"	6-1/2	720-1655	721-1655	722-1655	723-1655
1"	1"	6"	8-1/2	720-1657	721-1657	722-1657	723-1657

End Mills

2 FLUTE DOUBLE END MILLS

REGULAR LENGTH

- Use for milling slots, pockets and for plunge cutting in a wide variety of materials.
- More economical in production milling than single end end mills.



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
5/64"	3/8"	5/16"	3-1/16"	720-2000	721-2000	722-2000	723-2000
3/32	3/8	5/16	3-1/16	720-2002	721-2002	722-2002	723-2002
7/64	3/8	5/16	3-1/16	720-2004	721-2004	722-2004	723-2004
1/8	3/8	3/8	3-1/16	720-2008	721-2008	722-2008	723-2008
9/64	3/8	7/16	3-1/8	720-2010	721-2010	722-2010	723-2010
5/32	3/8	7/16	3-1/8	720-2012	721-2012	722-2012	723-2012
11/64	3/8	7/16	3-1/8	720-2014	721-2014	722-2014	723-2014
3/16	3/8	7/16	3-1/8	720-2016	721-2016	722-2016	723-2016
13/64	3/8	1/2	3-1/8	720-2018	721-2018	722-2018	723-2018
7/32	3/8	1/2	3-1/8	720-2020	721-2020	722-2020	723-2020
15/64	3/8	1/2	3-1/8	720-2022	721-2022	722-2022	723-2022
1/4	3/8	1/2	3-1/8	720-2024	721-2024	722-2024	723-2024
17/64	3/8	9/16	3-1/8	720-2026	721-2026	722-2026	723-2026
9/32	3/8	9/16	3-1/8	720-2028	721-2028	722-2028	723-2028
19/64	3/8	9/16	3-1/8	720-2030	721-2030	722-2030	723-2030
5/16	3/8	9/16	3-1/8	720-2032	721-2032	722-2032	723-2032
21/64	3/8	9/16	3-1/8	720-2034	721-2034	722-2034	723-2034
11/32	3/8	9/16	3-1/8	720-2036	721-2036	722-2036	723-2036
23/64	3/8	9/16	3-1/8	720-2038	721-2038	722-2038	723-2038
3/8	3/8	9/16	3-1/16	720-2039	721-2039	722-2039	723-2039
3/8	3/8	9/16	3-1/8	720-2040	721-2040	722-2040	723-2040
25/64	1/2	13/16	3-3/4	720-2042	721-2042	722-2042	723-2042
13/32	1/2	13/16	3-3/4	720-2044	721-2044	722-2044	723-2044
13/32	1/2	13/16	3-13/16	720-2045	721-2045	722-2045	723-2045

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
27/64"	1/2"	13/16"	3-3/4"	720-2046	721-2046	722-2046	723-2046
7/16	1/2	13/16	3-3/4	720-2048	721-2048	722-2048	723-2048
29/64	1/2	13/16	3-3/4	720-2050	721-2050	722-2050	723-2050
15/32	1/2	13/16	3-3/4	720-2052	721-2052	722-2052	723-2052
31/64	1/2	13/16	3-3/4	720-2054	721-2054	722-2054	723-2054
1/2	1/2	13/16	3-3/4	720-2056	721-2056	722-2056	723-2056
17/32	5/8	1-1/8	4-1/2	720-2058	721-2058	722-2058	723-2058
9/16	5/8	1-1/8	4-1/2	720-2060	721-2060	722-2060	723-2060
19/32	5/8	1-1/8	4-1/2	720-2062	721-2062	722-2062	723-2062
5/8	5/8	1-1/8	4-1/2	720-2064	721-2064	722-2064	723-2064
5/8	1/2	1-1/8	4-1/2	720-2065	721-2065	722-2065	723-2065
21/32	3/4	1-5/16	5"	720-2066	721-2066	722-2066	723-2066
11/16	3/4	1-5/16	5"	720-2068	721-2068	722-2068	723-2068
23/32	3/4	1-5/16	5"	720-2070	721-2070	722-2070	723-2070
3/4	3/4	1-5/16	5"	720-2072	721-2072	722-2072	723-2072
25/32	7/8	1-9/16	5-1/2	720-2074	721-2074	722-2074	723-2074
13/16	7/8	1-9/16	5-1/2	720-2076	721-2076	722-2076	723-2076
27/32	7/8	1-9/16	5-1/2	720-2078	721-2078	722-2078	723-2078
7/8	7/8	1-9/16	5-1/2	720-2080	721-2080	722-2080	723-2080
7/8	3/4	1-9/16	5-1/2	720-2081	721-2081	722-2081	723-2081
29/32	1"	1-5/8	5-7/8	720-2082	721-2082	722-2082	723-2082
15/16	1"	1-5/8	5-7/8	720-2084	721-2084	722-2084	723-2084
31/32	1"	1-5/8	5-7/8	720-2086	721-2086	722-2086	723-2086
1"	1"	1-5/8	5-7/8	720-2088	721-2088	722-2088	723-2088

2 FLUTE METRIC DOUBLE END MILLS

AMERICASTANDARD



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
2.0	3/8"	1/4	3"	720-0500	721-0500	722-0500	723-0500
3.0	3/8	3/8	3-1/16	720-0502	721-0502	722-0502	723-0502
4.0	3/8	7/16	3-1/16	720-0504	721-0504	722-0504	723-0504
5.0	3/8	1/2	3-1/8	720-0508	721-0508	722-0508	723-0508
6.0	3/8	1/2	3-1/8	720-0510	721-0510	722-0510	723-0510
7.0	3/8	9/16	3-1/8	720-0512	721-0512	722-0512	723-0512
8.0	3/8	9/16	3-1/2	720-0514	721-0514	722-0514	723-0514

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
10.0	1/2	13/16	3-3/4	720-0516	721-0516	722-0516	723-0516
12.0	1/2	13/16	3-3/4	720-0518	721-0518	722-0518	723-0518
14.0	5/8	1-1/8	4-1/2	720-0520	721-0520	722-0520	723-0520
16.0	3/4	1-5/16	5"	720-0522	721-0522	722-0522	723-0522
18.0	3/4	1-5/16	5"	720-0524	721-0524	722-0524	723-0524
20.0	7/8	1-9/16	5-1/2	720-0526	721-0526	722-0526	723-0526
22.0	1"	1-5/8	5-7/8	720-0528	721-0528	722-0528	723-0528
24.0	1"	1-5/8	5-7/8	720-0530	721-0530	722-0530	723-0530

2 FLUTE BALL NOSE DOUBLE END MILLS

- Designed for milling radius bottom slots, fillets and special contours.
- Center cutting design is used to plunge into solid material at the beginning of a slotting cut.
- 2 Flute design provides excellent chip evacuation.



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/8"	3/8"	3/8"	3-3/16"	720-2100	721-2100	722-2100	723-2100
9/64	3/8	7/16	3-1/8	720-2105	721-2105	722-2105	723-2105
5/32	3/8	1/2	3-1/8	720-2110	721-2110	722-2110	723-2110
11/64	3/8	7/16	3-1/8	720-2115	721-2115	722-2115	723-2115
3/16	3/8	7/16	3-1/8	720-2120	721-2120	722-2120	723-2120
13/64	3/8	1/2	3-1/8	720-2125	721-2125	722-2125	723-2125
7/32	3/8	1/2	3-1/8	720-2130	721-2130	722-2130	723-2130
15/64	3/8	1/2	3-1/8	720-2135	721-2135	722-2135	723-2135
1/4	3/8	1/2	3-1/8	720-2140	721-2140	722-2140	723-2140
17/64	3/8	9/16	3-1/8	720-2145	721-2145	722-2145	723-2145
9/32	3/8	9/16	3-1/8	720-2150	721-2150	722-2150	723-2150
19/64	3/8	9/16	3-1/8	720-2155	721-2155	722-2155	723-2155
5/16	3/8	9/16	3-1/8	720-2160	721-2160	722-2160	723-2160
21/64	3/8	9/16	3-1/8	720-2161	721-2161	722-2161	723-2161
11/32	3/8	9/16	3-1/8	720-2162	721-2162	722-2162	723-2162
23/64	1/2	9/16	3-1/8	720-2163	721-2163	722-2163	723-2163
3/8	3/8	9/16	3-1/8	720-2165	721-2165	722-2165	723-2165
13/32	1/2	13/16	3-3/4	720-2168	721-2168	722-2168	723-2168
7/16	1/2	13/16	3-3/4	720-2170	721-2170	722-2170	723-2170
1/2	1/2	13/16	3-3/4	720-2174	721-2174	722-2174	723-2174
5/8	5/8	1-1/8	4-1/2	720-2185	721-2185	722-2185	723-2185
3/4	3/4	1-5/16	5"	720-2188	721-2188	722-2188	723-2188
7/8	7/8	1-9/16	5-1/2	720-2190	721-2190	722-2190	723-2190
1"	1"	1-5/8	5-7/8	720-2192	721-2192	722-2192	723-2192

End Mills

2 FLUTE BALL NOSE HIGH HELIX DOUBLE END MILLS

For ALUMINUM



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1/8"	3/8"	3/8"	3-1/16"	720-2202	721-2202	722-2202	723-2202
3/16	3/8	7/16	3-1/4	720-2204	721-2204	722-2204	723-2204
1/4	3/8	1/2	3-3/8	720-2206	721-2206	722-2206	723-2206
5/16	3/8	9/16	3-1/2	720-2208	721-2208	722-2208	723-2208
3/8	3/8	9/16	3-1/2	720-2210	721-2210	722-2210	723-2210
7/16	1/2	13/16	4-1/8	720-2212	721-2212	722-2212	723-2212
1/2	1/2	13/16	4-1/8	720-2214	721-2214	722-2214	723-2214
9/16	5/8	1-1/8	5"	720-2216	721-2216	722-2216	723-2216
5/8	5/8	1-1/8	5"	720-2218	721-2218	722-2218	723-2218
11/16	3/4	1-5/16	5-5/8	720-2220	721-2220	722-2220	723-2220
3/4	3/4	1-5/16	5-5/8	720-2222	721-2222	722-2222	723-2222
13/16	7/8	1-9/16	6-1/8	720-2224	721-2224	722-2224	723-2224
7/8	7/8	1-9/16	6-1/8	720-2226	721-2226	722-2226	723-2226
15/16	1"	1-5/8	6-3/8	720-2228	721-2228	722-2228	723-2228
1"	1"	1-5/8	6-3/8	720-2230	721-2230	722-2230	723-2230

3 FLUTE STRAIGHT SHANK SINGLE END MILLS

- Center cutting allows for plunge milling.
- Combines the chip carrying ability of 2 flute end mills and the excellent finish produced by 4 flute end mills..
- Use in a wide range of ferrous and non-ferrous materials.
- TiN coating improves tool life and allows elevated speeds and feeds.



Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
3/32	3/8	5/16	2-5/16	720-3801	721-3801	722-3801	723-3801
1/8	3/8	3/8	2-5/16	720-3803	721-3803	722-3803	723-3803
3/16	3/8	1/2	2-3/8	720-3805	721-3805	722-3805	723-3805
1/4	3/8	5/8	2-7/16	720-3807	721-3807	722-3807	723-3807
5/16	3/8	3/4	2-1/2	720-3809	721-3809	722-3809	723-3809
3/8	3/8	3/4	2-1/2	720-3811	721-3811	722-3811	723-3811
7/16	3/8	1"	2-11/16	720-3813	721-3813	722-3813	723-3813
7/16	1/2	1"	2-15/16	720-3815	721-3815	722-3815	723-3815
1/2	3/8	1"	2-11/16	720-3817	721-3817	722-3817	723-3817
1/2	1/2	1-1/4	3-1/4	720-3819	721-3819	722-3819	723-3819
9/16	1/2	1-3/8	3-3/8	720-3821	721-3821	722-3821	723-3821
5/8	1/2	1-3/8	3-3/8	720-3823	721-3823	722-3823	723-3823
5/8	5/8	1-5/8	3-3/4	720-3825	721-3825	722-3825	723-3825
11/16	1/2	1-5/8	3-5/8	720-3827	721-3827	722-3827	723-3827
11/16	5/8	1-5/8	3-3/4	720-3829	721-3829	722-3829	723-3829
3/4	5/8	1-5/8	3-3/4	720-3831	721-3831	722-3831	723-3831
3/4	1/2	1-5/8	3-5/8	720-3833	721-3833	722-3833	723-3833
3/4	3/4	1-5/8	3-7/8	720-3835	721-3835	722-3835	723-3835
13/16	5/8	1-5/8	3-3/4	720-3837	721-3837	722-3837	723-3837
13/16	3/4	1-5/8	3-7/8	720-3839	721-3839	722-3839	723-3839
7/8	5/8	1-7/8	4"	720-3841	721-3841	722-3841	723-3841

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
7/8	3/4	1-7/8	4-1/8	720-3843	721-3843	722-3843	723-3843
7/8	7/8	1-7/8	4-7/8	720-3845	721-3845	722-3845	723-3845
7/8	1/2	1-5/8	3-5/8	720-3847	721-3847	722-3847	723-3847
15/16	7/8	1-7/8	4-1/8	720-3849	721-3849	722-3849	723-3849
15/16	5/8	1-7/8	4"	720-3851	721-3851	722-3851	723-3851
1"	5/8	1-7/8	4"	720-3853	721-3853	722-3853	723-3853
1"	3/4	1-7/8	4-1/8	720-3855	721-3855	722-3855	723-3855
1"	7/8	1-7/8	4-1/8	720-3857	721-3857	722-3857	723-3857
1"	1"	2"	4-1/2	720-3859	721-3859	722-3859	723-3859
1-1/8	1"	2"	4-1/2	720-3861	721-3861	722-3861	723-3861
1-1/4	1"	2"	4-1/2	720-3863	721-3863	722-3863	723-3863
1-1/4	1-1/4	2"	4-1/2	720-3865	721-3865	722-3865	723-3865
1-3/8	1"	2"	4-1/2	720-3867	721-3867	722-3867	723-3867
1-3/8	1-1/4	2"	4-1/2	720-3869	721-3869	722-3869	723-3869
1-1/2	1"	2"	4-1/2	720-3871	721-3871	722-3871	723-3871
1-1/2	1-1/4	2"	4-1/2	720-3873	721-3873	722-3873	723-3873
1-3/4	1-1/4	2"	4-1/2	720-3875	721-3875	722-3875	723-3875
2"	1-1/4	2"	4-1/2	720-3877	721-3877	722-3877	723-3877
2"	2"	3"	5-3/4	720-3879	721-3879	722-3879	723-3879
2-1/2	2"	4"	7-5/8	720-3881	721-3881	722-3881	723-3881
2-1/2	2-1/2	4"	8"	720-3883	721-3883	722-3883	723-3883

3 FLUTE 1/4" SHANK SINGLE END MILLS



STUDLENGTH

Shank Size	Flute Dia.	Flute Length	Overall Length	M2 Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1/16 " 1/4 "	3/32 "	31/32 "		720-3700	721-3700	722-3700	723-3700
3/32	1/4	5/32	1-1/64	720-3702	721-3702	722-3702	723-3702
1/8	1/4	3/16	1-3/32	720-3704	721-3704	722-3704	723-3704
5/32	1/4	1/4	1-9/32	720-3706	721-3706	722-3706	723-3706
3/16	1/4	9/32	1-11/32	720-3708	721-3708	722-3708	723-3708
7/32	1/4	5/16	1-13/32	720-3710	721-3710	722-3710	723-3710
1/4	1/4	3/8	1-13/32	720-3712	721-3712	722-3712	723-3712

LONGLENGTH

Shank Size	Flute Dia.	Flute Length	Overall Length	M2 Model No.	M2AI Model No.	TiN-COAT Model No.	M42 Model No.
1/16 " 1/4 "	5/32 "	1-3/32 "		720-3714	721-3714	722-3714	723-3714
3/32	1/4	1/4	1-1/4	720-3716	721-3716	722-3716	723-3716
1/8	1/4	5/16	1-11/32	720-3718	721-3718	722-3718	723-3718
5/32	1/4	3/8	1-17/32	720-3720	721-3720	722-3720	723-3720
3/16	1/4	7/16	1-21/32	720-3722	721-3722	722-3722	723-3722
7/32	1/4	1/2	1-3/4	720-3724	721-3724	722-3724	723-3724
1/4	1/4	5/8	1-3/4	720-3726	721-3726	722-3726	723-3726

End Mills

3 FLUTE DOUBLE END MILLS

- Use in a wide range of ferrous and non-ferrous materials.
- TiN coating improves tool life and allows elevated speeds and feeds.



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3/32 "	3/8 "	5/16 "	3-1/16 "	720-3002	721-3002	722-3002	723-3002
1/8	3/8	3/8	3-1/16	720-3004	721-3004	722-3004	723-3004
5/32	3/8	7/16	3-1/8	720-3006	721-3006	722-3006	723-3006
3/16	3/8	1/2	3-1/4	720-3008	721-3008	722-3008	723-3008
7/32	3/8	9/16	3-1/4	720-3010	721-3010	722-3010	723-3010
1/4	3/8	5/8	3-3/8	720-3012	721-3012	722-3012	723-3012
9/32	3/8	11/16	3-3/8	720-3014	721-3014	722-3014	723-3014
5/16	3/8	3/4	3-1/2	720-3016	721-3016	722-3016	723-3016
11/32	3/8	3/4	3-1/2	720-3018	721-3018	722-3018	723-3018
3/8	3/8	3/4	3-1/2	720-3020	721-3020	722-3020	723-3020

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
7/16	1/2	1 "	4-1/8"	720-3022	721-3022	722-3022	723-3022
1/2	1/2	1 "	4-1/8	720-3024	721-3024	722-3024	723-3024
9/16	5/8	1-3/8	5 "	720-3026	721-3026	722-3026	723-3026
5/8	5/8	1-3/8	5 "	720-3028	721-3028	722-3028	723-3028
11/16	3/4	1-1/2	5-3/8	720-3030	721-3030	722-3030	723-3030
3/4	3/4	1-1/2	5-3/8	720-3032	721-3032	722-3032	723-3032
13/16	7/8	1-3/4	5-7/8	720-3034	721-3034	722-3034	723-3034
7/8	7/8	1-3/4	5-7/8	720-3036	721-3036	722-3036	723-3036
15/16	1"	1-3/4	6-1/8	720-3038	721-3038	722-3038	723-3038
1 "	1 "	1-3/4	6-1/8	720-3040	721-3040	722-3040	723-3040

4 FLUTE DOUBLE END MILLS

Non center cutting

- Recommended for finishing operations in a wide range of ferrous and non-ferrous materials.
- Multiple flutes generate higher surface finish than 2 flute end mills.
- More economical in production milling than single end mills.



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
7/64	3/8	3/8	3-1/16	720-4002	721-4002	722-4002	723-4002
1/8	3/8	3/8	3-1/16	720-4004	721-4004	722-4004	723-4004
9/64	3/8	7/16	3-1/8	720-4006	721-4006	722-4006	723-4006
5/32	3/8	7/16	3-1/8	720-4008	721-4008	722-4008	723-4008
11/64	3/8	7/16	3-1/8	720-4011	721-4011	722-4011	723-4011
11/64	3/8	1/2	3-1/4	720-4010	721-4010	722-4010	723-4010
3/16	3/8	1/2	3-1/4	720-4012	721-4012	722-4012	723-4012
13/64	3/8	1/2	3-1/4	720-4013	721-4013	722-4013	723-4013
13/64	3/8	9/16	3-1/4	720-4014	721-4014	722-4014	723-4014
7/32	3/8	9/16	3-1/4	720-4016	721-4016	722-4016	723-4016
15/64	3/8	9/16	3-1/4	720-4017	721-4017	722-4017	723-4017
15/64	3/8	5/8	3-3/8	720-4018	721-4018	722-4018	723-4018
1/4	3/8	5/8	3-3/8	720-4020	721-4020	722-4020	723-4020
17/64	3/8	11/16	3-3/8	720-4022	721-4022	722-4022	723-4022
9/32	3/8	11/16	3-3/8	720-4024	721-4024	722-4024	723-4024
19/64	3/8	11/16	3-3/8	720-4025	721-4025	722-4025	723-4025
19/64	3/8	3/4	3-1/2	720-4026	721-4026	722-4026	723-4026
5/16	3/8	3/4	3-1/2	720-4028	721-4028	722-4028	723-4028
21/64	3/8	3/4	3-1/2	720-4030	721-4030	722-4030	723-4030
11/32	3/8	3/4	3-1/2	720-4032	721-4032	722-4032	723-4032
23/64	3/8	3/4	3-1/2	720-4034	721-4034	722-4034	723-4034
3/8	3/8	3/4	3-1/2	720-4036	721-4036	722-4036	723-4036
25/64	1/2	1"	4-1/8	720-4038	721-4038	722-4038	723-4038
13/32	1/2	1"	4-1/8	720-4040	721-4040	722-4040	723-4040
13/32	1/2	1"	4-3/16	720-4039	721-4039	722-4039	723-4039
27/64	1/2	1"	4-1/8	720-4042	721-4042	722-4042	723-4042
7/16	1/2	1"	4-1/8	720-4044	721-4044	722-4044	723-4044
29/64	1/2	1"	4-1/8	720-4046	721-4046	722-4046	723-4046
15/32	1/2	1"	4-1/8	720-4048	721-4048	722-4048	723-4048
31/64	1/2	1"	4-1/8	720-4050	721-4050	722-4050	723-4050
1/2	1/2	1"	4-1/8	720-4052	721-4052	722-4052	723-4052
17/32	5/8	1-3/8	5"	720-4054	721-4054	722-4054	723-4054
9/16	5/8	1-3/8	5"	720-4056	721-4056	722-4056	723-4056
19/32	5/8	1-3/8	5"	720-4058	721-4058	722-4058	723-4058
5/8	5/8	1-3/8	5"	720-4060	721-4060	722-4060	723-4060
21/32	3/4	1-5/8	5-5/8	720-4062	721-4062	722-4062	723-4062
11/16	3/4	1-5/8	5-5/8	720-4064	721-4064	722-4064	723-4064
23/32	3/4	1-5/8	5-5/8	720-4066	721-4066	722-4066	723-4066
3/4	3/4	1-5/8	5-5/8	720-4068	721-4068	722-4068	723-4068
25/32	7/8	1-7/8	6-1/8	720-4070	721-4070	722-4070	723-4070
13/16	7/8	1-7/8	6"	720-4072	721-4072	722-4072	723-4072
27/32	7/8	1-7/8	6-1/8	720-4074	721-4074	722-4074	723-4074
7/8	7/8	1-7/8	6-1/8	720-4076	721-4076	722-4076	723-4076
29/32	1"	1-7/8	6-3/8	720-4078	721-4078	722-4078	723-4078
15/16	1"	1-7/8	6-3/8	720-4080	721-4080	722-4080	723-4080
31/32	1"	1-7/8	6-3/8	720-4082	721-4082	722-4082	723-4082
1"	1"	1-7/8	6-3/8	720-4084	721-4084	722-4084	723-4084

End Mills

4FLUTE CENTER CUTTING DOUBLE END MILLS

- Center cutting design allows for plunge milling into solid material at the beginning of a slotting operation.



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
1/8	3/8	3/8	3-1/16	720-4102	721-4102	722-4102	723-4102
3/16	3/8	1/2	3-1/4	720-4104	721-4104	722-4104	723-4104
1/4	3/8	5/8	3-3/8	720-4106	721-4106	722-4106	723-4106
5/16	3/8	3/4	3-1/2	720-4108	721-4108	722-4108	723-4108
3/8	3/8	3/4	3-1/2	720-4110	721-4110	722-4110	723-4110
1/2	1/2	1"	4-1/8	720-4112	721-4112	722-4112	723-4112
5/8	5/8	1-3/8	5"	720-4114	721-4114	722-4114	723-4114
3/4	3/4	1-5/8	5-5/8	720-4116	721-4116	722-4116	723-4116
7/8	7/8	1-7/8	6-1/8	720-4118	721-4118	722-4118	723-4118
1"	1"	1-7/8	6-3/8	720-4120	721-4120	722-4120	723-4120

4FLUTE METRIC DOUBLE END MILL

AMERICA STANDADR---Non Center Cutting



Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	Cobalt(M42) Model No.
2mm	3/8	1/4	3	720-4202	721-4202	722-4202	723-4202
3mm	3/8	7/16	3-1/16	720-4203	721-4203	722-4203	723-4203
4mm	3/8	7/16	3-1/8	720-4204	721-4204	722-4204	723-4204
5mm	3/8	1/2	3-1/4	720-4205	721-4205	722-4205	723-4205
6mm	3/8	5/8	3-1/4	720-4206	721-4206	722-4206	723-4206
7mm	3/8	11/16	3-3/8	720-4207	721-4207	722-4207	723-4207
8mm	3/8	3/4	3-1/2	720-4208	721-4208	722-4208	723-4208
10mm	1/2	1	4-1/8	720-4210	721-4210	722-4210	723-4210
12mm	1/2	1	4-1/8	720-4212	721-4212	722-4212	723-4212
14mm	5/8	1-3/8	5	720-4214	721-4214	722-4214	723-4214
16mm	3/4	1-5/8	5-5/8	720-4216	721-4216	722-4216	723-4216
18mm	3/4	1-7/8	5-5/8	720-4218	721-4218	722-4218	723-4218
20mm	7/8	1-7/8	6-1/8	720-4220	721-4220	722-4220	723-4220

4FLUTE METRIC SINGLE END MILLS



Regular Length

DIN844 h10

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3mm	6	8	52	720-4903	721-4903	722-4903	723-4903
4mm	6	11	55	720-4904	721-4904	722-4904	723-4904
5mm	6	13	57	720-4905	721-4905	722-4905	723-4905
6mm	6	13	57	720-4906	721-4906	722-4906	723-4906
7mm	10	16	66	720-4907	721-4907	722-4907	723-4907
8mm	10	19	63	720-4908	721-4908	722-4908	723-4908
10mm	10	22	72	720-4910	721-4910	722-4910	723-4910
12mm	12	26	83	720-4912	721-4912	722-4912	723-4912
14mm	12	26	83	720-4914	721-4914	722-4914	723-4914
16mm	16	32	92	720-4916	721-4916	722-4916	723-4916
18mm	16	32	92	720-4918	721-4918	722-4918	723-4918
20mm	20	38	104	720-4920	721-4920	722-4920	723-4920
22mm	20	38	104	720-4922	721-4922	722-4922	723-4922
25mm	25	45	121	720-4925	721-4925	722-4925	723-4925
28mm	25	45	121	720-4928	721-4928	722-4928	723-4928
30mm	25	45	121	720-4930	721-4930	722-4930	723-4930

Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3mm	6	12	56	720-4503	721-4503	722-4503	723-4503
4mm	6	19	63	720-4504	721-4504	722-4504	723-4504
5mm	6	24	68	720-4505	721-4505	722-4505	723-4505
6mm	6	24	68	720-4506	721-4506	722-4506	723-4506
7mm	10	30	80	720-4507	721-4507	722-4507	723-4507
8mm	10	38	88	720-4508	721-4508	722-4508	723-4508
10mm	10	45	95	720-4510	721-4510	722-4510	723-4510
12mm	12	53	110	720-4512	721-4512	722-4512	723-4512
14mm	12	53	110	720-4514	721-4514	722-4514	723-4514
16mm	16	63	123	720-4516	721-4516	722-4516	723-4516
18mm	16	63	123	720-4518	721-4518	722-4518	723-4518
20mm	20	75	141	720-4520	721-4520	722-4520	723-4520
22mm	20	75	141	720-4522	721-4522	722-4522	723-4522
25mm	25	90	166	720-4525	721-4525	722-4525	723-4525

Extra Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
6mm	6	40	100	720-4536	721-4536	722-4536	723-4536
10mm	10	65	115	720-4540	721-4540	722-4540	723-4540
12mm	12	75	132	720-4542	721-4542	722-4542	723-4542
14mm	12	80	137	720-4544	721-4544	722-4544	723-4544

End Mills

4FLUTE SINGLE END MILL

INCH SHANK METRIC SIZE

Non Center Cutting



Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
2mm	3/8	1/4	2-5/16	720-8020	721-8020	722-8020	723-8020
3mm	3/8	3/8	2-5/16	720-8030	721-8030	722-8030	723-8030
4mm	3/8	1/2	2-3/8	720-8040	721-8040	722-8040	723-8040
5mm	3/8	5/8	2-7/16	720-8050	721-8050	722-8050	723-8050
6mm	3/8	5/8	2-7/16	720-8060	721-8060	722-8060	723-8060
7mm	3/8	3/4	2-1/2	720-8070	721-8070	722-8070	723-8070
8mm	3/8	3/4	2-1/2	720-8080	721-8080	722-8080	723-8080
9mm	3/8	3/4	2-1/2	720-8090	721-8090	722-8090	723-8090
10mm	3/8	1"	2-11/16	720-8100	721-8100	722-8100	723-8100

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
11mm	3/8	1"	2-11/16	720-8110	721-8110	722-8110	723-8110
12mm	3/8	1"	2-11/16	720-8120	721-8120	722-8120	723-8120
13mm	1/2	1-1/4	2-11/16	720-8130	721-8130	722-8130	723-8130
14mm	1/2	1-3/8	3-3/8	720-8140	721-8140	722-8140	723-8140
15mm	1/2	1-3/8	3-3/8	720-8150	721-8150	722-8150	723-8150
16mm	1/2	1-5/8	3-5/8	720-8160	721-8160	722-8160	723-8160
18mm	1/2	1-5/8	3-3/4	720-8180	721-8180	722-8180	723-8180
20mm	3/4	1-7/8	4-1/8	720-8200	721-8200	722-8200	723-8200
22mm	3/4	1-7/8	4-1/8	720-8220	721-8220	722-8220	723-8220
24mm	3/4	1-7/8	4-1/8	720-8240	721-8240	722-8240	723-8240
25mm	3/4	1-7/8	4-1/8	720-8250	721-8250	722-8250	723-8250
26mm	3/4	2"	4-1/8	720-8260	721-8260	722-8260	723-8260
30mm	1"	2"	4-1/2	720-8300	721-8300	722-8300	723-8300
32mm	1"	2"	4-1/2	720-8320	721-8320	722-8320	723-8320
36mm	1"	2"	4-1/2	720-8360	721-8360	722-8360	723-8360
40mm	1-1/4	2"	4-1/2	720-8400	721-8400	722-8400	723-8400
45mm	1-1/4	2"	4-1/2	720-8450	721-8450	722-8450	723-8450
50mm	1-1/4	2"	4-1/2	720-8500	721-8500	722-8500	723-8500

4FLUTE BALL NOSE SINGLE END MILL



Regular Length

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/8	3/8	3/8	2-5/16	720-6600	721-6600	722-6600	723-6600
1/4	3/8	5/8	2-7/16	720-6602	721-6602	722-6602	723-6602
1/4	3/8	1-1/4	3-1/16	720-6604	721-6604	722-6604	723-6604
5/16	3/8	3/4	2-1/2	720-6606	721-6606	722-6606	723-6606
5/16	3/8	1"	2-3/4	720-6608	721-6608	722-6608	723-6608
5/16	3/8	1-1/2	3-1/4	720-6610	721-6610	722-6610	723-6610
3/8	3/8	3/4	2-1/2	720-6612	721-6612	722-6612	723-6612
3/8	3/8	1"	2-3/4	720-6614	721-6614	722-6614	723-6614
3/8	3/8	1-1/2	3-1/4	720-6616	721-6616	722-6616	723-6616
1/2	1/2	1"	2-3/4	720-6618	721-6618	722-6618	723-6618
1/2	1/2	1-1/4	3-1/4	720-6620	721-6620	722-6620	723-6620
1/2	1/2	1-1/2	3-1/4	720-6622	721-6622	722-6622	723-6622
1/2	1/2	2"	4"	720-6624	721-6624	722-6624	723-6624

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
5/8	5/8	1-5/8	3-3/4	720-6626	721-6626	722-6626	723-6626
5/8	5/8	2-1/2	4-5/8	720-6628	721-6628	722-6628	723-6628
3/4	3/4	1-5/8	3-7/8	720-6630	721-6630	722-6630	723-6630
3/4	3/4	3"	5-1/4	720-6632	721-6632	722-6632	723-6632
7/8	7/8	1-7/8	4-1/8	720-6634	721-6634	722-6634	723-6634
1"	1"	2"	4-1/2	720-6636	721-6636	722-6636	723-6636
1"	1"	2-1/4	4-3/4	720-6638	721-6638	722-6638	723-6638
1"	1"	4"	6-1/2	720-6640	721-6640	722-6640	723-6640
1-1/4	1-1/4	2"	4-1/2	720-6642	721-6642	722-6642	723-6642
1-1/4	1-1/4	2-1/2	5"	720-6644	721-6644	722-6644	723-6644
1-1/2	1-1/4	2"	4-1/2	720-6646	721-6646	722-6646	723-6646
1-1/2	1-1/4	2-1/2	5"	720-6648	721-6648	722-6648	723-4048

Long Length

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/4	3/8	1-1/4	3-1/16	720-6650	721-6650	722-6650	723-6650
5/16	3/8	1-3/8	3-1/8	720-6652	721-6652	722-6652	723-6652
3/8	3/8	1-1/2	3-1/4	720-6654	721-6654	722-6654	723-6654
7/16	1/2	1-3/4	3-3/4	720-6656	721-6656	722-6656	723-6656
1/2	1/2	2"	4"	720-6658	721-6658	722-6658	723-6658
5/8	1/2	2-1/2	4-5/8	720-6660	721-6660	722-6660	723-6660
5/8	5/8	2-1/2	4-5/8	720-6662	721-6662	722-6662	723-6662

Shank Size	Flute Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
3/4	1/2	3"	5-1/4	720-6664	721-6664	722-6664	723-6664
3/4	5/8	3"	5-1/4	720-6666	721-6666	722-6666	723-6666
3/4	3/4	3"	5-1/4	720-6668	721-6668	722-6668	723-6668
7/8	3/4	3-1/2	5-3/4	720-6670	721-6670	722-6670	723-6670
7/8	7/8	3-1/2	5-3/4	720-6672	721-6672	722-6672	723-6672
1"	3/4	4"	6-1/2	720-6674	721-6674	722-6674	723-6674
1"	1"	4"	6-1/2	720-6676	721-6676	722-6676	723-6676

End Mills

5 FLUTE ROUGHING END MILLS

WITH STRAIGHT SHANK



Size	Shank Dia.	Flute Length	Overall Length	M2 Model No.	M2Al Model No.	Tin-Coated Model No.	M42 Model No.
7/8"	3/8	1-7/8"	4-1/8	720-5701	721-5701	722-5701	723-5701
7/8	7/8	3-1/2	5-3/4	720-5703	721-5703	722-5703	723-5703
7/8	7/8	1-7/8	4-1/8	720-5705	721-5705	722-5705	723-5705
7/8	3/4	3-1/2	5-3/4	720-5707	721-5707	722-5707	723-5707
1"	3/4	2	4-1/2	720-5709	721-5709	722-5709	723-5709
1"	1"	2	4-1/2	720-5711	721-5711	722-5711	723-5711
1"	1"	4	6-1/2	720-5713	721-5713	722-5713	723-5713
1-1/8	1"	2	4-1/2	720-5715	721-5715	722-5715	723-5715

MULTIPLE FLUTE SINGLE END MILLS

NON CENTER CUTTING

REGULAR LENGTH M42-Co8%



- Designed for general purpose work including cam milling, die sinking and slot milling.
- Suitable for use in a wide range of ferrous and non-ferrous materials.
- Excellent for use in finishing operations.
- Multi-flute design allows for higher feed rates.

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	M42 Model No.
7/64	3/8	3/8	2-5/16	4	723-3001
1/8	3/8	3/8	2-5/16	4	723-3003
9/64	3/8	3/8	2-5/16	4	723-3005
5/32	3/8	3/8	2-5/16	4	723-3420
5/32	3/8	7/16	2-3/8	4	723-3007
11/64	3/8	1/2	2-5/16	4	723-3422
11/64	3/8	7/16	2-3/8	4	723-3009
3/16	3/8	1/2	2-3/8	4	723-3011
13/64	3/8	1/2	2-3/8	4	723-3013
7/32	3/8	5/8	2-7/16	4	723-3424
7/32	3/8	9/16	2-1/2	4	723-3015
15/64	3/8	9/16	2-1/2	4	723-3017
1/4	3/8	5/8	2-7/16	4	723-3426
1/4	3/8	5/8	2-1/2	4	723-3019
17/64	3/8	5/8	2-1/2	4	723-3021
9/32	3/8	11/16	2-1/2	4	723-3023
19/64	3/8	11/16	2-1/2	4	723-3025
5/16	3/8	3/4	2-1/2	4	723-3027
21/64	3/8	3/4	2-1/2	4	723-3029
11/32	3/8	3/4	2-1/2	4	723-3031
23/64	3/8	3/4	2-1/2	4	723-3033
3/8	3/8	3/4	2-1/2	4	723-3035
13/32	3/8	1"	2-11/16	4	723-3037
7/16	3/8	1"	2-11/16	4	723-3039
15/32	3/8	1"	2-11/16	4	723-3042
15/32	1/2	1-1/4	3-1/4	4	723-3041
1/2	3/8	1"	2-11/16	4	723-3043
1/2	1/2	1-1/4	3-1/4	4	723-3045
1/2	1/2	1-1/4	3-1/4	6	723-3046
17/32	1/2	1-3/8	3-3/8	4	723-3047
9/16	1/2	1-3/8	3-3/8	4	723-3049
19/32	1/2	1-3/8	3-3/8	4	723-3051
5/8	1/2	1-3/8	3-3/8	4	723-3053
5/8	5/8	1-5/8	3-3/4	4	723-3055
5/8	5/8	1-5/8	3-1/4	6	723-3056
21/32	1/2	1-5/8	3-5/8	4	723-3057
11/16	1/2	1-5/8	3-5/8	4	723-3059
11/16	5/8	1-5/8	3-3/4	4	723-3061
23/32	1/2	1-5/8	3-5/8	4	723-3063
3/4	1/2	1-5/8	3-5/8	4	723-3065
3/4	5/8	1-5/8	3-5/8	4	723-3066
3/4	5/8	1-5/8	3-3/4	4	723-3067
3/4	3/4	1-5/8	3-3/4	4	723-3069
3/4	3/4	1-5/8	3-3/4	6	723-3070
25/32	1/2	1-5/8	3-5/8	4	723-3071
13/16	5/8	1-7/8	4"	4	723-3074

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	M42 Model No.
13/16	3/4	1-7/8	4-1/8	4	723-3075
13/16	5/8	1-7/8	4"	6	723-3073
27/32	1/2	1-5/8	3-5/8	4	723-3077
7/8	1/2	1-5/8	3-5/8	4	723-3079
7/8	1/2	1-7/8	4"	4	723-3080
7/8	3/4	1-7/8	4-1/8	4	723-3085
7/8	7/8	1-7/8	4-1/8	4	723-3087
7/8	1/2	1-5/8	3-5/8	6	723-3081
7/8	5/8	1-7/8	4"	6	723-3083
7/8	1/2	1-7/8	4"	6	723-3082
7/8	3/4	1-7/8	4-1/8	6	723-3086
29/32	1/2	1-7/8	3-7/8	4	723-3089
15/16	1/2	1-7/8	4"	4	723-3090
15/16	3/4	1-7/8	4-1/8	4	723-3093
15/16	7/8	1-7/8	4-1/8	4	723-3095
15/16	5/8	1-7/8	4"	6	723-3091
15/16	7/8	1-7/8	4-1/8	6	723-3096
15/16	3/4	1-7/8	4-1/8	6	723-3170
31/32	1/2	1-7/8	3-7/8	4	723-3097
1"	1/2	1-7/8	4"	4	723-3099
1"	5/8	1-7/8	4"	4	723-3102
1"	3/4	1-7/8	4-1/8	4	723-3103
1"	7/8	1-7/8	4-1/8	4	723-3105
1"	1"	2"	4-1/2	4	723-3107
1"	3/4	2"	4-1/2	4	723-3104
1"	1/2	1-7/8	4"	6	723-3100
1"	5/8	1-7/8	4"	6	723-3101
1"	3/4	1-7/8	4-1/8	6	723-3106
1"	1"	2"	4-1/2	6	723-3108
1-1/16	3/4	2"	4-1/4	6	723-3109
1-1/8	3/4	2"	4-1/4	4	723-3112
1-1/8	1"	2"	4-1/4	4	723-3114
1-1/8	1"	2-5/8	4-1/2	4	723-3116
1-1/8	3/4	1-1/2	3-7/8	6	723-3171
1-1/8	3/4	2"	4-1/8	6	723-3110
1-1/8	3/4	2"	4-1/4	6	723-3111
1-1/8	7/8	2"	4-1/4	6	723-3113
1-1/8	1"	2"	4-1/2	6	723-3115
1-3/16	3/4	2"	4-1/4	6	723-3117
1-3/16	1"	2"	4-1/4	6	723-3118
1-1/4	7/8	2"	4-1/4	4	723-3120
1-1/4	1-1/4	2"	4-1/2	4	723-3124
1-1/4	1-1/4	2"	4-1/2	4	723-3126
1-1/4	3/4	2"	4-1/4	6	723-3119
1-1/4	7/8	2"	4-1/4	6	723-3121
1-1/4	1"	2"	4-1/2	6	723-3123

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	M42 Model No.
1-1/4	1-1/4	2"	4-1/2	6	723-3125
1-1/4	1"	4"	6-1/2	6	723-3122
1-5/16	3/4	2"	4-1/2	6	723-3127
1-3/8	3/4	2"	4-1/4	6	723-3128
1-3/8	3/4	2"	4-1/2	6	723-3129
1-3/8	1"	2"	4-1/2	6	723-3131
1-3/8	1-1/4	2"	4-1/2	6	723-3130
1-7/16	3/4	2"	4-1/2	6	723-3133
1-1/2	1-1/4	2"	4-1/2	4	723-3141
1-1/2	1"	2"	4-1/2	4	723-3136
1-1/2	3/4	2"	4-1/2	6	723-3135
1-1/2	1"	2"	4-1/2	6	723-3137
1-1/2	1-1/4	2"	4-1/2	6	723-3139
1-5/8	1-1/4	2"	4-1/2	4	723-3144
1-5/8	3/4	1-5/8	3-7/8	6	723-3142
1-5/8	3/4	2"	4-1/2	6	723-3143
1-5/8	1-1/4	2"	4-1/2	6	723-3145
1-3/4	3/4	2"	4-1/2	4	723-3146
1-3/4	1-1/4	2"	4-1/2	4	723-3151
1-3/4	3/4	1-1/2	3-7/8	6	723-3172
1-3/4	3/4	2"	4-1/2	6	723-3147
1-3/4	1-1/4	2"	4-1/2	6	723-3149
1-13/16	3/4	2"	4-1/4	4	723-3152
1-7/8	3/4	2"	4-1/2	6	723-3153
1-7/8	1-1/4	2"	4-1/2	6	723-3154
1-7/8	1-1/4	2"	4-1/2	8	723-3155
2"	1-1/4	2"	4-1/2	4	723-3161
2"	3/4	2"	4-1/2	6	723-3157
2"	1-1/4	2"	4-1/2	6	723-3163
2"	1-1/4	2"	5-1/2	6	723-3165
2"	2"	2"	5-3/4	6	723-3166
2"	3/4	2"	4-1/2	8	723-3158
2"	1-1/4	2"	4-1/2	8	723-3159
2-1/4	1-1/4	2"	4-1/2	6	723-3167
2-1/4	1-1/4	3"	5-1/2	8	723-3169
2-1/2	2"	4"	7-5/8	6	723-3168

End Mills

MULTIPLE FLUTE SINGLE END MILLS

NON CENTER CUTTING END MILL

REGULAR LENGTH

- Designed for general purpose work including cam milling, die sinking and slot milling.
- Suitable for use in a wide range of ferrous and non-ferrous materials.
- Excellent for use in finishing operations.
- Multi-flute design allows for higher feed rates.



Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	HSS Model No.	M2 AI Model No.	TIN-COATED Model No.
7/64	3/8	3/8	2-5/16	4	720-3001	721-3001	722-3001
1/8	3/8	3/8	2-5/16	4	720-3003	721-3003	722-3003
9/64	3/8	3/8	2-5/16	4	720-3005	721-3005	722-3005
5/32	3/8	3/8	2-5/16	4	720-3420	721-3420	722-3420
5/32	3/8	7/16	2-3/8	4	720-3007	721-3007	722-3007
11/64	3/8	1/2	2-5/16	4	720-3422	721-3422	722-3422
11/64	3/8	7/16	2-3/8	4	720-3009	721-3009	722-3009
3/16	3/8	1/2	2-3/8	4	720-3011	721-3011	722-3011
13/64	3/8	1/2	2-3/8	4	720-3013	721-3013	722-3013
7/32	3/8	5/8	2-7/16	4	720-3424	721-3424	722-3424
7/32	3/8	9/16	2-1/2	4	720-3015	721-3015	722-3015
15/64	3/8	9/16	2-1/2	4	720-3017	721-3017	722-3017
1/4	3/8	5/8	2-7/16	4	720-3426	721-3426	722-3426
1/4	3/8	5/8	2-1/2	4	720-3019	721-3019	722-3019
17/64	3/8	5/8	2-1/2	4	720-3021	721-3021	722-3021
9/32	3/8	11/16	2-1/2	4	720-3023	721-3023	722-3023
19/64	3/8	11/16	2-1/2	4	720-3025	721-3025	722-3025
5/16	3/8	3/4	2-1/2	4	720-3027	721-3027	722-3027
21/64	3/8	3/4	2-1/2	4	720-3029	721-3029	722-3029
11/32	3/8	3/4	2-1/2	4	720-3031	721-3031	722-3031
23/64	3/8	3/4	2-1/2	4	720-3033	721-3033	722-3033
3/8	3/8	3/4	2-1/2	4	720-3035	721-3035	722-3035
13/32	3/8	1"	2-11/16	4	720-3037	721-3037	722-3037
7/16	3/8	1"	2-11/16	4	720-3039	721-3039	722-3039
15/32	3/8	1"	2-11/16	4	720-3042	721-3042	722-3042
15/32	1/2	1-1/4	3-1/4	4	720-3041	721-3041	722-3041
1/2	3/8	1"	2-11/16	4	720-3043	721-3043	722-3043
1/2	1/2	1-1/4	3-1/4	4	720-3045	721-3045	722-3045
1/2	1/2	1-1/4	3-1/4	6	720-3046	721-3046	722-3046
17/32	1/2	1-3/8	3-3/8	4	720-3047	721-3047	722-3047
9/16	1/2	1-3/8	3-3/8	4	720-3049	721-3049	722-3049
19/32	1/2	1-3/8	3-3/8	4	720-3051	721-3051	722-3051
5/8	1/2	1-3/8	3-3/8	4	720-3053	721-3053	722-3053
5/8	5/8	1-5/8	3-3/4	4	720-3055	721-3055	722-3055
5/8	5/8	1-5/8	3-1/4	6	720-3056	721-3056	722-3056
21/32	1/2	1-5/8	3-5/8	4	720-3057	721-3057	722-3057
11/16	1/2	1-5/8	3-5/8	4	720-3059	721-3059	722-3059
11/16	5/8	1-5/8	3-3/4	4	720-3061	721-3061	722-3061
23/32	1/2	1-5/8	3-5/8	4	720-3063	721-3063	722-3063
3/4	1/2	1-5/8	3-5/8	4	720-3065	721-3065	722-3065
3/4	5/8	1-5/8	3-5/8	4	720-3066	721-3066	722-3066
3/4	5/8	1-5/8	3-3/4	4	720-3067	721-3067	722-3067
3/4	3/4	1-5/8	3-3/4	4	720-3069	721-3069	722-3069
3/4	3/4	1-5/8	3-3/4	6	720-3070	721-3070	722-3070
25/32	1/2	1-5/8	3-5/8	4	720-3071	721-3071	722-3071
13/16	5/8	1-7/8	4"	4	720-3074	721-3074	722-3074
13/16	3/4	1-7/8	4-1/8	4	720-3075	721-3075	722-3075
13/16	5/8	1-7/8	4"	6	720-3073	721-3073	722-3073
27/32	1/2	1-5/8	3-5/8	4	720-3077	721-3077	722-3077
7/8	1/2	1-5/8	3-5/8	4	720-3079	721-3079	722-3079
7/8	1/2	1-7/8	4"	4	720-3080	721-3080	722-3080
7/8	3/4	1-7/8	4-1/8	4	720-3085	721-3085	722-3085
7/8	7/8	1-7/8	4-1/8	4	720-3087	721-3087	722-3087
7/8	1/2	1-5/8	3-5/8	6	720-3081	721-3081	722-3081
7/8	5/8	1-7/8	4"	6	720-3083	721-3083	722-3083
7/8	1/2	1-7/8	4"	6	720-3082	721-3082	722-3082
7/8	3/4	1-7/8	4-1/8	6	720-3086	721-3086	722-3086
29/32	1/2	1-7/8	3-7/8	4	720-3089	721-3089	722-3089
15/16	1/2	1-7/8	4"	4	720-3090	721-3090	722-3090
15/16	3/4	1-7/8	4-1/8	4	720-3093	721-3093	722-3093
15/16	7/8	1-7/8	4-1/8	4	720-3095	721-3095	722-3095
15/16	5/8	1-7/8	4"	6	720-3091	721-3091	722-3091
15/16	7/8	1-7/8	4-1/8	6	720-3096	721-3096	722-3096
15/16	3/4	1-7/8	4-1/8	6	720-3170	721-3170	722-3170

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	HSS Model No.	M2 AI Model No.	TIN-COATED Model No.
31/32	1/2	1-7/8	3-7/8	4	720-3097	721-3097	722-3097
1"	1/2	1-7/8	4"	4	720-3099	721-3099	722-3099
1"	5/8	1-7/8	4"	4	720-3102	721-3102	722-3102
1"	3/4	1-7/8	4-1/8	4	720-3103	721-3103	722-3103
1"	7/8	1-7/8	4-1/8	4	720-3105	721-3105	722-3105
1"	1"	2"	4-1/2	4	720-3107	721-3107	722-3107
1"	3/4	2"	4-1/2	4	720-3104	721-3104	722-3104
1"	1/2	1-7/8	4"	6	720-3100	721-3100	722-3100
1"	5/8	1-7/8	4"	6	720-3101	721-3101	722-3101
1"	3/4	1-7/8	4-1/8	6	720-3106	721-3106	722-3106
1"	1"	2"	4-1/2	6	720-3108	721-3108	722-3108
1-1/16	3/4	2"	4-1/4	6	720-3109	721-3109	722-3109
1-1/8	3/4	2"	4-1/4	4	720-3112	721-3112	722-3112
1-1/8	1"	2"	4-1/4	4	720-3114	721-3114	722-3114
1-1/8	1"	2-5/8	4-1/2	4	720-3116	721-3116	722-3116
1-1/8	3/4	1-1/2	3-7/8	6	720-3171	721-3171	722-3171
1-1/8	3/4	2"	4-1/8	6	720-3110	721-3110	722-3110
1-1/8	3/4	2"	4-1/4	6	720-3111	721-3111	722-3111
1-1/8	7/8	2"	4-1/4	6	720-3113	721-3113	722-3113
1-1/8	1"	2"	4-1/2	6	720-3115	721-3115	722-3115
1-3/16	3/4	2"	4-1/4	6	720-3117	721-3117	722-3117
1-3/16	1"	2"	4-1/4	6	720-3118	721-3118	722-3118
1-1/4	7/8	2"	4-1/4	4	720-3120	721-3120	722-3120
1-1/4	1-1/4	2"	4-1/2	4	720-3124	721-3124	722-3124
1-1/4	1-1/4	2"	4-1/2	4	720-3126	721-3126	722-3126
1-1/4	3/4	2"	4-1/4	6	720-3119	721-3119	722-3119
1-1/4	7/8	2"	4-1/4	6	720-3121	721-3121	722-3121
1-1/4	1"	2"	4-1/2	6	720-3123	721-3123	722-3123
1-1/4	1-1/4	2"	4-1/2	6	720-3125	721-3125	722-3125
1-1/4	1"	4"	6-1/2	6	720-3122	721-3122	722-3122
1-5/16	3/4	2"	4-1/2	6	720-3127	721-3127	722-3127
1-3/8	3/4	2"	4-1/4	6	720-3128	721-3128	722-3128
1-3/8	3/4	2"	4-1/2	6	720-3129	721-3129	722-3129
1-3/8	1"	2"	4-1/2	6	720-3131	721-3131	722-3131
1-3/8	1-1/4	2"	4-1/2	6	720-3130	721-3130	722-3130
1-7/16	3/4	2"	4-1/2	6	720-3133	721-3133	722-3133
1-1/2	1-1/4	2"	4-1/2	4	720-3141	721-3141	722-3141
1-1/2	1"	2"	4-1/2	4	720-3136	721-3136	722-3136
1-1/2	3/4	2"	4-1/2	6	720-3135	721-3135	722-3135
1-1/2	1"	2"	4-1/2	6	720-3137	721-3137	722-3137
1-1/2	1-1/4	2"	4-1/2	6	720-3139	721-3139	722-3139
1-5/8	1-1/4	2"	4-1/2	4	720-3144	721-3144	722-3144
1-5/8	3/4	1-5/8	3-7/8	6	720-3142	721-3142	722-3142
1-5/8	3/4	2"	4-1/2	6	720-3143	721-3143	722-3143
1-5/8	1-1/4	2"	4-1/2	6	720-3145	721-3145	722-3145
1-3/4	3/4	2"	4-1/2	4	720-3146	721-3146	722-3146
1-3/4	1-1/4	2"	4-1/2	4	720-3151	721-3151	722-3151
1-3/4	3/4	1-1/2	3-7/8	6	720-3172	721-3172	722-3172
1-3/4	3/4	2"	4-1/2	6	720-3147	721-3147	722-3147
1-3/4	1-1/4	2"	4-1/2	6	720-3149	721-3149	722-3149
1-13/16	3/4	2"	4-1/4	4	720-3152	721-3152	722-3152
1-7/8	3/4	2"	4-1/2	6	720-3153	721-3153	722-3153
1-7/8	1-1/4	2"	4-1/2	6	720-3154	721-3154	722-3154
1-7/8	1-1/4	2"	4-1/2	8	720-3155	721-3155	722-3155
2"	1-1/4	2"	4-1/2	4	720-3161	721-3161	722-3161
2"	3/4	2"	4-1/2	6	720-3157	721-3157	722-3157
2"	1-1/4	2"	4-1/2	6	720-3163	721-3163	722-3163
2"	1-1/4	2"	5-1/2	6	720-3165	721-3165	722-3165
2"	2"	2"	5-3/4	6	720-3166	721-3166	722-3166
2"	3/4	2"	4-1/2	8	720-3158	721-3158	722-3158
2"	1-1/4	2"	4-1/2	8	720-3159	721-3159	722-3159
2-1/4	1-1/4	2"	4-1/2	6	720-3167	721-3167	722-3167
2-1/4	1-1/4	3"	5-1/2	8	720-3169	721-3169	722-3169
2-1/2	2"	4"	7-5/8	6	720-3168	721-3168	722-3168

End Mills

MULTIPLE FLUTE SINGLE END MILLS

NON CENTER CUTTING



Long Flute

		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
1/4	3/8	1-1/4	3-1/16	4	720-3501	721-3501	722-3501	723-3501			
5/16	3/8	1-3/8	3-1/8	4	720-3503	721-3503	722-3503	723-3503			
3/8	3/8	1-1/2	3-1/4	4	720-3505	721-3505	722-3505	723-3505			
7/16	1/2	1-3/4	3-3/4	4	720-3507	721-3507	722-3507	723-3507			
1/2	1/2	2"	4"	4	720-3509	721-3509	722-3509	723-3509			
5/8	5/8	2-1/2	4-5/8	4	720-3511	721-3511	722-3511	723-3511			
5/8	1/2	2-1/2	4-5/8	4	720-3512	721-3512	722-3512	723-3512			
3/4	3/4	3"	5-1/4	4	720-3513	721-3513	722-3513	723-3513			
3/4	1/2	3"	5-1/4	4	720-3514	721-3514	722-3514	723-3514			
7/8	7/8	3-1/2	5-3/4	4	720-3515	721-3515	722-3515	723-3515			
7/8	3/4	3-1/2	5-3/4	4	720-3516	721-3516	722-3516	723-3516			
1"	1"	4"	6-1/2	4	720-3517	721-3517	722-3517	723-3517			
1-1/8	1"	4"	6-1/2	6	720-3519	721-3519	722-3519	723-3519			
1-1/4	3/4	4"	6-1/2	6	720-3520	721-3520	722-3520	723-3520			

		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
1-1/4	1"	4"	6-1/2	6	720-3521	721-3521	722-3521	723-3521			
1-1/4	1-1/4	4"	6-1/2	4	720-3523	721-3523	722-3523	723-3523			
1-1/4	1-1/4	4"	6-1/2	6	720-3525	721-3525	722-3525	723-3525			
1-3/8	1"	4"	6-1/2	6	720-3527	721-3527	722-3527	723-3527			
1-1/2	1"	4"	6-1/2	6	720-3529	721-3529	722-3529	723-3529			
1-1/2	1-1/4	4"	6-1/2	4	720-3531	721-3531	722-3531	723-3531			
1-1/2	1-1/4	4"	6-1/2	6	720-3533	721-3533	722-3533	723-3533			
1-3/4	1-1/4	4"	6-1/2	4	720-3534	721-3534	722-3534	723-3534			
1-3/4	1-1/4	4"	6-1/2	6	720-3535	721-3535	722-3535	723-3535			
2"	1-1/4	4"	6-1/2	4	720-3537	721-3537	722-3537	723-3537			
2"	1-1/4	4"	6-1/2	6	720-3539	721-3539	722-3539	723-3539			
2"	1-1/4	4"	6-1/2	8	720-3541	721-3541	722-3541	723-3541			
2-1/2	2"	4"	7-5/8	6	720-3542	721-3542	722-3542	723-3542			

MULTIPLE FLUTE SINGLE END MILLS

NON CENTER CUTTING

EXTRA LONG FLUTE



		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
1/4	3/8	1-3/4	3-9/16	4	720-3601	721-3601	722-3601	723-3601			
5/16	3/8	2"	3-3/4	4	720-3603	721-3603	722-3603	723-3603			
3/8	3/8	2-1/2	4-1/4	4	720-3605	721-3605	722-3605	723-3605			
1/2	1/2	3"	5"	4	720-3607	721-3607	722-3607	723-3607			
5/8	5/8	4"	6-1/8	4	720-3609	721-3609	722-3609	723-3609			
5/8	1/2	4"	6-1/8	4	720-3610	721-3610	722-3610	723-3610			
3/4	3/4	4"	6-1/4	4	720-3611	721-3611	722-3611	723-3611			
3/4	1/2	4"	6-1/4	4	720-3612	721-3612	722-3612	723-3612			

		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
7/8	7/8	5"	7-1/4	4	720-3613	721-3613	722-3613	723-3613			
1"	1"	6"	8-1/2	4	720-3615	721-3615	722-3615	723-3615			
1-1/4	1-1/4	6"	8-1/2	6	720-3617	721-3617	722-3617	723-3617			
1-1/4	1-1/4	6"	8-1/2	4	720-3618	721-3618	722-3618	723-3618			
1-1/2	1-1/4	6"	8-1/2	6	720-3619	721-3619	722-3619	723-3619			
1-1/2	1-1/4	6"	8-1/2	4	720-3620	721-3620	722-3620	723-3620			
1-1/2	1-1/4	8"	10-9/16	6	720-3621	721-3621	722-3621	723-3621			

MULTIPLE FLUTE HEAVY DUTY END MILLS

LARGE DIAMETER, POSITIVE LOCK

- Designed for rough cutting applications in a wide range of materials.
- Positive lock shank provides the grip needed to withstand the high torque generated.



		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
2"	2"	2"	5-3/4	4	720-3910	721-3910	722-3910	723-3910			
2"	2"	3"	6-3/4	4	720-3912	721-3912	722-3912	723-3912			
2"	2"	4"	7-3/4	4	720-3914	721-3914	722-3914	723-3914			
2"	2"	4"	7-3/4	6	720-3916	721-3916	722-3916	723-3916			
2"	2"	6"	9-3/4	4	720-3918	721-3918	722-3918	723-3918			
2"	2"	6"	9-3/4	6	720-3920	721-3920	722-3920	723-3920			
2"	2"	8"	11-3/4	4	720-3921	721-3921	722-3921	723-3921			
2"	2"	8"	11-3/4	6	720-3922	721-3922	722-3922	723-3922			
2"	2"	10"	13-3/4	4	720-3923	721-3923	722-3923	723-3923			
2"	2"	10"	13-3/4	6	720-3924	721-3924	722-3924	723-3924			
2"	2"	12"	15-3/4	4	720-3925	721-3925	722-3925	723-3925			
2"	2"	12"	15-3/4	6	720-3926	721-3926	722-3926	723-3926			
2-1/2	2-1/2	4"	7-3/4	4	720-3927	721-3927	722-3927	723-3927			
2-1/2	2-1/2	4"	7-3/4	6	720-3928	721-3928	722-3928	723-3928			

		Shank Flute		Overall No. of HSS		M2AI		TiN-COATED		M42	
Size	Dia.	Length	Length	Flutes	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
2-1/2	2-1/2	6"	9-3/4	4	720-3929	721-3929	722-3929	723-3929			
2-1/2	2-1/2	6"	9-3/4	6	720-3930	721-3930	722-3930	723-3930			
2-1/2	2-1/2	8"	11-3/4	4	720-3931	721-3931	722-3931	723-3931			
2-1/2	2-1/2	8"	11-3/4	6	720-3932	721-3932	722-3932	723-3932			
2-1/2	2-1/2	10"	13-3/4	4	720-3933	721-3933	722-3933	723-3933			
2-1/2	2-1/2	10"	13-3/4	6	720-3934	721-3934	722-3934	723-3934			
3"	2-1/2	4"	8"	4	720-3935	721-3935	722-3935	723-3935			
3"	2-1/2	4"	8"	6	720-3936	721-3936	722-3936	723-3936			
3"	2-1/2	6"	10"	4	720-3937	721-3937	722-3937	723-3937			
3"	2-1/2	6"	10"	6	720-3938	721-3938	722-3938	723-3938			
3"	2-1/2	8"	12"	4	720-3939	721-3939	722-3939	723-3939			
3"	2-1/2	8"	12"	6	720-3940	721-3940	722-3940	723-3940			
3"	2-1/2	10"	14"	4	720-3941	721-3941	722-3941	723-3941			
3"	2-1/2	10"	14"	6	720-3942	721-3942	722-3942	723-3942			

End Mills

MULTIPLE FLUTE CENTER CUTTING SINGLE END MILLS

REGULAR LENGTH

- Recommended for finishing operations in a wide range of ferrous and non-ferrous materials.
- Center cutting design allows for plunge milling into solid material at the beginning of a slotting operation.
- TiN coating increases surface hardness and resists abrasive wear.



Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	HSS Model No.	M2Al Model No.	TiN-COATED Model No.	M42 Model No.
1/8	3/8	3/8	2-5/16	4	720-3201	721-3201	722-3201	723-3201
3/16	3/8	1/2	2-3/8	4	720-3203	721-3203	722-3203	723-3203
1/4	3/8	5/8	2-7/16	4	720-3204	721-3204	722-3204	723-3204
1/4	3/8	5/8	2-1/2	4	720-3205	721-3205	722-3205	723-3205
5/16	3/8	3/4	2-1/2	4	720-3207	721-3207	722-3207	723-3207
3/8	3/8	3/4	2-1/2	4	720-3209	721-3209	722-3209	723-3209
7/16	3/8	13/16	2-1/2	4	720-3208	721-3208	722-3208	723-3208
1/2	3/8	13/16	2-1/2	4	720-3210	721-3210	722-3210	723-3210
1/2	1/2	1-1/4	3-1/4	4	720-3211	721-3211	722-3211	723-3211
5/8	5/8	1-5/8	3-3/4	4	720-3213	721-3213	722-3213	723-3213
9/16	1/2	1-1/8	3-3/8	4	720-3214	721-3214	722-3214	723-3214
11/16	5/8	1-5/8	3-3/4	4	720-3215	721-3215	722-3215	723-3215
3/4	5/8	1-5/8	3-3/4	4	720-3216	721-3216	722-3216	723-3216
3/4	3/4	1-5/8	3-7/8	4	720-3217	721-3217	722-3217	723-3217
7/8	3/4	1-7/8	4-1/8	4	720-3218	721-3218	722-3218	723-3218
7/8	7/8	1-7/8	4-1/8	4	720-3219	721-3219	722-3219	723-3219
1"	3/4	1-7/8	4-1/8	4	720-3220	721-3220	722-3220	723-3220
1"	1"	2"	4-1/2	4	720-3221	721-3221	722-3221	723-3221
1-1/8	1"	2"	4-1/2	4	720-3223	721-3223	722-3223	723-3223
1-1/8	1"	2"	4-1/2	6	720-3225	721-3225	722-3225	723-3225
1-1/4	1-1/4	2"	4-1/2	4	720-3227	721-3227	722-3227	723-3227
1-1/4	1-1/4	3"	5-1/2	4	720-3226	721-3226	722-3226	723-3226
1-1/4	1-1/4	2"	4-1/2	6	720-3228	721-3228	722-3228	723-3228
1-1/2	1-1/4	2"	4-1/2	4	720-3229	721-3229	722-3229	723-3229
1-1/2	1-1/4	2"	4-1/2	6	720-3230	721-3230	722-3230	723-3230



LONG LENGTH

Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/4	3/8	1-1/4	3-1/16	4	720-3301	721-3301	722-3301	723-3301
5/16	3/8	1-3/8	3-1/8	4	720-3303	721-3303	722-3303	723-3303
3/8	3/8	1-1/2	3-1/4	4	720-3305	721-3305	722-3305	723-3305
7/16	1/2	1-3/4	3-3/4	4	720-3306	721-3306	722-3306	723-3306
1/2	1/2	2"	4"	4	720-3307	721-3307	722-3307	723-3307
5/8	1/2	2-1/2	4-5/8	4	720-3308	721-3308	722-3308	723-3308
5/8	5/8	2-1/2	4-5/8	4	720-3309	721-3309	722-3309	723-3309
5/8	5/8	3"	5-1/8	4	720-3311	721-3311	722-3311	723-3311
3/4	3/4	2"	4-1/4	4	720-3315	721-3315	722-3315	723-3315
3/4	3/4	3"	5-1/4	4	720-3313	721-3313	722-3313	723-3313
3/4	1/2	3"	5-1/4	4	720-3318	721-3318	722-3318	723-3318
3/4	3/4	2"	4-1/4	6	720-3317	721-3317	722-3317	723-3317
7/8	7/8	3-1/2	5-3/4	4	720-3319	721-3319	722-3319	723-3319
1"	1"	3"	5-1/2	4	720-3321	721-3321	722-3321	723-3321
1"	3/4	4"	6-1/2	4	720-3322	721-3322	722-3322	723-3322
1"	1"	4"	6-1/2	4	720-3325	721-3325	722-3325	723-3325
1"	1"	3"	5-1/2	6	720-3323	721-3323	722-3323	723-3323
1-1/8	1"	4"	6-1/2	6	720-3324	721-3324	722-3324	723-3324
1-1/8	3/4	4"	6-1/2	4	720-3326	721-3326	722-3326	723-3326
1-1/4	1-1/4	3"	5-1/2	4	720-3327	721-3327	722-3327	723-3327
1-1/4	1-1/4	4"	6-1/2	4	720-3331	721-3331	722-3331	723-3331
1-1/4	1-1/4	3"	5-1/2	6	720-3329	721-3329	722-3329	723-3329
1-1/4	1"	4"	6-1/2	6	720-3328	721-3328	722-3328	723-3328
1-1/4	3/4	4"	6-1/2	6	720-3330	721-3330	722-3330	723-3330
1-1/4	1-1/4	4"	6-1/2	6	720-3332	721-3332	722-3332	723-3332
1-1/2	1-1/4	3"	5-1/2	4	720-3333	721-3333	722-3333	723-3333
1-1/2	1-1/4	4"	6-1/2	4	720-3338	721-3338	722-3338	723-3338
1-1/2	1-1/4	3"	5-1/2	6	720-3335	721-3335	722-3335	723-3335
1-1/2	1-1/4	4"	6-1/2	6	720-3336	721-3336	722-3336	723-3336
1-1/2	1	4"	6-1/2	6	720-3339	721-3339	722-3339	723-3339
1-3/4	1-1/4	3"	5-1/2	4	720-3337	721-3337	722-3337	723-3337
1-3/4	1-1/4	4"	6-1/2	6	720-3340	721-3340	722-3340	723-3340
2"	1-1/4	4"	6-1/2	4	720-3342	721-3342	722-3342	723-3342
2"	1-1/4	4"	6-1/2	6	720-3344	721-3344	722-3344	723-3344
2"	1-1/4	4"	6-1/2	8	720-3346	721-3346	722-3346	723-3346
2-1/2	2"	4"	7-5/8	6	720-3348	721-3348	722-3348	723-3348



EXTRA LONG LENGTH

Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	HSS Model No.	M2Al Model No.	TiN-COAT Model No.	M42 Model No.
1/4	3/8	1-3/4	3-1/2	4	720-3401	721-3401	722-3401	723-3401
1/4	3/8	1-3/4	3-9/16	4	720-3402	721-3402	722-3402	723-3402
5/16	3/8	2"	3-3/4	4	720-3403	721-3403	722-3403	723-3403
3/8	3/8	2-1/2	4-1/4	4	720-3405	721-3405	722-3405	723-3405
1/2	1/2	3"	5"	4	720-3407	721-3407	722-3407	723-3407
5/8	1/2	4"	6-1/8	4	720-3410	721-3410	722-3410	723-3410
5/8	5/8	4"	6-1/8	4	720-3409	721-3409	722-3409	723-3409
3/4	3/4	4"	6-1/4	4	720-3411	721-3411	722-3411	723-3411
3/4	1/2	4"	6-1/4	4	720-3412	721-3412	722-3412	723-3412
7/8	7/8	5"	7-1/4	4	720-3413	721-3413	722-3413	723-3413
1	1	6"	8-1/2	4	720-3415	721-3415	722-3415	723-3415
1-1/4	1-1/4	6"	8-1/2	4	720-3417	721-3417	722-3417	723-3417
1-1/4	1-1/4	6"	8-1/2	6	720-3418	721-3418	722-3418	723-3418
1-1/2	1-1/4	6"	8-1/2	4	720-3419	721-3419	722-3419	723-3419
1-1/2	1-1/4	8"	10-9/16	6	720-3400	721-3400	722-3400	723-3400

End Mills

ROUGHING END MILLS

Non Center Cutting



Regular Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/4	3/8	3/4	2-1/2	4	720-5001	721-5001
1/4	3/8	5/8	2-7/16	4	720-5002	721-5002
1/4	3/8	1-1/4	3-1/16	4	720-5003	721-5003
5/16	3/8	3/4	2-1/2	4	720-5005	721-5005
5/16	3/8	1-3/8	3-1/8	4	720-5007	721-5007
3/8	3/8	3/4	2-1/2	4	720-5008	721-5008
3/8	3/8	7/8	2-5/8	4	720-5009	721-5009
3/8	3/8	1-1/2	3-1/4	4	720-5011	721-5011
7/16	3/8	1"	2-11/16	4	720-5012	721-5012
1/2	1/2	1-1/4	3-1/4	4	720-5013	721-5013
5/8	5/8	1-5/8	3-3/4	4	720-5017	721-5017
11/16	5/8	1-5/8	3-3/4	4	720-5019	721-5019
3/4	5/8	1-5/8	3-3/4	4	720-5020	721-5020
3/4	5/8	1-5/8	3-7/8	4	720-5021	721-5021
3/4	3/4	1-5/8	3-3/4	4	720-5025	721-5025
7/8	3/4	1-5/8	4-1/8	4	720-5027	721-5027
7/8	7/8	1-7/8	4-1/8	4	720-5029	721-5029
15/16	3/4	1-7/8	4-1/8	4	720-5031	721-5031
1"	3/4	2"	4-1/2	6	720-5033	721-5033
1"	1"	2"	4-1/2	6	720-5035	721-5035

Coarse Pitch

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	HSS Model No.	M2Al Model No.
1-1/8	3/4	2"	4-1/2	6	720-5037	721-5037
1-1/8	1	2"	4-1/2	6	720-5039	721-5039
1-1/4	3/4	2"	4-1/2	6	720-5041	721-5041
1-1/4	1-1/4	2"	4-1/2	6	720-5043	721-5043
1-1/2	3/4	2"	4-1/2	6	720-5045	721-5045
1-1/2	1-1/4	2"	4-1/2	6	720-5047	721-5047
1-3/4	3/4	2"	4-1/2	6	720-5049	721-5049
1-3/4	1-1/4	2"	4-1/2	6	720-5051	721-5051
2"	3/4	2"	4-1/2	8	720-5053	721-5053
2"	1-1/4	2"	4-1/2	6	720-5054	721-5054
2"	1-1/4	2"	4-1/2	8	720-5055	721-5055
2"	1-1/4	2"	6-1/2	8	720-5056	721-5056
2"	2"	2"	5-3/4	8	720-5057	721-5057
2"	2"	3"	6-3/4	6	720-5058	721-5058
2"	2"	4"	7-3/4	8	720-5059	721-5059
2"	2"	4"	7-3/4	6	720-5060	721-5060
2-1/2	2"	4"	7-3/4	8	720-5061	721-5061
2-1/2	2-1/2	4"	7-3/4	8	720-5063	721-5063
2"	2"	3"	6-3/4	8	720-5065	721-5065

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-coated Model No.	M42 Model No.
1/4	3/8	3/4	2-1/2	4	722-5001	723-5001
1/4	3/8	5/8	2-7/16	4	722-5002	723-5002
1/4	3/8	1-1/4	3-1/16	4	722-5003	723-5003
5/16	3/8	3/4	2-1/2	4	722-5005	723-5005
5/16	3/8	1-3/8	3-1/8	4	722-5007	723-5007
3/8	3/8	3/4	2-1/2	4	722-5008	723-5008
3/8	3/8	7/8	2-5/8	4	722-5009	723-5009
3/8	3/8	1-1/2	3-1/4	4	722-5011	723-5011
7/16	3/8	1"	2-11/16	4	722-5012	723-5012
1/2	1/2	1-1/4	3-1/4	4	722-5013	723-5013
5/8	5/8	1-5/8	3-3/4	4	722-5017	723-5017
11/16	5/8	1-5/8	3-3/4	4	722-5019	723-5019
3/4	5/8	1-5/8	3-3/4	4	722-5020	723-5020
3/4	5/8	1-5/8	3-7/8	4	722-5021	723-5021
3/4	3/4	1-5/8	3-3/4	4	722-5025	723-5025
7/8	3/4	1-5/8	4-1/8	4	722-5027	723-5027
7/8	7/8	1-7/8	4-1/8	4	722-5029	723-5029
15/16	3/4	1-7/8	4-1/8	4	722-5031	723-5031
1"	3/4	2"	4-1/2	6	722-5033	723-5033
1"	1"	2"	4-1/2	6	722-5035	723-5035

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	Tin-coated Model No.	M42 Model No.
1-1/8	3/4	2"	4-1/2	6	722-5037	723-5037
1-1/8	1	2"	4-1/2	6	722-5039	723-5039
1-1/4	3/4	2"	4-1/2	6	722-5041	723-5041
1-1/4	1-1/4	2"	4-1/2	6	722-5043	723-5043
1-1/2	3/4	2"	4-1/2	6	722-5045	723-5045
1-1/2	1-1/4	2"	4-1/2	6	722-5047	723-5047
1-3/4	3/4	2"	4-1/2	6	722-5049	723-5049
1-3/4	1-1/4	2"	4-1/2	6	722-5051	723-5051
2"	3/4	2"	4-1/2	8	722-5053	723-5053
2"	1-1/4	2"	4-1/2	6	722-5054	723-5054
2"	1-1/4	2"	4-1/2	8	722-5055	723-5055
2"	1-1/4	2"	6-1/2	8	722-5056	723-5056
2"	2"	2"	5-3/4	8	722-5057	723-5057
2"	2"	3"	6-3/4	6	722-5058	723-5058
2"	2"	4"	7-3/4	8	722-5059	723-5059
2"	2"	4"	7-3/4	6	722-5060	723-5060
2-1/2	2"	4"	7-3/4	8	722-5061	723-5061
2-1/2	2-1/2	4"	7-3/4	8	722-5063	723-5063
2"	2"	3"	6-3/4	8	722-5065	723-5065

Medium Length

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	HSS Model No.	M2Al Model No.
2"	2"	5"	8-3/4	8	720-5101	721-5101
2"	2"	6"	9-3/4	8	720-5103	721-5103
2-1/2	2"	6"	9-3/4	8	720-5105	721-5105
2-1/2	2-1/2	6"	9-3/4	8	720-5107	721-5107

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	Tin-coated Model No.	M42 Model No.
2"	2"	5"	8-3/4	8	722-5101	723-5101
2"	2"	6"	9-3/4	8	722-5103	723-5103
2-1/2	2"	6"	9-3/4	8	722-5105	723-5105
2-1/2	2-1/2	6"	9-3/4	8	722-5107	723-5107

End Mills

Long Length

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	HSS Model No.	M2Al Model No.
1/2	1/2	2"	4"	4	720-5201	721-5201
5/8	5/8	2-1/2	4-5/8	4	720-5203	721-5203
3/4	5/8	3"	5-1/4	4	720-5205	721-5205
3/4	5/8	3"	5-1/8	4	720-5207	721-5207
3/4	3/4	3"	5-1/4	4	720-5209	721-5209
7/8	3/4	3-1/2	5-5/8	4	720-5211	721-5211
7/8	7/8	3-1/2	5-3/4	4	720-5213	721-5213
1"	1"	4"	6-1/2	6	720-5215	721-5215
1"	1"	6"	8-1/2	6	720-5217	721-5217
1-1/4	1-1/4	3"	5-1/2	6	720-5218	721-5218
1-1/4	3/4	4"	6-1/4	6	720-5219	721-5219
1-1/4	1-1/4	4"	6-1/2	6	720-5221	721-5221
1-1/4	1-1/4	6"	8-1/2	6	720-5223	721-5223
1-1/2	1-1/4	3"	5-1/2	6	720-5224	721-5224
1-1/2	3/4	4"	6-1/4	6	720-5225	721-5225

Size	Shank Dia.	Flute Length	Overall Length	No. of flute	HSS Model No.	M2Al Model No.
1-1/2	1-1/4	4"	6-1/2	6	720-5227	721-5227
1-1/2	1-1/4	5"	7-1/2	6	720-5228	721-5228
1-1/2	1-1/4	6"	8-1/2	6	720-5229	721-5229
1-3/4	1-1/4	4"	6-1/2	6	720-5231	721-5231
2"	1-1/4	4"	6-1/2	6	720-5232	721-5232
2"	1-1/4	4"	6-1/2	8	720-5233	721-5233
2"	2"	6"	9-3/4	6	720-5234	721-5234
2"	2"	7"	10-3/4	8	720-5235	721-5235
2"	2"	8"	11-3/4	6	720-5236	721-5236
2"	2"	8"	11-3/4	8	720-5237	721-5237
2"	2"	10"	13-3/4	8	720-5239	721-5239
2"	2"	12"	15-3/4	8	720-5241	721-5241
2-1/2	2"	8"	11-3/4	8	720-5243	721-5243
2-1/2	2-1/2	8"	11-3/4	8	720-5245	721-5245
2-1/2	2-1/2	10"	13-3/4	8	720-5247	721-5247
2-1/2	2-1/2	12"	15-3/4	8	720-5249	721-5249

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	Tin-coated Model No.	M42 Model No.
1/2	1/2	2"	4"	4	722-5201	723-5201
5/8	5/8	2-1/2	4-5/8	4	722-5203	723-5203
3/4	5/8	3"	5-1/4	4	722-5205	723-5205
3/4	5/8	3"	5-1/8	4	722-5207	723-5207
3/4	3/4	3"	5-1/4	4	722-5209	723-5209
7/8	3/4	3-1/2	5-5/8	4	722-5211	723-5211
7/8	7/8	3-1/2	5-3/4	4	722-5213	723-5213
1"	1"	4"	6-1/2	6	722-5215	723-5215
1"	1"	6"	8-1/2	6	722-5217	723-5217
1-1/4	1-1/4	3"	5-1/2	6	722-5218	723-5218
1-1/4	3/4	4"	6-1/4	6	722-5219	723-5219
1-1/4	1-1/4	4"	6-1/2	6	722-5221	723-5221
1-1/4	1-1/4	6"	8-1/2	6	722-5223	723-5223
1-1/2	1-1/4	3"	5-1/2	6	722-5224	723-5224
1-1/2	3/4	4"	6-1/4	6	722-5225	723-5225

Size	Shank Dia.	Flute Length	Overall Length	No. of flute	Tin-coated Model No.	M42 Model No.
1-1/2	1-1/4	4"	6-1/2	6	722-5227	723-5227
1-1/2	1-1/4	5"	7-1/2	6	722-5228	723-5228
1-1/2	1-1/4	6"	8-1/2	6	722-5229	723-5229
1-3/4	1-1/4	4"	6-1/2	6	722-5231	723-5231
2"	1-1/4	4"	6-1/2	6	722-5232	723-5232
2"	1-1/4	4"	6-1/2	8	722-5233	723-5233
2"	2"	6"	9-3/4	6	722-5234	723-5234
2"	2"	7"	10-3/4	8	722-5235	723-5235
2"	2"	8"	11-3/4	6	722-5236	723-5236
2"	2"	8"	11-3/4	8	722-5237	723-5237
2"	2"	10"	13-3/4	8	722-5239	723-5239
2"	2"	12"	15-3/4	8	722-5241	723-5241
2-1/2	2"	8"	11-3/4	8	722-5243	723-5243
2-1/2	2-1/2	8"	11-3/4	8	722-5245	723-5245
2-1/2	2-1/2	10"	13-3/4	8	722-5247	723-5247
2-1/2	2-1/2	12"	15-3/4	8	722-5249	723-5249

ROUGHING END MILLS

Non Center Cutting

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/4	3/8	3/4	2-1/2	4	720-5301	721-5301
1/4	3/8	5/8	2-7/16	4	720-5302	721-5302
1/4	3/8	1-1/4	3-1/16	4	720-5303	721-5303
5/16	3/8	3/4	2-1/2	4	720-5305	721-5305
5/16	3/8	1-3/8	3-1/8	4	720-5307	721-5307
3/8	3/8	3/4	2-1/2	4	720-5308	721-5308
3/8	3/8	7/8	2-5/8	4	720-5309	721-5309
3/8	3/8	1-1/2	3-1/4	4	720-5311	721-5311
7/16	3/8	1"	2-11/16	4	720-5312	721-5312
1/2	1/2	1-1/4	3-1/4	4	720-5313	721-5313
5/8	5/8	1-5/8	3-3/4	4	720-5317	721-5317
11/16	5/8	1-5/8	3-3/4	4	720-5319	721-5319
3/4	5/8	1-5/8	3-3/4	4	720-5320	721-5320
3/4	5/8	1-5/8	3-7/8	4	720-5321	721-5321
3/4	3/4	1-5/8	3-3/4	4	720-5325	721-5325
7/8	3/4	1-5/8	4-1/8	4	720-5327	721-5327
7/8	7/8	1-7/8	4-1/8	4	720-5329	721-5329
15/16	3/4	1-7/8	4-1/8	4	720-5331	721-5331
1"	3/4	2"	4-1/2	6	720-5333	721-5333
1"	1"	2"	4-1/2	6	720-5335	721-5335



Fine Pitch

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	HSS Model No.	M2Al Model No.
1-1/8	3/4	2"	4-1/2	6	720-5337	721-5337
1-1/8	1	2"	4-1/2	6	720-5339	721-5339
1-1/4	3/4	2"	4-1/2	6	720-5341	721-5341
1-1/4	1-1/4	2"	4-1/2	6	720-5343	721-5343
1-1/2	3/4	2"	4-1/2	6	720-5345	721-5345
1-1/2	1-1/4	2"	4-1/2	6	720-5347	721-5347
1-3/4	3/4	2"	4-1/2	6	720-5349	721-5349
1-3/4	1-1/4	2"	4-1/2	6	720-5351	721-5351
2"	3/4	2"	4-1/2	8	720-5353	721-5353
2"	1-1/4	2"	4-1/2	6	720-5354	721-5354
2"	1-1/4	2"	4-1/2	8	720-5355	721-5355
2"	1-1/4	2"	6-1/2	8	720-5356	721-5356
2"	2"	2"	5-3/4	8	720-5357	721-5357
2"	2"	3"	6-3/4	6	720-5358	721-5358
2"	2"	4"	7-3/4	8	720-5359	721-5359
2"	2"	4"	7-3/4	6	720-5360	721-5360
2-1/2	2"	4"	7-3/4	8	720-5361	721-5361
2-1/2	2-1/2	4"	7-3/4	8	720-5363	721-5363
2"	2"	3"	6-3/4	8	720-5365	721-5365

End Mills

ROUGHING END MILLS-Continued

Fine Pitch

Non Center Cutting

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-coated Model No.	M42 Model No.
1/4	3/8	3/4	2-1/2	4	722-5301	723-5301
1/4	3/8	5/8	2-7/16	4	722-5302	723-5302
1/4	3/8	1-1/4	3-1/16	4	722-5303	723-5303
5/16	3/8	3/4	2-1/2	4	722-5305	723-5305
5/16	3/8	1-3/8	3-1/8	4	722-5307	723-5307
3/8	3/8	3/4	2-1/2	4	722-5308	723-5308
3/8	3/8	7/8	2-5/8	4	722-5309	723-5309
3/8	3/8	1-1/2	3-1/4	4	722-5311	723-5311
7/16	3/8	1"	2-11/16	4	722-5312	723-5312
1/2	1/2	1-1/4	3-1/4	4	722-5313	723-5313
5/8	5/8	1-5/8	3-3/4	4	722-5317	723-5317
11/16	5/8	1-5/8	3-3/4	4	722-5319	723-5319
3/4	5/8	1-5/8	3-3/4	4	722-5320	723-5320
3/4	5/8	1-5/8	3-7/8	4	722-5321	723-5321
3/4	3/4	1-5/8	3-3/4	4	722-5325	723-5325
7/8	3/4	1-5/8	4-1/8	4	722-5327	723-5327
7/8	7/8	1-7/8	4-1/8	4	722-5329	723-5329
15/16	3/4	1-7/8	4-1/8	4	722-5331	723-5331
1"	3/4	2"	4-1/2	6	722-5333	723-5333
1"	1"	2"	4-1/2	6	722-5335	723-5335

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flute	Tin-coated Model No.	M42 Model No.
1-1/8	3/4	2"	4-1/2	6	722-5337	723-5337
1-1/8	1	2"	4-1/2	6	722-5339	723-5339
1-1/4	3/4	2"	4-1/2	6	722-5341	723-5341
1-1/4	1-1/4	2"	4-1/2	6	722-5343	723-5343
1-1/2	3/4	2"	4-1/2	6	722-5345	723-5345
1-1/2	1-1/4	2"	4-1/2	6	722-5347	723-5347
1-3/4	3/4	2"	4-1/2	6	722-5349	723-5349
1-3/4	1-1/4	2"	4-1/2	6	722-5351	723-5351
2"	3/4	2"	4-1/2	8	722-5353	723-5353
2"	1-1/4	2"	4-1/2	6	722-5354	723-5354
2"	1-1/4	2"	4-1/2	8	722-5355	723-5355
2"	1-1/4	2"	6-1/2	8	722-5356	723-5356
2"	2"	2"	5-3/4	8	722-5357	723-5357
2"	2"	3"	6-3/4	6	722-5358	723-5358
2"	2"	4"	7-3/4	8	722-5359	723-5359
2"	2"	4"	7-3/4	6	722-5360	723-5360
2-1/2	2"	4"	7-3/4	8	722-5361	723-5361
2-1/2	2-1/2	4"	7-3/4	8	722-5363	723-5363
2"	2"	3"	6-3/4	8	722-5365	723-5365

Medium Length

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	HSS Model No.	M2Al ModelNo.
2"	2"	5"	8-3/4	8	720-5401	721-5401
2"	2"	6"	9-3/4	8	720-5403	721-5403
2-1/2	2"	6"	9-3/4	8	720-5405	721-5405
2-1/2	2-1/2	6"	9-3/4	8	720-5407	721-5407

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	Tin-coated Model No.	M42 ModelNo.
2"	2"	5"	8-3/4	8	722-5401	723-5401
2"	2"	6"	9-3/4	8	722-5403	723-5403
2-1/2	2"	6"	9-3/4	8	722-5405	723-5405
2-1/2	2-1/2	6"	9-3/4	8	722-5407	723-5407

Long Length

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	HSS Model No.	M2Al Model No.
1/2	1/2	2"	4"	4	720-5501	721-5501
5/8	5/8	2-1/2	4-5/8	4	720-5503	721-5503
3/4	5/8	3"	5-1/4	4	720-5505	721-5505
3/4	5/8	3"	5-1/8	4	720-5507	721-5507
3/4	3/4	3"	5-1/4	4	720-5509	721-5509
7/8	3/4	3-1/2	5-5/8	4	720-5511	721-5511
7/8	7/8	3-1/2	5-3/4	4	720-5513	721-5513
1"	1"	4"	6-1/2	6	720-5515	721-5515
1"	1"	6"	8-1/2	6	720-5517	721-5517
1-1/4	1-1/4	3"	5-1/2	6	720-5518	721-5518
1-1/4	3/4	4"	6-1/4	6	720-5519	721-5519
1-1/4	1-1/4	4"	6-1/2	6	720-5521	721-5521
1-1/4	1-1/4	6"	8-1/2	6	720-5523	721-5523
1-1/2	1-1/4	3"	5-1/2	6	720-5524	721-5524
1-1/2	3/4	4"	6-1/4	6	720-5525	721-5525

Size	Shank Dia.	Flute Length	Overall Length	No. of flute	HSS Model No	M2Al Model No.
1-1/2	1-1/4	4"	6-1/2	6	720-5527	721-5527
1-1/2	1-1/4	5"	7-1/2	6	720-5528	721-5528
1-1/2	1-1/4	6"	8-1/2	6	720-5529	721-5529
1-3/4	1-1/4	4"	6-1/2	6	720-5531	721-5531
2"	1-1/4	4"	6-1/2	6	720-5532	721-5532
2"	1-1/4	4"	6-1/2	8	720-5533	721-5533
2"	2"	6"	9-3/4	6	720-5534	721-5534
2"	2"	7"	10-3/4	8	720-5535	721-5535
2"	2"	8"	11-3/4	6	720-5536	721-5536
2"	2"	8"	11-3/4	8	720-5537	721-5537
2"	2"	10"	13-3/4	8	720-5539	721-5539
2"	2"	12"	15-3/4	8	720-5541	721-5541
2-1/2	2"	8"	11-3/4	8	720-5543	721-5543
2-1/2	2-1/2	8"	11-3/4	8	720-5545	721-5545
2-1/2	2-1/2	10"	13-3/4	8	720-5547	721-5547
2-1/2	2-1/2	12"	15-3/4	8	720-5549	721-5549

End Mills

ROUGHING END MILLS-Continued

Fine Pitch

Long Length

Size	Shank Dia.	Flute Length	Overall Length	No. of flutes	Tin-coated Model No.	M42 Model No.
1/2	1/2	2"	4"	4	722-5501	723-5501
5/8	5/8	2-1/2	4-5/8	4	722-5503	723-5503
3/4	5/8	3"	5-1/4	4	722-5505	723-5505
3/4	5/8	3"	5-1/8	4	722-5507	723-5507
3/4	3/4	3"	5-1/4	4	722-5509	723-5509
7/8	3/4	3-1/2	5-5/8	4	722-5511	723-5511
7/8	7/8	3-1/2	5-3/4	4	722-5513	723-5513
1"	1"	4"	6-1/2	6	722-5515	723-5515
1"	1"	6"	8-1/2	6	722-5517	723-5517
1-1/4	1-1/4	3"	5-1/2	6	722-5518	723-5518
1-1/4	3/4	4"	6-1/4	6	722-5519	723-5519
1-1/4	1-1/4	4"	6-1/2	6	722-5521	723-5521
1-1/4	1-1/4	6"	8-1/2	6	722-5523	723-5523
1-1/2	1-1/4	3"	5-1/2	6	722-5524	723-5524
1-1/2	3/4	4"	6-1/4	6	722-5525	723-5525

Size	Shank Dia.	Flute Length	Overall Length	No. of flute	Tin-coated Model No.	M42 Model No.
1-1/2	1-1/4	4"	6-1/2	6	722-5527	723-5527
1-1/2	1-1/4	5"	7-1/2	6	722-5528	723-5528
1-1/2	1-1/4	6"	8-1/2	6	722-5529	723-5529
1-3/4	1-1/4	4"	6-1/2	6	722-5531	723-5531
2"	1-1/4	4"	6-1/2	6	722-5532	723-5532
2"	1-1/4	4"	6-1/2	8	722-5533	723-5533
2"	2"	6"	9-3/4	6	722-5534	723-5534
2"	2"	7"	10-3/4	8	722-5535	723-5535
2"	2"	8"	11-3/4	6	722-5536	723-5536
2"	2"	8"	11-3/4	8	722-5537	723-5537
2"	2"	10"	13-3/4	8	722-5539	723-5539
2"	2"	12"	15-3/4	8	722-5541	723-5541
2-1/2	2"	8"	11-3/4	8	722-5543	723-5543
2-1/2	2-1/2	8"	11-3/4	8	722-5545	723-5545
2-1/2	2-1/2	10"	13-3/4	8	722-5547	723-5547
2-1/2	2-1/2	12"	15-3/4	8	722-5549	723-5549

ROUGHING END MILLS

METRIC SIZE Center Cutting

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.
6	6	13	57	720-5801	721-5801
8	10	19	69	720-5803	721-5803
10	10	22	72	720-5805	721-5805
12	12	26	83	720-5807	721-5807
14	12	26	83	720-5809	721-5809
16	16	32	92	720-5811	721-5811
18	16	32	92	720-5813	721-5813
20	20	38	104	720-5815	721-5815
25	25	45	121	720-5817	721-5817
26	25	45	121	720-5819	721-5819
28	25	45	121	720-5821	721-5821
30	25	45	121	720-5823	721-5823
32	32	53	133	720-5825	721-5825
36	32	53	133	720-5827	721-5827
38	40	63	155	720-5829	721-5829
40	40	63	155	720-5831	721-5831



Coarse Pitch

Size	Shank Dia.	Flute Length	Overall Length	Tin-Coated Model No.	M42 Model No.
6	6	13	57	722-5801	723-5801
8	10	19	69	722-5803	723-5803
10	10	22	72	722-5805	723-5805
12	12	26	83	722-5807	723-5807
14	12	26	83	722-5809	723-5809
16	16	32	92	722-5811	723-5811
18	16	32	92	722-5813	723-5813
20	20	38	104	722-5815	723-5815
25	25	45	121	722-5817	723-5817
26	25	45	121	722-5819	723-5819
28	25	45	121	722-5821	723-5821
30	25	45	121	722-5823	723-5823
32	32	53	133	722-5825	723-5825
36	32	53	133	722-5827	723-5827
38	40	63	155	722-5829	723-5829
40	40	63	155	722-5831	723-5831

Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.
6	6	24	68	720-5841	721-5841
8	8	38	88	720-5843	721-5843
8	10	38	88	720-5845	721-5845
10	10	45	95	720-5847	721-5847
11	12	53	110	720-5849	721-5849
12	12	53	110	720-5851	721-5851
14	12	53	110	720-5853	721-5853
16	16	63	123	720-5855	721-5855
18	16	63	123	720-5857	721-5857
20	20	75	141	720-5859	721-5859
22	20	75	141	720-5861	721-5861
24	25	90	166	720-5863	721-5863
25	25	90	166	720-5865	721-5865
26	25	90	166	720-5867	721-5867
28	25	90	166	720-5869	721-5869

Size	Shank Dia.	Flute Length	Overall Length	Tin-Coated Model No.	M42 Model No.
6	6	24	68	722-5841	723-5841
8	8	38	88	722-5843	723-5843
8	10	38	88	722-5845	723-5845
10	10	45	95	722-5847	723-5847
11	12	53	110	722-5849	723-5849
12	12	53	110	722-5851	723-5851
14	12	53	110	722-5853	723-5853
16	16	63	123	722-5855	723-5855
18	16	63	123	722-5857	723-5857
20	20	75	141	722-5859	723-5859
22	20	75	141	722-5861	723-5861
24	25	90	166	722-5863	723-5863
25	25	90	166	722-5865	723-5865
26	25	90	166	722-5867	723-5867
28	25	90	166	722-5869	723-5869

End Mills

ROUGHING END MILLS

METRIC SIZE Center Cutting

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.
6	6	13	57	720-6101	721-6101
7	8	16	60	720-6103	721-6103
7	10	19	69	720-6105	721-6105
8	8	19	69	720-6107	721-6107
8	10	19	69	720-6109	721-6109
9	10	19	69	720-6111	721-6111
10	10	22	72	720-6113	721-6113
11	12	22	79	720-6115	721-6115
12	12	26	83	720-6117	721-6117
13	12	26	83	720-6119	721-6119
14	12	26	83	720-6121	721-6121
15	12	26	83	720-6123	721-6123
15	16	32	92	720-6125	721-6125
16	16	32	92	720-6127	721-6127
17	16	32	92	720-6129	721-6129
18	16	32	92	720-6131	721-6131
19	16	32	92	720-6133	721-6133
20	20	38	104	720-6135	721-6135
22	20	38	104	720-6137	721-6137
24	25	45	121	720-6139	721-6139
25	25	45	121	720-6141	721-6141
26	25	45	121	720-6143	721-6143
28	25	45	121	720-6145	721-6145

Long Length

Size	Shank Dia.	Flute Length	Overall Length	HSS Model No.	M2Al Model No.
6	6	24	68	720-6151	721-6151
8	8	38	88	720-6153	721-6153
8	10	38	88	720-6155	721-6155
10	10	45	95	720-6157	721-6157
11	12	53	110	720-6159	721-6159
12	12	53	110	720-6161	721-6161
14	12	53	110	720-6163	721-6163
16	16	63	123	720-6165	721-6165
18	16	63	123	720-6167	721-6167
20	20	75	141	720-6169	721-6169
22	20	75	141	720-6171	721-6171
24	25	90	166	720-6173	721-6173



Fine Pitch

Size	Shank Dia.	Flute Length	Overall Length	Tin-Coated Model No.	M42 Model No.
6	6	13	57	722-6101	723-6101
7	8	16	60	722-6103	723-6103
7	10	19	69	722-6105	723-6105
8	8	19	69	722-6107	723-6107
8	10	19	69	722-6109	723-6109
9	10	19	69	722-6111	723-6111
10	10	22	72	722-6113	723-6113
11	12	22	79	722-6115	723-6115
12	12	26	83	722-6117	723-6117
13	12	26	83	722-6119	723-6119
14	12	26	83	722-6121	723-6121
15	12	26	83	722-6123	723-6123
15	16	32	92	722-6125	723-6125
16	16	32	92	722-6127	723-6127
17	16	32	92	722-6129	723-6129
18	16	32	92	722-6131	723-6131
19	16	32	92	722-6133	723-6133
20	20	38	104	722-6135	723-6135
22	20	38	104	722-6137	723-6137
24	25	45	121	722-6139	723-6139
25	25	45	121	722-6141	723-6141
26	25	45	121	722-6143	723-6143
28	25	45	121	722-6145	723-6145

Size	Shank Dia.	Flute Length	Overall Length	Tin-Coated Model No.	M42 Model No.
6	6	24	68	722-6151	723-6151
8	8	38	88	722-6153	723-6153
8	10	38	88	722-6155	723-6155
10	10	45	95	722-6157	723-6157
11	12	53	110	722-6159	723-6159
12	12	53	110	722-6161	723-6161
14	12	53	110	722-6163	723-6163
16	16	63	123	722-6165	723-6165
18	16	63	123	722-6167	723-6167
20	20	75	141	722-6169	723-6169
22	20	75	141	722-6171	723-6171
24	25	90	166	722-6173	723-6173

ROUGHING CENTER CUTTING END MILLS



Stub Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/4	3/8	1/4	2-1/16	3	720-6001	721-6001
3/8	3/8	3/8	2-1/4	3	720-6002	721-6002
1/2	1/2	1/2	2-1/2	3	720-6003	721-6003
5/8	5/8	5/8	2-3/4	3	720-6005	721-6005
3/4	3/4	3/4	2-7/8	3	720-6007	721-6007
7/8	3/4	7/8	3-1/8	3	720-6008	721-6008
1"	1	1	3-3/4	3	720-6009	721-6009
1-1/4	1-1/4	1-1/4	3-3/4	4	720-6011	721-6011
1-1/2	1-1/4	1-1/4	3-3/4	6	720-6012	721-6012

Coarse Pitch

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-coated Model No.	M42 Model No.
1/4	3/8	1/4	2-1/16	3	722-6001	723-6001
3/8	3/8	3/8	2-1/4	3	722-6002	723-6002
1/2	1/2	1/2	2-1/2	3	722-6003	723-6003
5/8	5/8	5/8	2-3/4	3	722-6005	723-6005
3/4	3/4	3/4	2-7/8	3	722-6007	723-6007
7/8	3/4	7/8	3-1/8	3	722-6008	723-6008
1"	1	1	3-3/4	3	722-6009	723-6009
1-1/4	1-1/4	1-1/4	3-3/4	4	722-6011	723-6011
1-1/2	1-1/4	1-1/4	3-3/4	6	722-6012	723-6012

End Mills

COARSE-Continued

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/2	1/2	1-1/4	3-1/4	4	720-6801	721-6801
5/8	5/8	1-5/8	3-3/4	4	720-6802	721-6802
3/4	3/4	1-5/8	3-7/8	4	720-6803	721-6803
1"	1	2	4-1/2	5	720-6805	721-6805
1-1/4	1-1/4	2	4-1/2	6	720-6807	721-6807
1-1/2	1-1/4	2	4-1/2	6	720-6808	721-6808

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-Coated Model No.	M42 Model No.
1/2	1/2	1-1/4	3-1/4	4	722-6801	723-6801
5/8	5/8	1-5/8	3-3/4	4	722-6802	723-6802
3/4	3/4	1-5/8	3-7/8	4	722-6803	723-6803
1"	1	2	4-1/2	5	722-6805	723-6805
1-1/4	1-1/4	2	4-1/2	6	722-6807	723-6807
1-1/2	1-1/4	2	4-1/2	6	722-6808	723-6808

Long Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/2	1/2	2	4	4	720-6201	721-6201
5/8	5/8	2-1/2	4-5/8	4	720-6202	721-6202
3/4	3/4	3	5-1/4	4	720-6203	721-6203
1"	1	4	6-1/2	5	720-6205	721-6205
1-1/4	1-1/4	4	6-1/2	6	720-6207	721-6207
1-1/2	1-1/4	4	6-1/2	6	720-6208	721-6208

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-Coated Model No.	M42 Model No.
1/2	1/2	2	4	4	722-6201	723-6201
5/8	5/8	2-1/2	4-5/8	4	722-6202	723-6202
3/4	3/4	3	5-1/4	4	722-6203	723-6203
1"	1	4	6-1/2	5	722-6205	723-6205
1-1/4	1-1/4	4	6-1/2	6	722-6207	723-6207
1-1/2	1-1/4	4	6-1/2	6	722-6208	723-6208

ROUGHING CENTER CUTTING END MILLS



Stub Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/4	3/8	1/4	2-1/16	3	720-6301	721-6301
3/8	3/8	3/8	2-1/4	3	720-6302	721-6302
1/2	1/2	1/2	2-1/2	3	720-6303	721-6303
5/8	5/8	5/8	2-3/4	3	720-6305	721-6305
3/4	3/4	3/4	2-7/8	3	720-6307	721-6307
7/8	3/4	7/8	3-1/8	3	720-6308	721-6308
1"	1	1	3-3/4	3	720-6309	721-6309
1-1/4	1-1/4	1-1/4	3-3/4	4	720-6311	721-6311
1-1/2	1-1/4	1-1/4	3-3/4	6	720-6312	721-6312

Fine Pitch

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-coated Model No.	M42 Model No.
1/4	3/8	1/4	2-1/16	3	722-6301	723-6301
3/8	3/8	3/8	2-1/4	3	722-6302	723-6302
1/2	1/2	1/2	2-1/2	3	722-6303	723-6303
5/8	5/8	5/8	2-3/4	3	722-6305	723-6305
3/4	3/4	3/4	2-7/8	3	722-6307	723-6307
7/8	3/4	7/8	3-1/8	3	722-6308	723-6308
1"	1	1	3-3/4	3	722-6309	723-6309
1-1/4	1-1/4	1-1/4	3-3/4	4	722-6311	723-6311
1-1/2	1-1/4	1-1/4	3-3/4	6	722-6312	723-6312

Regular Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/2	1/2	1-1/4	3-1/4	4	720-6401	721-6401
5/8	5/8	1-5/8	3-3/4	4	720-6402	721-6402
3/4	3/4	1-5/8	3-7/8	4	720-6403	721-6403
1"	1	2	4-1/2	5	720-6405	721-6405
1-1/4	1-1/4	2	4-1/2	6	720-6407	721-6407
1-1/2	1-1/4	2	4-1/2	6	720-6408	721-6408

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-Coated Model No.	M42 Model No.
1/2	1/2	1-1/4	3-1/4	4	722-6401	723-6401
5/8	5/8	1-5/8	3-3/4	4	722-6402	723-6402
3/4	3/4	1-5/8	3-7/8	4	722-6403	723-6403
1"	1	2	4-1/2	5	722-6405	723-6405
1-1/4	1-1/4	2	4-1/2	6	722-6407	723-6407
1-1/2	1-1/4	2	4-1/2	6	722-6408	723-6408

Long Length

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	HSS Model No.	M2Al Model No.
1/2	1/2	2	4	4	720-6501	721-6501
5/8	5/8	2-1/2	4-5/8	4	720-6502	721-6502
3/4	3/4	3	5-1/4	4	720-6503	721-6503
1"	1	4	6-1/2	5	720-6505	721-6505
1-1/4	1-1/4	4	6-1/2	6	720-6507	721-6507
1-1/2	1-1/4	4	6-1/2	6	720-6508	721-6508

Size	Shank Dia.	Flute Length	Overall Length	No. Of Flutes	Tin-Coated Model No.	M42 Model No.
1/2	1/2	2	4	4	722-6501	723-6501
5/8	5/8	2-1/2	4-5/8	4	722-6502	723-6502
3/4	3/4	3	5-1/4	4	722-6503	723-6503
1"	1	4	6-1/2	5	722-6505	723-6505
1-1/4	1-1/4	4	6-1/2	6	722-6507	723-6507
1-1/2	1-1/4	4	6-1/2	6	722-6508	723-6508

End Mills

SOLID CARBIDE END MILLS

Four flute end mills: Produce finer finishes, recommend for finishing operation

Two flute end mills: Allow maximum chip ejection compare to four flute, recommend for roughing operation

- Made of micro-grain tungsten carbide material
- Suitable for general purpose of machining cast iron, alloy steel, stainless steel, non-ferrous and non-metals material
- Center cutting allows for three axis profile milling and plunge cutting
- 30° Helix flutes for both non-ferrous and ferrous materials
- Better surface finish on work piece
- Higher feed rates and long tool life

TOLERANCE

Shank Diameter: -0.0000"/-0.0005"

Cutter Diameter: 1/32" thru 1/4"-----+0.000"/0.002"

9/32" thru 1"-----+0.000"/-0.003"

2 Flute Single end mills



Size	Shank Dia.	Flute Length	Overall Length	M42 Model No.
1/16	1/8	3/16	1-1/2	246-0201
3/32	1/8	3/8	1-1/2	246-0202
1/8	1/8	1/2	1-1/2	246-0203
5/32	3/16	9/16	2"	246-0204
3/16	3/16	5/8	2"	246-0205
7/32	1/4	5/8	2-1/2	246-0206
1/4	1/4	3/4	2-1/2	246-0207
9/32	5/16	7/8	2-1/2	246-0208
5/16	5/16	3/4	2-1/2	246-0209
3/8	3/8	7/8	2-1/2	246-0210
7/16	7/16	7/8	2-1/2	246-0211
1/2	1/2	1"	3"	246-0212
9/16	9/16	1-3/8	3"	246-0213
5/8	5/8	1-3/8	3-1/2	246-0214
11/16	3/4	1-1/2	4"	246-0215
3/4	3/4	1-1/2	4"	246-0216
7/8	7/8	1-1/2	4"	246-0217
1"	1"	1-1/2	4"	246-0218

4 Flute Single end mills



Size	Shank Dia.	Flute Length	Overall Length	M42 Model No.
1/16	1/8	3/16	1-1/2	246-0401
3/32	1/8	3/8	1-1/2	246-0402
1/8	1/8	1/2	1-1/2	246-0403
5/32	3/16	9/16	2"	246-0404
3/16	3/16	5/8	2"	246-0405
7/32	1/4	5/8	2-1/2	246-0406
1/4	1/4	3/4	2-1/2	246-0407
9/32	5/16	7/8	2-1/2	246-0408
5/16	5/16	3/4	2-1/2	246-0409
3/8	3/8	7/8	2-1/2	246-0410
7/16	7/16	7/8	2-1/2	246-0411
1/2	1/2	1"	3"	246-0412
9/16	9/16	1-3/8	3"	246-0413
5/8	5/8	1-3/8	3-1/2	246-0414
11/16	3/4	1-1/2	4"	246-0415
3/4	3/4	1-1/2	4"	246-0416
7/8	7/8	1-1/2	4"	246-0417
1"	1"	1-1/2	4"	246-0418
1"	1"	3"	6"	246-0419

2 Flute Double end mills



Size	Shank Dia.	Flute Length	Overall Length	M42 Model No.
1/16	1/8	1/8	1-1/2	246-1201
3/32	1/8	3/16	1-1/2	246-1202
1/8	1/8	1/4	1-1/2	246-1203
5/32	3/16	5/16	2"	246-1204
3/16	3/16	3/8	2"	246-1205
7/32	1/4	1/2	2-1/2	246-1206
1/4	1/4	1/2	2-1/2	246-1207
5/16	5/16	1/2	2-1/2	246-1208
3/8	3/8	9/16	2-1/2	246-1209
7/16	7/16	5/8	3"	246-1210
1/2	1/2	5/8	3"	246-1211

4 Flute Double end mills



Size	Shank Dia.	Flute Length	Overall Length	M42 Model No.
1/16	1/8	1/8	1-1/2	246-1401
3/32	1/8	3/16	1-1/2	246-1402
1/8	1/8	1/4	1-1/2	246-1403
5/32	3/16	5/16	2"	246-1404
3/16	3/16	3/8	2"	246-1405
7/32	1/4	1/2	2-1/2	246-1406
1/4	1/4	1/2	2-1/2	246-1407
5/16	5/16	1/2	2-1/2	246-1408
3/8	3/8	9/16	2-1/2	246-1409
7/16	7/16	5/8	3"	246-1410
1/2	1/2	5/8	3"	246-1411

End Mills

2 FLUTE CARBIDE TIPPED END MILLS

With Weldon Shank

- 2 flute are used for machining aluminum alloys, magnesium alloys etc.
- Center cutting suitable for plunge cutting
- Carbide tipped cutting edge can be resharped with diamond grinding wheel



Center Cutting

Size	Shank Dia.	Flute Length	Overall Length	Model No.
5/8	5/8	1-5/16	3-11/16	246-2001
5/8	5/8	1-3/8	4-5/8	246-2003
11/16	5/8	1-5/16	3-11/16	246-2005
3/4	5/8	1-5/16	3-27/32	246-2007
3/4	3/4	1-5/8	5-3/8	246-2009
13/16	5/8	1-1/2	4-1/32	246-2011
7/8	7/8	1-1/2	4-5/16	246-2013
1"	7/8	1-1/2	4-5/16	246-2015
1"	1"	1-5/8	4-11/16	246-2017
1"	1"	2-1/2	7-1/4	246-2019
1-1/8	1"	1-5/8	4-11/16	246-2021
1-1/4	1-1/4	1-5/8	4-11/16	246-2023
1-1/4	1-1/4	3"	7-1/4	246-2025
1-3/8	1"	1-5/8	4-11/16	246-2027
1-1/2	1-1/4	1-5/8	4-25/32	246-2029
1-3/4	1-1/4	1-5/8	4-25/32	246-2031
2"	1-1/4	1-5/8	4-25/32	246-2033

Non Center Cutting

Size	Shank Dia.	Flute Length	Overall Length	Model No.
1/2	1/2	1"	3-1/4	246-2101
9/16	1/2	1-1/8	3-3/8	246-2103
5/8	5/8	1-5/16	3-11/16	246-2105
5/8	5/8	1-3/8	4-5/8	246-2107
11/16	5/8	1-5/16	3-11/16	246-2109
3/4	5/8	1-5/16	3-27/32	246-2111
3/4	3/4	1-5/8	5-3/8	246-2113
13/16	5/8	1-1/2	4-1/32	246-2115
7/8	7/8	1-1/2	4-5/16	246-2117
1"	7/8	1-1/2	4-5/16	246-2119
1"	1"	1-5/8	4-11/16	246-2121
1"	1"	2-1/2	7-1/4	246-2123
1-1/8	1"	1-5/8	4-11/16	246-2125
1-1/4	1-1/4	1-5/8	4-11/16	246-2127
1-1/4	1-1/4	3"	7-1/4	246-2129
1-3/8	1"	1-5/8	4-11/16	246-2131
1-1/2	1-1/4	1-5/8	4-25/32	246-2133
1-3/4	1-1/4	1-5/8	4-25/32	246-2135
2"	1-1/4	1-5/8	4-25/32	246-2137

3 FLUTE CARBIDE TIPPED END MILLS

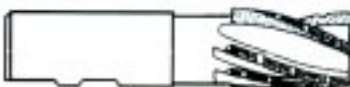
With Weldon Shank

- Use in finish operation
- Three flute's vibration is less than two when milling



Size	Shank Dia.	Flute Length	Overall Length	Model No.
1/2	1/2	1-1/4	3-1/2	246-2201
1/2	1/2	2"	4-1/4	246-2203
1/2	1/2	3"	5-1/4	246-2205
9/16	1/2	1-3/8	3-5/8	246-2207
5/8	5/8	1-5/8	4"	246-2209
5/8	5/8	2-1/2	4-7/8	246-2211
5/8	5/8	4"	6-3/8	246-2213
11/16	5/8	1-5/8	4"	246-2215
3/4	5/8	1-5/8	4-5/32	246-2217
3/4	3/4	3"	5-21/32	246-2219
3/4	3/4	4"	6-21/32	246-2221
13/16	5/8	1-7/8	4-27/64	246-2223
7/8	7/8	1-7/8	4-17/32	246-2225
7/8	7/8	3-1/2	6-5/32	246-2227
7/8	7/8	5"	7-21/32	246-2229
1"	7/8	1-7/8	4-11/16	246-2231
1"	1"	2"	5-1/16	246-2233
1"	1"	4"	7-1/16	246-2235
1"	1"	6"	9-1/16	246-2237
1-1/8	1"	2"	5-1/16	246-2239
1-1/8	1"	4"	7-1/16	246-2241

"CHIPBREAKER" CUTTING EDGE CARBIDE TIPPED END MILLS



Size	Shank Dia.	Flute Length	Overall Length	No. of Flute	Model No.
1"	7/8	1-7/8	4-11/16	4	246-2301
1"	1"	2"	5-1/16	4	246-2303
1"	1"	4"	7-1/16	4	246-2305
1"	1"	6"	9-1/16	4	246-2307
1-1/8	1"	2"	5-1/16	4	246-2309
1-1/8	1"	4"	7-1/16	4	246-2311
1-1/4	1-1/4	2"	5-1/16	4	246-2313
1-1/4	1-1/4	4"	7-1/16	4	246-2315
1-1/4	1-1/4	6"	9-1/16	4	246-2317
1-3/8	1"	2"	5-1/16	4	246-2319
1-1/2	1-1/4	2"	5-5/32	4	246-2321
1-1/2	1-1/4	4"	7-5/32	4	246-2323
1-1/2	1-1/4	8"	11-5/32	4	246-2325
1-3/4	1-1/4	2"	5-5/32	4	246-2327
1-3/4	1-1/4	2"	5-5/32	6	246-2329
1-3/4	1-1/4	4"	7-5/32	4	246-2331
1-3/4	1-1/4	4"	7-5/32	6	246-2333
2"	1-1/4	2"	5-5/32	4	246-2335
2"	1-1/4	2"	5-5/32	6	246-2337
2"	1-1/4	4"	7-5/32	4	246-2339
2"	1-1/4	4"	7-5/32	6	246-2341

End Mills

MULTIPLE FLUTE CARBIDE TIPPED END MILLS

- Use in finish operation
- Multi-flute can efficiently mill a wide range of materials: non ferrous materials and ferrous materials, including titanium alloy, cast iron, alloy steel, stainless steel, plastic and magnetic material etc.
- Heavy duty machining



Combination Shank

Size	Shank Dia.	Flute Length	Overall Length	No. of Flute	Model No.
1-1/2"	1-1/2"	2-1/2"	6-1/8"	4	246-2401
2"	2"	3"	7"	6	246-2403
2"	2"	4"	8"	4	246-2405
2"	2"	4"	8"	6	246-2407
2"	2"	5"	9"	4	246-2409
2"	2"	5"	9"	6	246-2411
2"	2"	6"	10"	4	246-2413
2"	2"	6"	10"	6	246-2415
2"	2"	8"	12"	4	246-2417
2"	2"	8"	12"	6	246-2419
2"	2"	10"	14"	6	246-2421



Weldon Shank

Size	Shank Dia.	Flute Length	Overall Length	No. of Flute	Model No.
1"	7/8"	1-7/8"	4-11/16"	4	246-2501
1"	1"	2"	5-1/16"	4	246-2503
1"	1"	4"	7-1/16"	4	246-2505
1"	1"	6"	9-1/16"	4	246-2507
1-1/8"	1"	2"	5-1/16"	4	246-2509
1-1/8"	1"	4"	7-1/16"	4	246-2511
1-1/4"	1-1/4"	2"	5-1/16"	4	246-2513
1-1/4"	1-1/4"	4"	7-1/16"	4	246-2515
1-1/4"	1-1/4"	6"	9-1/16"	4	246-2517
1-3/8"	1"	2"	5-1/16"	4	246-2519
1-1/2"	1-1/4"	2"	5-5/32"	4	246-2521
1-1/2"	1-1/4"	4"	7-5/32"	4	246-2523
1-1/2"	1-1/4"	8"	11-5/32"	4	246-2525
1-3/4"	1-1/4"	2"	5-5/32"	4	246-2527
1-3/4"	1-1/4"	2"	5-5/32"	6	246-2529
1-3/4"	1-1/4"	4"	7-5/32"	4	246-2531
1-3/4"	1-1/4"	4"	7-5/32"	6	246-2533
2"	1-1/4"	2"	5-5/32"	4	246-2535
2"	1-1/4"	2"	5-5/32"	6	246-2537
2"	1-1/4"	4"	7-5/32"	4	246-2539
2"	1-1/4"	4"	7-5/32"	6	246-2541

"CREST" CUTTING EDGE CARBIDE TIPPED END MILLS

- Use in roughing milling operation
- Machining carbon steel, cast iron, alloy steel
- Heavy duty machining
- Crest cutting edges compensate cutting forces, minimum vibration and chatter, and offer maximum end mills life

4&6 Flute with Combination Shank

Size	Shank Dia.	Flute Length	Overall Length	No. of Flute	Model No.
1"	7/8"	1-7/8"	4-11/16"	4	246-2601
1"	1"	2"	5-1/16"	4	246-2603
1"	1"	4"	7-1/16"	4	246-2605
1"	1"	6"	9-1/16"	4	246-2607
1-1/8"	1"	2"	5-1/16"	4	246-2609
1-1/8"	1"	4"	7-1/16"	4	246-2611
1-1/4"	1-1/4"	2"	5-1/16"	4	246-2613
1-1/4"	1-1/4"	4"	7-1/16"	4	246-2615
1-1/4"	1-1/4"	6"	9-1/16"	4	246-2617
1-3/8"	1"	2"	5-1/16"	4	246-2619
1-1/2"	1-1/4"	2"	5-5/32"	4	246-2621
1-1/2"	1-1/4"	4"	7-5/32"	4	246-2623
1-1/2"	1-1/4"	8"	11-5/32"	4	246-2625
1-3/4"	1-1/4"	2"	5-5/32"	4	246-2627
1-3/4"	1-1/4"	2"	5-5/32"	6	246-2629
1-3/4"	1-1/4"	4"	7-5/32"	4	246-2631
1-3/4"	1-1/4"	4"	7-5/32"	6	246-2633
2"	1-1/4"	2"	5-5/32"	4	246-2635
2"	1-1/4"	2"	5-5/32"	6	246-2637
2"	1-1/4"	4"	7-5/32"	4	246-2639
2"	1-1/4"	4"	7-5/32"	6	246-2641



4&6 Flute with weldon Shank

Size	Shank Dia.	Flute Length	Overall Length	No. of Flute	Model No.
1-1/2"	1-1/2"	2-1/2"	6-1/8"	4	246-2701
2"	2"	3"	7"	6	246-2703
2"	2"	4"	8"	4	246-2705
2"	2"	4"	8"	6	246-2707
2"	2"	5"	9"	4	246-2709
2"	2"	5"	9"	6	246-2711
2"	2"	6"	10"	4	246-2713
2"	2"	6"	10"	6	246-2715
2"	2"	8"	12"	4	246-2717
2"	2"	8"	12"	6	246-2719
2"	2"	10"	14"	6	246-2721

End Mills

CARBIDE TIPPED SINGLE END MILLS

FOR MILD STEELS

Spiral Flute, Right Hand, Straight Shank



Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	Model No.
1/4	3/8	1/2	2-1/2	2	243-0020
5/16	3/8	5/8	2-1/2	2	243-0040
3/8	3/8	5/8	2-1/2	2	243-0060
7/16	3/8	1"	2-11/16	2	243-0080
1/2	1/2	1"	3-1/4	2	243-0100
9/16	1/2	1"	3-3/8	2	243-0120
5/8	1/2	1"	3-3/8	4	243-0140
5/8	5/8	1-1/4	3-5/8	3	243-0145
3/4	5/8	1"	3-5/8	4	243-0160
3/4	3/4	1-1/2	4-1/8	3	243-0165
7/8	5/8	1-1/4	4"	4	243-0180
1"	7/8	1-1/4	4"	4	243-0200

Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	Model No.
1"	1"	1-3/4	4-3/4	4	243-0205
1-1/8	1"	1-1/4	4-1/4	4	243-0220
1-1/8	1"	1-3/4	4-3/4	4	243-0225
1-1/4	1"	1-1/4	4-1/4	4	243-0240
1-1/4	1-1/4	2-1/8	5-1/4	4	243-0245
1-3/8	1-1/4	2-1/8	5-1/4	4	243-0250
1-1/2	1-1/4	1-1/2	4-1/2	4	243-0260
1-1/2	1-1/2	2-1/2	6-1/8	4	243-0265
1-3/4	1-1/2	2-1/2	6-1/8	4	243-0270
2"	1-1/4	1-1/2	4-1/2	6	243-0300
2"	2"	3"	7"	6	243-0305

FOR CAST IRON TYPE

Spiral Flute, Right Hand, Straight Shank

Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	Model No.
1/4	3/8	1/2	2-1/2	4	243-1020
5/16	3/8	5/8	2-1/2	4	243-1040
3/8	3/8	5/8	2-1/2	4	243-1060
7/16	3/8	1"	2-11/16	4	243-1080
1/2	1/2	1"	3-1/4	4	243-1100
9/16	1/2	1"	3-3/8	4	243-1120
5/8	1/2	1"	3-3/8	4	243-1140
3/4	5/8	1-3-5/8	4	4	243-1160
7/8	5/8	1-1/4	4"	4	243-1180
1"	7/8	1-1/4	4"	4	243-1200
1-1/8	1"	1-1/4	4-1/4	4	243-1220
1-1/4	1"	1-1/4	4-1/4	4	243-1240
1-1/2	1-1/4	1-1/2	4-1/2	4	243-1260
1-3/4	1-1/4	1-1/2	4-1/2	6	243-1280
2"	1-1/4	1-1/2	4-1/2	6	243-1300



TWO FLUTE SINGLE END MILLS

Straight Flute, Positive Rake, 90° Square Shoulder

Features:

- Used for N.C. machines and standard millers.
- Ideal for use in key-way slotting, slab milling, 90° shoulder milling.



Size	Shank Dia.	Flute Length	Overall Length	No. of Flutes	Model No.
5/16	3/8	1/2	2-3/8	2	243-0312
3/8	3/8	5/8	2-5/8	2	243-0375
1/2	1/2	5/8	2-3/4	2	243-0500
9/16	5/8	3/4	2-7/8	2	243-0562
5/8	5/8	3/4	2-7/8	2	243-0625
3/4	3/4	1"	3-5/32	2	243-0750

CARBIDE TIPPED HEAVY DUTY END MILLS

Ultra Fine. For General Purpose

Features:

- All material can be machined with these ultra microgram end mills at high or low cutting speeds, and feeds with increased wear resistance.
- Specially designed with a 25° right hand helix.
- Tough carbide grade allows high speed milling operations.

Two Flute Center Cutting

Three Flute Center Cutting

Four Flute Center Cutting



- Suited for the rough machining, heavy cutting and grooving machining as this allows larger chip pocket and increased feeding.
- Especially three flutes type vibrates less when entering and as result can increase feed rate over two flutes type.
- Allows better balance for machining.
- Suited for finish and side surface machining as this is less likely to tilt.

Size	Shank Dia.	Flute Length	Overall Length	Two Flute Model No.	Three Flute Model No.	Four Flute Model No.
5/8	5/8	1-3/16	3-1/2	243-2040	243-2240	
3/4	3/4	1-27/64	3-3/4	243-2048	243-2248	243-2448
7/8	3/4	1-27/64	3-3/4	243-2056	243-2256	243-2456
1"	1"	1-29/64	4-1/8	243-2064	243-2264	243-2464
1-1/8	1"	1-9/16	4-1/2	243-2072	243-2272	
1-1/4	1-1/4	1-27/32	5-1/8	243-2080	243-2280	243-2480
1-1/2	1-1/4	2-1/4	5-1/2	243-2096	243-2296	243-2496
1-3/4	1-1/4	2-5/8	6-1/8	243-2112	243-2312	243-2512
2"	1-1/4	2-5/8	6-1/8	243-2128	243-2328	243-2528

CARBIDE HELICAL END MILL WITH WHISTLE SHANK



DIN 1835/1-1986

D	d	l	L	Z	Rmax	Model No.
16	16	32	92	2	3	243-0400
20	20	38	104	2	3	243-0402
25	25	45	121	2	4	243-0404
32	32	53	133	2	5	243-0406
40	40	63	155	2	6	243-0408
50	50	75	177	2	6	243-0410

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
5/8	5/8	1-1/4	3-5/8	2	1/8	243-1400
3/4	3/4	1-1/2	4-1/8	2	1/8	243-1402
1	1	1-3/4	4-3/4	2	5/32	243-1404
1-1/4	1-1/4	2-1/8	5-1/4	2	13/64	243-1406
1-1/2	1-1/2	2-1/2	6-1/8	2	15/64	243-1408
2	2	3	7	2	15/64	243-1410

CENTER CUTTING CARBIDE HELICAL END MILL WITH WHISTLE SHANK



DIN 1835/1-1986

D	d	l	L	Z	Rmax	Model No.
16	16	32	92	2	3	243-0412
20	20	38	104	2	3	243-0414
25	25	45	121	2	4	243-0416
32	32	53	133	2	5	243-0418
40	40	63	155	2	6	243-0420
50	50	75	177	2	6	243-0422

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
5/8	5/8	1-1/4	3-5/8	2	1/8	243-1412
3/4	3/4	1-1/2	4-1/8	2	1/8	243-1414
1	1	1-3/4	4-3/4	2	5/32	243-1416
1-1/4	1-1/4	2-1/8	5-1/4	2	13/64	243-1418
1-1/2	1-1/2	2-1/2	6-1/8	2	15/64	243-1420
2	2	3	7	2	15/64	243-1422

CARBIDE HELICAL END MILL WITH WELDON SHANK (FLATTED PARALLEL SHANK)



ISO STANDARD

D	d	l	L	Z	Rmax	Model No.
16	16	32	92	2	3	243-0450
20	20	38	104	2	3	243-0452

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
5/8	5/8	1-1/4	3-5/8	2	1/8	243-1450
3/4	3/4	1-1/2	4-1/8	2	1/8	243-1452

ISO STANDARD

D	d	l	L	Z	Rmax	Model No.
25	25	45	121	2	4	243-0454
32	32	53	133	2	5	243-0456
40	40	63	155	2	6	243-0458
50	50	75	177	2	6	243-0460

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
1	1	1-3/4	4-3/4	2	5/32	243-1454
1-1/4	1-1/4	2-1/8	5-1/4	2	13/64	243-1456
1-1/2	1-1/2	2-1/2	6-1/8	2	15/64	243-1458
2	2	3	7	2	15/64	243-1460

CENTER CUTTING CARBIDE HELICAL END MILL WITH WELDON SHANK (FLATTED PARALLEL SHANK)



ISO STANDARD

D	d	l	L	Z	Rmax	Model No.
16	16	32	92	2	3	243-0462
20	20	38	104	2	3	243-0464

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
5/8	5/8	1-1/4	3-5/8	2	1/8	243-1462
3/4	3/4	1-1/2	4-1/8	2	1/8	243-1464

ISO STANDARD

D	d	l	L	Z	Rmax	Model No.
25	25	45	121	2	4	243-0466
32	32	53	133	2	5	243-0468
40	40	63	155	2	6	243-0470
50	50	75	177	2	6	243-0472

ANSI B94.19-1985

D	d	l	L	Z	Rmax	Model No.
1	1	1-3/4	4-3/4	2	5/32	243-1466
1-1/4	1-1/4	2-1/8	5-1/4	2	13/64	243-1468
1-1/2	1-1/2	2-1/2	6-1/8	2	15/64	243-1470
2	2	3	7	2	15/64	243-1472

End Mills

CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK(ISO 296)



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
16	32	117	2#	2	3	243-1500
18	32	117	2#	2	3	243-1502
20	38	123	2#	2	3	243-1504
22	38	140	3#	2	4	243-1506
25	45	147	3#	2	4	243-1508
28	45	147	3#	2	4	243-1510
32	53	178	4#	2	5	243-1512
36	53	178	4#	2	5	243-1514
40	63	188	4#	2	6	243-1516
45	63	221	5#	2	6	243-1518
50	75	233	5#	2	6	243-1520

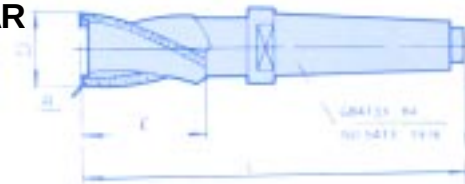
CENTER CUTTING CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK (ISO 296)



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
16	32	117	2#	2	3	243-1530
18	32	117	2#	2	3	243-1532
20	38	123	2#	2	3	243-1534
22	38	140	3#	2	4	243-1536
25	45	147	3#	2	4	243-1538
28	45	147	3#	2	4	243-1540
32	53	178	4#	2	5	243-1542
36	53	178	4#	2	5	243-1544
40	63	188	4#	2	6	243-1546
45	63	221	5#	2	6	243-1548
50	75	233	5#	2	6	243-1550

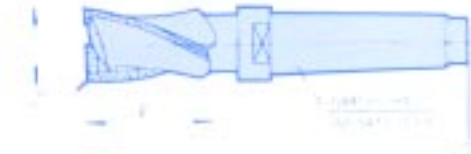
CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
32	53	201	4#	2	5	243-1560
36	53	201	4#	2	5	243-1562
40	63	211	4#	2	6	243-1564
45	63	249	5#	2	6	243-1566
50	75	261	5#	2	6	243-1568

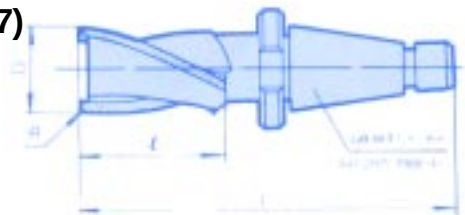
CENTER CUTTING CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
32	53	201	4#	2	5	243-1570
36	53	201	4#	2	5	243-1572
40	63	211	4#	2	6	243-1574
45	63	249	5#	2	6	243-1576
50	75	261	5#	2	6	243-1578

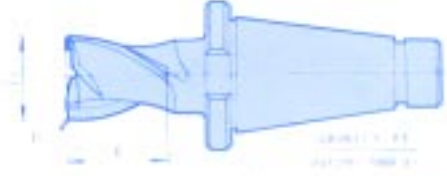
CARBIDE HELICAL END MILL WITH 7/24TAPER SHANK (ISO297)



ISO STANDARD

D	I	L	ISO	Z	Rmax	Model No.
40	63	198	40#	2	6	243-1580
50	85	252	50#	2	6	243-1582
63	90	267	50#	2	6	243-1584

CENTER CUTTING CARBIDE HELICAL END MILL WITH 7/24TAPER SHANK (ISO297)



ISO STANDARD

D	I	L	ISO	Z	Rmax	Model No.
40	63	198	40#	2	6	243-1590
50	85	252	50#	2	6	243-1592
63	90	267	50#	2	6	243-1594

The corner radius R 0.5mm are used for metric cutters, or they shall have the dimensions of 1,1.5,2,3,4,5,6mm on request, the Rmax is given in tables.

The corner radius R 1/64inch are used for imperial cutters, or they shall have the dimensions of 3/64,1/16,5/64,1/8,5/32,13/64,15/64inch on request, the Rmax is given in tables.

End Mills

BALL-NOSED CARBIDE HELICAL END MILL WITH WHISTLE SHANK



ISO STANDARD

D	d	I	L	Z	Rmax	Model No.
16	16	32	92	2	8	243-1600
20	20	38	104	2	10	243-1602
25	25	45	121	2	12.5	243-1604
32	32	53	133	2	16	243-1606
40	40	63	155	2	20	243-1608
50	50	75	177	2	25	243-1610

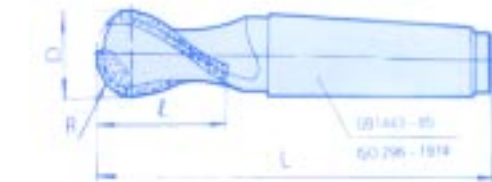
BALL-NOSED CARBIDE HELICAL END MILL WITH WELDON SHANK



ISO STANDARD

D	d	I	L	Z	Rmax	Model No.
16	16	32	92	2	8	243-1620
20	20	38	104	2	10	243-1622
25	25	45	121	2	12.5	243-1624
32	32	53	133	2	16	243-1626
40	40	63	155	2	20	243-1628
50	50	75	177	2	25	243-1630

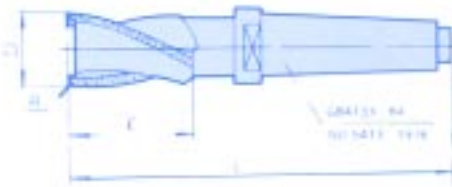
BALL-NOSED CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
16	32	117	2#	2	8	243-1640
18	32	117	2#	2	9	243-1642
20	38	123	2#	2	10	243-1644
22	38	140	3#	2	11	243-1646
25	45	147	3#	2	12.5	243-1648
28	45	147	3#	2	14	243-1650
32	53	178	4#	2	16	243-1652
36	53	178	4#	2	18	243-1654
40	63	188	4#	2	20	243-1656
45	63	221	5#	2	22.5	243-1658
50	75	233	5#	2	25	243-1660

BALL-NOSED CARBIDE END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	Rmax	Model No.
32	53	201	4#	2	16	243-1670
36	53	201	4#	2	18	243-1672
40	63	211	4#	2	20	243-1674
45	63	249	5#	2	22.5	243-1676
50	75	261	5#	2	25	243-1678

BALL-NOSED CARBIDE END MILL WITH 7/24 TAPER SHANK (ISO/R297)

ISO STANDARD

D	I	L	ISO	Z	R	Model No.
40	63	198	40#	2	20	243-1680
50	75	252	50#	2	25	243-1682
63	90	267	50#	2	31.5	243-1684

CARBIDE HELICAL END MILL WITH STRAIGHT SHANK (ISO3338)



ISO STANDARD

D	d	I	L	Z	Model No.
16	16	19	79	3	243-1690
16	16	32	92	3	243-1691
18	16	19	79	3	243-1692
20	20	22	88	3	243-1693
20	20	38	104	3	243-1694
22	20	22	88	3	243-1695
25	25	26	102	3	243-1696
25	25	45	121	3	243-1697
25	25	26	102	4	243-1698
25	25	45	121	4	243-1699

End Mills

CARBIDE HELICAL END MILL WITH WELDON SHANK (FLATTED PARALLEL SHANK (ISO3338))

ISO STANDARD

D	d	I	L	Z	C	Model No.
20	20	38	104	3	0.5	243-2900
25	25	45	121	4	0.5	243-2902
32	32	53	133	4	0.5	243-2904
40	40	63	155	4	0.8	243-2906
50	50	75	177	4	0.8	243-2908
40	40	63	155	6	0.8	243-2910
50	50	75	177	6	0.8	243-2912



ANSI B94.19-1985

D	d	I	L	Z	Rmax	Model No.
3/4	3/4	1-1/2	4-1/8	3	1/64	243-2901
1	1	1-3/4	4-3/4	4	1/64	243-2903
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-2905
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-2907
2	2	3	7	4	1/64	243-2909
1-1/2	1-1/2	2-1/2	6-1/8	6	1/64	243-2911
2	2	3	7	6	1/32	243-2913

CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK



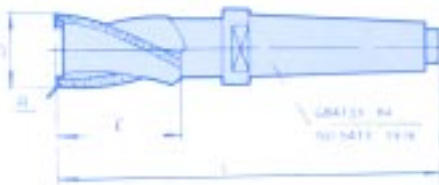
ISO STANDARD

D	I	L	M	Z	C	Model No.
16	19	104	2#	3	0.5	243-2920
16	32	117	2#	3	0.5	243-2922
18	19	104	2#	3	0.5	243-2924
18	32	117	2#	3	0.5	243-2926
20	22	107	2#	3	0.5	243-1628
20	38	123	2#	3	0.5	243-2930
22	22	124	3#	3	0.5	243-2932
22	38	140	3#	3	0.5	243-2934
25	26	128	3#	3	0.5	243-2936
25	45	147	3#	3	0.5	243-2938
28	26	128	3#	3	0.5	243-2940
25	26	128	3#	4	0.5	243-2942
25	45	147	3#	4	0.5	243-2944
28	26	128	3#	4	0.5	243-2946
28	45	147	3#	4	0.5	243-2948
32	32	157	4#	4	0.5	243-2950
32	53	178	4#	4	0.5	243-2952

ISO STANDARD

D	I	L	M	Z	C	Model No.
36	32	157	4#	4	0.5	243-2921
36	53	178	4#	4	0.5	243-2923
40	38	163	4#	4	0.8	243-2925
40	63	188	4#	4	0.8	243-2927
45	38	163	4#	4	0.8	243-1629
45	38	196	5#	4	0.8	243-2931
50	45	170	4#	4	0.8	243-2933
50	45	203	5#	4	0.8	243-2935
50	75	233	5#	4	0.8	243-2937
40	38	163	4#	6	0.8	243-2939
40	63	188	4#	6	0.8	243-2941
45	38	196	5#	6	0.8	243-2943
45	63	188	4#	6	0.8	243-2945
45	63	221	5#	6	0.8	243-2947
50	45	203	5#	6	0.8	243-2949
50	75	200	4#	6	0.8	243-2951
50	75	233	5#	6	0.8	243-2953

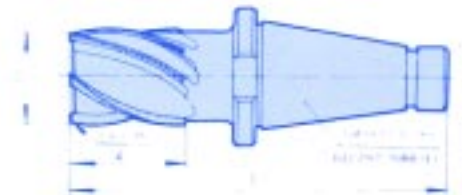
CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	C	Model No.
32	32	180	4#	4	0.5	243-2960
32	53	201	4#	4	0.5	243-2962
36	32	180	4#	4	0.5	243-2964
40	38	186	4#	4	0.8	243-2966
40	63	211	4#	4	0.8	243-1668
45	38	224	5#	4	0.8	243-2970
50	45	231	5#	4	0.8	243-2972
50	75	261	5#	4	0.8	243-2974
40	38	186	4#	6	0.8	243-2976
40	63	211	4#	6	0.8	243-2978
45	38	224	5#	6	0.8	243-2980
50	45	231	5#	6	0.8	243-2982
50	75	261	5#	6	0.8	243-2984

CARBIDE HELICAL END MILL WITH 7/24 TAPER SHANK (ISO/R297)

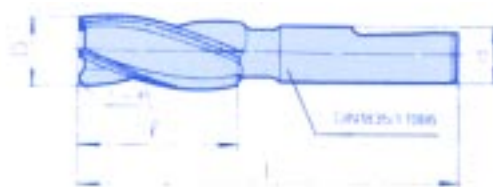


ISO STANDARD

D	D	L	ISO	Z	Model No.
40	63	198	40#	4	243-2990
50	75	252	50#	4	243-2992
40	63	198	40#	6	243-2994
50	75	252	50#	6	243-2996
63	90	267	50#	6	243-2998

End Mills

CARBIDE HELICAL END MILL WITH OBLIQUE FLATTED



DIN STANDARD

D	d	l	L	Z	C	Model No.
16	16	32	92	3	0.5	243-1700
20	20	38	104	3	0.5	243-1702
25	25	45	121	4	0.5	243-1704
32	32	53	133	4	0.5	243-1706
40	40	63	155	4	0.8	243-1708
50	50	75	177	4	0.8	243-1710
40	40	63	155	6	0.8	243-1712
50	50	75	177	6	0.8	243-1714

ANSI STANDARD

D	d	l	L	Z	C	Model No.
5/8	5/8	1-1/4	3-5/8	3	1/64	243-1701
3/4	3/4	1-1/2	4-1/8	3	1/64	243-1703
1	1	1-3/4	4-3/4	4	1/64	243-1705
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-1707
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1709
2	2	3	7	4	1/32	243-1711
1-1/2	1-1/2	2-1/2	6-1/8	6	1/64	243-1713
2	2	3	7	6	1/32	243-1715

CARBIDE HELICAL END MILL WITH THREADED SHANK



DIN STANDARD

D	d	G	l	L	Z	C	Model No.
16	16	20T.P.I(whit)	32	92	3	0.5	243-1720
18	16	20T.P.I(whit)	32	92	3	0.5	243-1722
20	20	20T.P.I(whit)	38	104	3	0.5	243-1724
22	20	20T.P.I(whit)	38	104	3	0.5	243-1726
25	25	20T.P.I(whit)	45	121	3	0.5	243-1728
28	25	20T.P.I(whit)	45	121	3	0.5	243-1730
25	25	20T.P.I(whit)	45	121	4	0.5	243-1732
28	25	20T.P.I(whit)	45	121	4	0.5	243-1734
32	32	20T.P.I(whit)	53	133	4	0.5	243-1736

ANSI STANDARD

D	d	G	l	L	Z	C	Model No.
5/8	5/8	20T.P.I(whit)	1-1/4	3-1/4	3	0.5	243-1721
3/4	5/8	20T.P.I(whit)	1-1/2	3-21/32	3	0.5	243-1723
7/8	1	20T.P.I(whit)	1-1/2	4-3/16	3	0.5	243-1725
1	1	20T.P.I(whit)	1-3/4	4-5/8	3	0.5	243-1727
1-1/8	1	20T.P.I(whit)	1-3/4	4-5/8	3	0.5	243-1729
1	1	20T.P.I(whit)	1-3/4	4-5/8	4	0.5	243-1731
1-1/8	1	20T.P.I(whit)	1-3/4	4-5/8	4	0.5	243-1733
1-1/4	1-1/4	20T.P.I(whit)	2-1/8	5	4	0.5	243-1735

FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH WELDON SHANK(FLATTED PARALLEL SHANK)



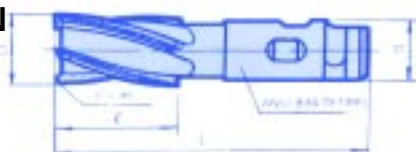
ISO STANDARD

D	d	l	L	Z	C	Model No.
16	16	32	92	3	0.5	243-1740
18	16	32	92	3	0.5	243-1742
20	20	38	104	3	0.5	243-1744
22	20	38	104	3	0.5	243-1746
25	25	45	121	4	0.5	243-1748
28	25	45	121	4	0.5	243-1750
32	32	53	133	4	0.5	243-1752
36	32	53	133	4	0.5	243-1754
40	40	63	155	4	0.8	243-1756
45	40	63	155	4	0.8	243-1758
50	50	75	177	6	0.8	243-1760

ANSI STANDARD

D	d	l	L	Z	C	Model No.
5/8	5/8	1-1/4	3-5/8	3	1/64	243-1741
3/4	3/4	1-1/2	4-1/8	3	1/64	243-1743
7/8	3/4	1-1/2	4-1/8	3	1/64	243-1745
1	1	1-3/4	4-3/4	4	1/64	243-1747
1-1/8	1	1-3/4	4-3/4	4	1/64	243-1749
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-1751
1-3/8	1-1/4	2-1/8	5-1/4	4	1/64	243-1753
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1755
1-3/4	1-1/2	2-1/2	6-1/8	4	1/32	243-1757
2	2	3	7	6	1/32	243-1759

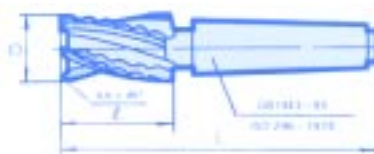
CARBIDE HELICAL END MILL WITH COMBINATION SHANK



ANSI STANDARD

D	d	l	L	Z	C	Model No.
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1770
2	2	3	7	6	1/32	243-1772
2-1/2	2-1/2	3-5/8	8	6	1/32	243-1774

FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK(ISO 296)

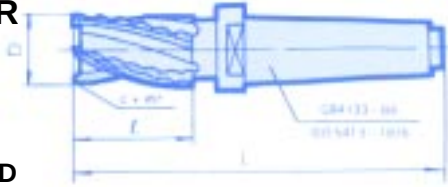


ANSI STANDARD

D	l	L	M	Z	Model No.
25	45	147	3#	4	243-1780
28	45	147	3#	4	243-1782

End Mills

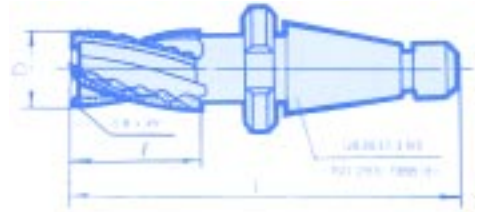
FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	C	Model No.
32	53	201	4#	4	0.5	243-1800
36	53	201	4#	4	0.5	243-1802
40	63	211	4#	4	0.8	243-1804
45	63	249	5#	4	0.8	243-1806
50	75	261	5#	6	0.8	243-1808

FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH 7/24 TAPER SHANK (ISO 297)



ISO STANDARD

D	I	L	ISO	Z	Model No.
40	63	198	40#	4	243-1810
50	75	252	50#	6	243-1812
63	90	267	50#	6	243-1814

FORMED CUTTING EDGE CARBIDE HELICAL END MILL OBLIQUE FLATTED



DIN STANDARD

D	d	I	L	Z	C	Model No.
16	16	32	92	3	0.5	243-1820
20	20	38	104	3	0.5	243-1822
25	25	45	121	4	0.5	243-1824
28	25	45	121	4	0.5	243-1826
32	32	53	133	4	0.5	243-1828
36	32	53	133	4	0.5	243-1830
40	40	63	155	4	0.8	243-1832
45	40	63	155	4	0.8	243-1834
50	50	75	177	6	0.8	243-1836

ANSI STANDARD

D	d	I	L	Z	C	Model No.
5/8	5/8	1-1/4	3-5/8	3	1/64	243-1821
3/4	3/4	1-1/2	4-1/8	3	1/64	243-1823
1	1	1-3/4	4-3/4	4	1/64	243-1825
1-1/8	1	1-3/4	4-3/4	4	1/64	243-1827
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-1829
1-3/8	1-1/4	2-1/8	5-1/4	4	1/64	243-1831
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1833
1-3/4	1-1/2	2-1/2	6-1/8	4	1/32	243-1835
2	2	3	7	6	1/32	243-1837

FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH STRAIGHT SHANK



ISO STANDARD

D	d	I	L	Z	C	Model No.
16	16	32	92	3	0.5	243-1840
18	16	32	92	3	0.5	243-1842
20	20	38	104	3	0.5	243-1844
22	20	38	104	3	0.5	243-1846
25	25	45	121	4	0.5	243-1848
28	25	45	121	4	0.5	243-1850

D	d	I	L	Z	C	Model No.
32	32	53	133	4	0.5	243-1852
36	32	53	133	4	0.8	243-1854
40	40	63	155	4	0.8	243-1856
45	40	63	155	4	0.8	243-1858
50	50	75	177	6	0.8	243-1860

FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH THREADED SHANK

DIN STANDARD

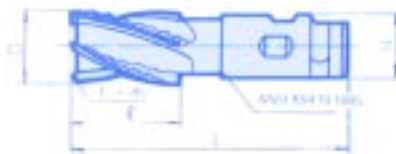
D	d	G	I	L	Z	C	Model No.
16	16	20T.P.I.(whit)	32	92	3	0.5	243-1870
18	16	20T.P.I.(whit)	32	92	3	0.5	243-1872
20	20	20T.P.I.(whit)	38	104	3	0.5	243-1874
22	20	20T.P.I.(whit)	38	104	3	0.5	243-1876
25	25	20T.P.I.(whit)	45	121	3	0.5	243-1878
28	25	20T.P.I.(whit)	45	121	3	0.5	243-1880
25	25	20T.P.I.(whit)	45	121	4	0.5	243-1882
28	25	20T.P.I.(whit)	45	121	4	0.5	243-1884
32	32	20T.P.I.(whit)	53	133	4	0.5	243-1886

ANSI STANDARD

D	d	G	I	L	Z	C	Model No.
5/8	5/8	20T.P.I.(whit)	1-1/4	3-1/4	3	1/64	243-1871
3/4	5/8	20T.P.I.(whit)	1-1/2	3-21/32	3	1/64	243-1873
7/8	1	20T.P.I.(whit)	1-1/2	4-3/16	3	1/64	243-1875
1	1	20T.P.I.(whit)	1-3/4	4-5/8	3	1/64	243-1877
1-1/8	1	20T.P.I.(whit)	1-3/4	4-5/8	3	1/64	243-1879
1	1	20T.P.I.(whit)	1-3/4	4-5/8	4	1/64	243-1881
1-1/8	1	20T.P.I.(whit)	1-3/4	4-5/8	4	1/64	243-1883
1-1/4	1-1/4	20T.P.I.(whit)	2-1/8	5	4	1/64	243-1885

End Mills

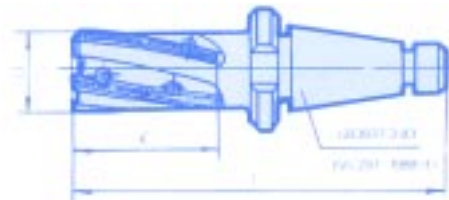
FORMED CUTTING EDGE CARBIDE HELICAL END MILL WITH COMBINATION SHANK



ANSI STANDARD

D	d	l	L	Z	C	Model No.
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1901
2	2	3	7	6	1/32	243-1903
2-1/2	2-1/2	3-5/8	8	6	1/32	243-1905

HELICAL END MILL WITH MECHANICALLY CLAMPED INDEXABLE CARBIDE TIPPED BLADES WITH 7/24 TAPER SHANK



ISO STANDARD

D	l	L	ISO	Z	Model No.
63	57	276.8	50#	4	243-1900
63	114	296.8	50#	4	243-1902
90	114	299.8	50#	6	243-1904
90	171	356.8	50#	6	243-1906
90	228	413.8	50#	6	243-1908

INTERRUPTED CUTTING EDGE CARBIDE HELICAL END MILL WITH OBLIQUE FLATTED



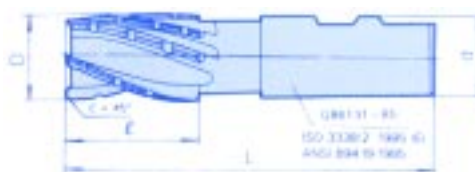
DIN STANDARD

D	d	l	L	Z	C	Model No.
16	16	32	92	3	0.5	243-1930
20	20	38	104	3	0.5	243-1932
25	25	45	121	4	0.5	243-1934
28	28	45	121	4	0.5	243-1936
32	32	53	133	4	0.5	243-1938
36	36	53	133	4	0.5	243-1940
40	40	63	155	4	0.8	243-1942
45	45	63	155	4	0.8	243-1944
50	50	75	177	6	0.8	243-1946

ANSI STANDARD

D	d	l	L	Z	C	Model No.
5/8	5/8	1-1/4	3-5/8	3	1/64	243-1931
3/4	3/4	1-1/2	4-1/8	3	1/64	243-1933
1	1	1-3/4	4-3/4	4	1/64	243-1935
1-1/8	1	1-3/4	4-3/4	4	1/64	243-1937
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-1939
1-3/8	1-1/4	2-1/8	5-1/4	4	1/64	243-1941
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1943
1-3/4	1-1/2	2-1/2	6-1/8	4	1/32	243-1945
2	2	3	7	6	1/32	243-1947

INTERRUPTED CUTTING EDGE CARBIDE HELICAL END MILL WITH WELDON SHANK (FLATTED PARALLEL SHANK)



DIN STANDARD

D	d	l	L	Z	C	Model No.
25	25	45	121	4	0.5	243-1950
28	25	45	121	4	0.5	243-1952
32	32	53	133	4	0.5	243-1954
36	32	53	133	4	0.5	243-1956
40	40	63	155	4	0.8	243-1958
45	40	63	155	4	0.8	243-1960
50	50	75	177	6	0.8	243-1962

ANSI STANDARD

D	d	l	L	Z	C	Model No.
1	1	1-3/4	4-3/4	4	1/64	243-1951
1-1/8	1	1-3/4	4-3/4	4	1/64	243-1953
1-1/4	1-1/4	2-1/8	5-1/4	4	1/64	243-1955
1-3/8	1-1/4	2-1/8	5-1/4	4	1/64	243-1957
1-1/2	1-1/2	2-1/2	6-1/8	4	1/64	243-1959
1-3/4	1-1/2	2-1/2	6-1/8	4	1/32	243-1961
2	2	3	7	6	1/32	243-1963

INTERRUPTED CUTTING EDGE CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK(ISO 296)

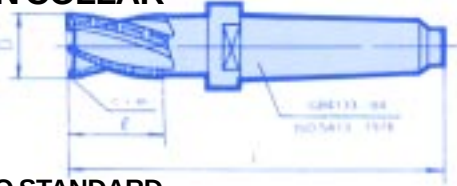


ISO STANDARD

D	l	L	M	Z	Model No.
25	45	147	3#	4	243-1970
28	45	147	3#	4	243-1972

End Mills

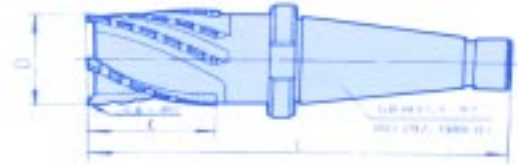
INTERRUPTED CUTTING EDGE CARBIDE HELICAL END MILL WITH MORSE TAPER SHANK WITH DRIVING FLATS ON COLLAR



ISO STANDARD

D	I	L	M	Z	C	Model No.
32	53	201	4#	4	0.5	243-2600
36	53	201	4#	4	0.5	243-2602
40	63	211	4#	4	0.8	243-2604
45	63	249	5#	4	0.8	243-2606
50	75	261	5#	6	0.8	243-2608

INTERRUPTED CUTTING EDGE CARBIDE HELICAL END MILL WITH 7/24 TAPER SHANK (ISO/R297)



ISO STANDARD

D	I	L	M	Z	Model No.
40	63	198	40#	4	243-2610
50	75	252	50#	6	243-2612
63	90	267	50#	6	243-2614

SLOTING END MILL (SOLID CARBIDE)



ISO STANDARD

D	d	L	I	Model No.
3.0	3.0	32	12	243-2620
3.0	4.0	37	5	243-2622
3.5	3.5	32	12	243-2624
3.5	4.0	38	6	243-2626
4.0	4.0	40	12	243-2628
4.0	4.0	39	7	243-2630
4.5	4.5	50	14	243-2632
5.0	5.0	42	8	243-2634
5.0	5.0	50	14	243-2636
6.0	6.0	50	16	243-2638
6.0	6.0	52	8	243-2640
7.0	7.0	60	20	243-2642
7.0	8.0	54	10	243-2644
8.0	8.0	55	11	243-2646
8.0	8.0	60	20	243-2648
9.0	9.0	60	20	243-2650
9.0	10.0	61	11	243-2652
10.0	10.0	63	13	243-2654
10.0	10.0	70	22	243-2656
12.0	12.0	70	22	243-2658
12.0	12.0	73	16	243-2660
14.0	12.0	73	16	243-2662
14.0	14.0	75	25	243-2664

THREE-FLUTE END MILL (SOLID CARBIDE)



ISO STANDARD

D	d	L	I	Model No.
3.0	3.0	32	12	243-2700
3.0	4.0	40	8	243-2702
3.5	3.5	32	12	243-2704
3.5	4.0	42	10	243-2706
4.0	4.0	40	12	243-2708
4.0	4.0	43	11	243-2710
4.5	4.5	50	14	243-2712
5.0	5.0	47	13	243-2714
5.0	5.0	50	14	243-2716
6.0	6.0	50	16	243-2718
6.0	6.0	57	13	243-2720
7.0	7.0	60	20	243-2722
7.0	8.0	60	16	243-2724
8.0	8.0	60	20	243-2726
8.0	8.0	63	19	243-2728
9.0	9.0	60	20	243-2730
9.0	10.0	69	19	243-2732
10.0	10.0	63	13	243-2734
10.0	10.0	72	22	243-2736
12.0	12.0	70	22	243-2738
12.0	12.0	83	26	243-2740
14.0	12.0	83	26	243-2742
14.0	14.0	75	25	243-2744

TWO-FLUTE

END MILL

(SOLID CARBIDE)



ISO STANDARD

D	d	L	I	Model No.
3.0	6	49	5	243-2750
3.5	6	50	6	243-2752
4.0	6	51	7	243-2754
5.0	6	52	8	243-2756
6.0	6	52	8	243-2758
7.0	10	60	10	243-2760
8.0	10	61	11	243-2762
9.0	10	61	11	243-2764
10.0	10	63	13	243-2766
12.0	12	73	16	243-2768
14.0	12	73	16	243-2770

ANSI STANDARD

D	d	L	I	Model No.
1/8	3/8	2-5/16	3/8	243-2751
3/16	3/8	2-5/16	7/16	243-2753
1/4	3/8	2-5/16	1/2	243-2755
5/16	3/8	2-5/16	9/16	243-2757
3/8	3/8	2-5/16	9/16	243-2759
7/16	3/8	2-1/2	13/16	243-2761
1/2	3/8	2-1/2	13/16	243-2763
1/2	1/2	3	1	243-2765
9/16	1/2	3-1/8	1/8	243-2767

End Mills

FOUR-FLUTE END MILL

(SOLID CARBIDE)



ANSI STANDARD

D	d	L	l	Model No.
1/8	1/8	1-1/4	5/16	243-2801
3/16	3/16	1-3/8	1/2	243-2803
1/4	1/4	1-11/16	5/8	243-2805
3/8	3/8	1-13/16	3/4	243-2807
1/2	1/2	2-1/4	15/16	243-2809

CENTER CUTTING FOUR-FLUTE

END MILL (SOLID CARBIDE)



ANSI STANDARD

D	d	L	l	Model No.
1/8	3/8	2-5/16	3/8	243-2851
3/16	3/8	2-3/8	1/2	243-2853
1/4	3/8	2-7/16	5/8	243-2855
5/16	3/8	2-1/2	3/4	243-2857
3/8	3/8	2-1/2	3/4	243-2859
7/16	3/8	2-11/16	1	243-2861
1/2	3/8	2-11/16	1	243-2863
1/2	1/2	3-1/4	1-1/4	243-2865
9/16	1/2	3-3/8	1-3/8	243-2867

THREE-FLUTE END MILL

WITH CENTER TOOTH

(SOLID CARBIDE)

ISO STANDARD

D	d	L	l	Model No.
3.0	3.0	32	12	243-3100
3.0	4.0	40	8	243-3102
3.5	3.5	32	12	243-3104
3.5	4.0	42	10	243-3106
4.0	4.0	40	12	243-3108
4.0	4.0	43	11	243-3110
4.5	4.5	50	14	243-3112
5.0	5.0	47	13	243-3114
5.0	5.0	50	14	243-3116
6.0	6.0	50	16	243-3118
6.0	6.0	57	13	243-3120
7.0	7.0	60	20	243-3122
7.0	8.0	60	16	243-3124
8.0	8.0	60	20	243-3126
8.0	8.0	63	19	243-3128
9.0	9.0	60	20	243-3130
9.0	10.0	69	19	243-3132
10.0	10.0	63	13	243-3134
10.0	10.0	72	22	243-3136
12.0	12.0	70	22	243-3138
12.0	12.0	83	26	243-3140
14.0	12.0	83	26	243-3142
14.0	14.0	75	25	243-3144

ISO STANDARD

D	d	L	l	Model No.
3.0	3.0	32	12	243-2800
3.0	4.0	40	8	243-2802
3.5	3.5	32	12	243-2804
3.5	4.0	42	10	243-2806
4.0	4.0	40	12	243-2808
4.0	4.0	43	11	243-2810
4.5	4.5	50	14	243-2812
5.0	5.0	47	13	243-2814
5.0	5.0	50	14	243-2816
6.0	6.0	50	16	243-2818
6.0	6.0	57	13	243-2820
7.0	7.0	60	20	243-2822
7.0	8.0	60	16	243-2824
8.0	8.0	60	20	243-2826
8.0	8.0	63	19	243-2828
9.0	9.0	60	20	243-2830
9.0	10.0	69	19	243-2832
10.0	10.0	63	13	243-2834
10.0	10.0	72	22	243-2836
12.0	12.0	70	22	243-2838
12.0	12.0	83	26	243-2840
14.0	12.0	83	26	243-2842
14.0	14.0	75	25	243-2844

ISO STANDARD

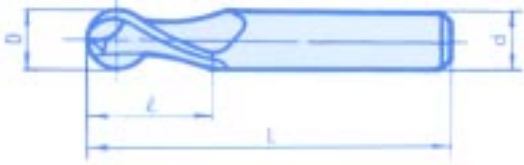
D	d	L	l	Model No.
3.0	3	32	12	243-2850
3.0	6	52	8	243-2852
3.5	3.5	32	12	243-2854
3.5	6	54	10	243-2856
4.0	4	40	12	243-2858
4.0	6	55	11	243-2860
4.5	4.5	50	14	243-2862
5.0	6	57	13	243-2864
5.0	5	50	14	243-2866
6.0	6	57	13	243-2868
6.0	6	50	16	243-2870
7.0	10	66	16	243-2872
7.0	7	60	20	243-2874
8.0	10	69	19	243-2876
8.0	8	60	20	243-2878
9.0	10	69	19	243-2880
9.0	9	60	20	243-2882
10.0	10	72	22	243-2884
10.0	10	70	22	243-2886
12.0	12	83	26	243-2888
12.0	12	70	22	243-2890
14.0	12	83	26	243-2892
14.0	14	75	25	243-2894



End Mills

ROUND-NOSE END MILL

(SOLID CARBIDE)

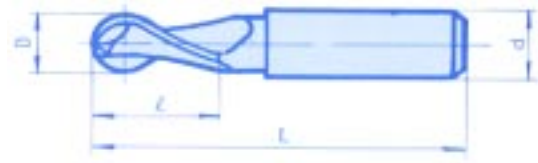


ISO STANDARD

D	d	L	l	Model No.
3.0	3.0	32	12	243-3000
3.5	3.5	32	12	243-3002
4.0	4.0	40	12	243-3004
4.5	4.5	50	14	243-3006
5.0	5.0	50	14	243-3008
6.0	6.0	50	16	243-3010
7.0	7.0	60	20	243-3012
8.0	8.0	60	20	243-3014
9.0	9.0	60	20	243-3016
10.0	10.0	70	22	243-3018
12.0	12.0	70	22	243-3020
14.0	14.0	75	25	243-3022

ROUND-NOSE END MILL

(SOLID CARBIDE)



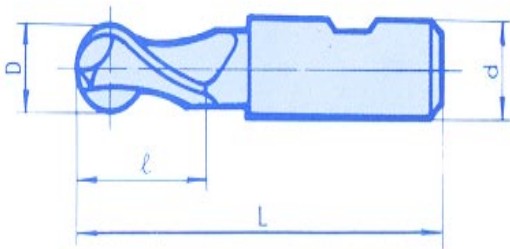
ISO STANDARD

D	d	L	l	Model No.
3.0	4	37	5	243-3030
3.5	4	38	6	243-3032
4.0	4	39	7	243-3034
5.0	5	42	8	243-3036
6.0	6	52	8	243-3038
7.0	8	54	10	243-3040
8.0	8	55	11	243-3042
9.0	10	61	11	243-3044
10.0	10	63	13	243-3046
12.0	12	73	16	243-3048
14.0	12	73	16	243-3050

ROUND-NOSE END MILL

WITH WELDON SHANK

(SOLID CARBIDE)



ANSI STANDARD

D	d	L	l	Model No.
1/8	3/8	2-5/16	3/8	243-3061
3/16	3/8	2-3/8	1/2	243-3063
1/4	3/8	2-7/16	5/8	243-3065
5/16	3/8	2-1/2	3/4	243-3067
3/8	3/8	2-1/2	3/4	243-3069
7/16	1/2	3	1	243-3071
1/2	1/2	3	1	243-3073
9/16	1/2	3-1/8	1-1/8	243-3075

ISO STANDARD

D	d	L	l	Model No.
3.0	6	49	5	243-3060
3.5	6	50	6	243-3062
4.0	6	51	7	243-3064
5.0	6	52	8	243-3066
6.0	6	52	8	243-3068
7.0	10	60	10	243-3070
8.0	10	61	11	243-3072
9.0	10	61	11	243-3074
10.0	10	63	13	243-3076
12.0	12	73	16	243-3078
14.0	12	73	16	243-3080

RECOMMENDED CUTTING PARAMETERS FOR CARBIDE END MILL HOW TO CHOOSE CARBIDE GRADES

INSTRUCTION

MILLS	V(m/min) CUTTING SPEED	ar (mm) FEED PER TOOTH
2FLEND MILL	300-900	0.05-0.15
MULT END MILL		
ROUGHING	60-80	0.05-0.15
SEMI-FINISHING	70-90	0.04-0.12
FINISHING	70-110	0.03-0.10

MATERIAL TO BE MACHINED	CARBIDE GRADE
ALUMINUM AND MAGNESIUM ALLOY AND OTHER LIGHT ALLOYS	K30
CAST IRON , TITANIUM ALLOY.	
CAST STEEL	M30
HIGH STRENGTH STEEL	
HIGH-TEMPERATURE STEEL	

End Mills Set

SINGLE END MILL SETS

Center Cutting, Ground



		with Wooden Case		with Plastic Case		End Mills Only	
No. Of PCs	Description	M2 Model No.	TiN-Coated Model No.	M2 Model No.	TiN-Coated Model No.	M2 Model No.	TiN-Coated Model No.
20	2&4 Flute each of 3/16" to 3/4" by 16ths	320-1000	320-0000	329-1000	329-0000	320-1100	320-0100
10	2Flute 3/16" to 3/4" by 16ths	320-1001	320-0001	329-1001	329-0001	320-1101	320-0101
10	4 Flute 3/16" to 3/4" by 16ths	320-1002	320-0002	329-1002	329-0002	320-1102	320-0102
10	2&4 Flute each of 1/4", 3/8", 1/2", 5/8", 3/4"	320-1003	320-0003	329-1003	329-0003	320-1103	320-0103
20	2&4 Flute each of 3, 4, 5, 6, 8, 10, 12, 14, 18, 20mm	320-1004	320-0004	329-1004	329-0004	320-1104	320-0104
20	2&4 Flute each of 3, 4, 5, 6, 8, 10, 12, 14, 16, 20mm	320-1005	320-0005	329-1005	329-0005	320-1105	320-0105
10	2Flute 3, 4, 5, 6, 8, 10, 12, 14, 18, 20mm	320-1006	320-0006	329-1006	329-0006	320-1106	320-0106
10	4 Flute 3, 4, 5, 6, 8, 10, 12, 14, 18, 20mm	320-1007	320-0007	329-1007	329-0007	320-1107	320-0107
9	4 flute 3, 4, 5, 6, 8, 10, 12, 14, 18mm	320-1010					
3	2Flute 1/8, 1/4, 3/8"	320-1008	320-0008			320-1108	320-0108
3	4 Flute 1/8, 1/4, 3/8"	320-1009	320-0009			320-1109	320-0109
20	4Flute 2 each of 3/16" to 3/4" by 16ths	320-4001	320-3001	329-4001	329-3001	320-4101	320-3101

DOUBLE END MILL SETS

Center Cutting, Ground



		with Wooden Case		with Plastic Case		End Mills Only	
No. Of Piece	Description	M2 Model No.	TiN-Coated Model No.	M2 Model No.	TiN-Coated Model No.	M2 Model No.	TiN-Coated Model No.
20pcs	2&4 Flute each of 3/16" to 3/4" by 16ths	320-9001	320-8001	329-9001	329-8001	320-9101	320-8101
10pcs	4 Flute 3/16" to 3/4" by 16ths	320-9002	320-8002	329-9002	329-8002	320-9102	320-8102
10pcs	2Flute 3/16" to 3/4" by 16ths	320-9003	320-8003	329-9003	329-8003	320-9103	320-8103
10pcs	2&4 Flute each of 1/4", 3/8", 1/2", 5/8", 3/4"	320-9004	320-8004	329-9004	329-8004	320-9104	320-8104

ENDMILL CASES ONLY

Description	Plastic Case Model No.	Wooden Case Model No.
for 3pcs single end mill set		320-WC03
for 10pcs single end mill set	320-CP10	320-WC10
for 20pcs single end mill set	320-CP20	320-WC20
for 10-PCs double end mill set	320-CP01	320-WC01
for 20-PCs double end mill set	320-CP02	320-WC02

2 Flute Ball Nose Single End Sets

No. Of Piece	Descriptions	Model No.
4	7/8, 1, 1-1/4, 1-1/2"	320-2004
9	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4"	320-2009

SINGLE END SETS WITH STAND

Center Cutting, Ground

6 Piece 2 or 4 Flute Single End Sets

No. Of Shank Flute	Dia.	Descriptions	Model No.
2	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	320-2006
4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	320-2016
2	3/4"	1", 3/4, 7/8, 1-1/8, 1-1/4, 1-1/2"	320-2066
4	3/4"	1", 3/4, 7/8, 1-1/8, 1-1/4, 1-1/2"	320-2076

12 Piece 2 and 4 Flute Single End Sets

No. Of Shank Flute	Dia.	Descriptions	Model No.
2&4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2"	320-2026

5,6 Piece 2 or 4 Flute Double End Sets

No. Of Piece	No. Of Shank Flute	Dia.	Descriptions	Model No.
5	2	3/16"	1/16, 3/32, 1/8, 5/32, 3/16"	320-2305
5	4	3/16"	1/16, 3/32, 1/8, 5/32, 3/16"	320-2405
6	2	3/8"	1/8, 5/32, 3/16, 1/4, 5/16, 3/8"	320-2106
6	4	3/8"	1/8, 5/32, 3/16, 1/4, 5/16, 3/8"	320-2116

10,12 Piece 2 and 4 Flute Double End Sets

No. Of Piece	No. Of Shank Flute	Dia.	Descriptions	Model No.
10	2&4	3/16"	1/16, 3/32, 1/8, 5/32, 3/16"	320-2610
12	2&4	3/8"	1/8, 5/32, 3/16, 1/4, 5/16, 3/8"	320-2036

DOUBLE END SETS WITH STAND

Center Cutting, Ground

14 Piece 2 or 4 Flute Double End Sets

No. Of Shank Flute	Dia.	Descriptions	Model No.
2	3/8"	1/8, 5/32, 3/16, 1/4, 5/16, 3/8"	320-2114
	1/2"	1/2, 9/16"	
	5/8"	5/8, 11/16, 3/4"	
	3/4"	13/16, 7/8, 1"	
4	3/8"	1/8, 5/32, 3/16, 1/4, 5/16, 3/8"	320-2214
	1/2"	1/2, 9/16"	
	5/8"	5/8, 11/16, 3/4"	
	3/4"	13/16, 7/8, 1"	

End Mills Set

M42 8% COBALT END MILL SET

SINGLE END MILL SETS

		with Wooden Case	with Plastic Case	End Mills Only
No.Of PCs	Description	M42 Model No.	M42 Model No.	M42 Model No.
20	2&4 Flute each of 3/16" to 3/4" by 16ths	324-1000	324-1010	324-1110
10	2Flute 3/16" to 3/4" by 16ths	324-1001	324-1011	324-1111
10	4 Flute 3/16"to 3/4"by 16ths	324-1002	324-1012	324-1112
10	2&4 Flute each of 1/4",3/8",1/2",5/8",3/4"	324-1003	324-1013	324-1113



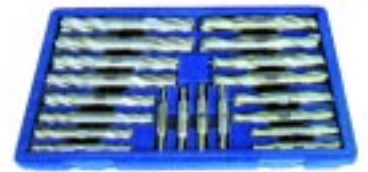
Center Cutting, Ground, Wood Stand

No.Of PCs	No.Of Flute	Shank Dia.	Descriptions	M42 Model No.	Tin Coated Model No.
4	4	3/8"	1/4, 5/16, 3/8 1/2" 1/2	324-2201	
6	2	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2	324-2203	
6	4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2	324-2205	
8	2&4	3/8"	1/4, 5/16, 3/8, 1/2 1/2" 1/2	324-2207	
12	2&4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8, 1/2	324-2209	
6	2	3/8"	1/8, 3/16, 1/4, 5/16, 3/8 1/2" 1/2	324-2211	324-2311
6	4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8 1/2" 1/2	324-2213	324-2313



DOUBLE END MILL SETS

		with Wooden Case	with Plastic Case	End Mills Only
No.Of PCs	Description	M42 Model No.	M42 Model No.	M42 Model No.
20	2&4 Flute each of 3/16" to 3/4" by 16ths	324-2000	324-2010	324-2110
10	2Flute 3/16" to 3/4" by 16ths	324-2001	324-2011	324-2111
10	4 Flute 3/16"to 3/4"by 16ths	324-2002	324-2012	324-2112
10	2&4 Flute each of 1/4",3/8",1/2",5/8",3/4"	324-2003	324-2013	324-2113



Center Cutting, Ground, Wood Stand

No.Of PCs	No.Of Flute	Shank Dia.	Descriptions	M42 Model No.	Tin Coated Model No.
6	2	3/8"	1/8, 3/16, 1/4, 5/16, 3/8 1/2" 1/2	324-2401	324-2501
6	4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8 1/2" 1/2	324-2403	324-2503
12	2&4	3/8"	1/8, 3/16, 1/4, 5/16, 3/8 1/2" 1/2		324-2505



BALL NOSE SINGLE END MILL SETS

Center Cutting, Ground, Wood Stand

No.Of PCs	No.Of Flute	Descriptions	HSS Model No.	Tin Coated M42 Model No.	M42 Model No.
5	2	1/16, 3/32, 1/8, 5/32, 3/16	320-7501	329-7501	324-2601
5	4	1/16, 3/32, 1/8, 5/32, 3/16	320-7502	329-7502	324-2603
9	4	Stub Length: 1 each of 1/16 to 3/16 by 64ths	320-7503	329-7503	324-2605
9	4	Regular length: 1 each of 1/16 to 3/16 by 64ths	320-7504	329-7504	324-2607
11	2	Stub Length: 1 each of 1/32 to 3/16 by 64ths	320-7505	329-7505	324-2609
11	2	Regular length: 1 each of 1/32 to 3/16 by 64ths	320-7506	329-7506	324-2611
10	2&4	1/16, 3/32, 1/8, 5/32, 3/16	320-7507	329-7507	324-2613



End Mills Set

4 FLUTE CORNER ROUNDING END MILLS

These end mills are of the formed relieved type and can be resharpened many times without changing the form.



Radius Shank Size	Largest Diameter	Overall Diameter	Length	M2 Model No.	M2AL Model No.	Tin-Coated Model No.	M42 Model No.	Radius Shank Size	Largest Diameter	Overall Diameter	Length	M2 Model No.	M2AL Model No.	Tin-Coated Model No.	M42 Model No.
1/32	3/8	3/8	2-1/2	182-6023	181-6023	183-6023	184-6023	3/8	7/8	1-1/4	3-3/4	182-6254	181-6254	183-6254	184-6254
3/64	3/8	7/16	2-1/2	182-6031	181-6031	183-6031	184-6031	13/32	3/4	1-1/4	3-1/2	182-6262	181-6262	183-6262	184-6262
1/16	3/8	7/16	2-1/2	182-6049	181-6049	183-6049	184-6049	7/16	3/4	1-3/8	4"	182-6280	181-6280	183-6280	184-6280
5/64	3/8	1/2	2-1/2	182-6056	181-6056	183-6056	184-6056	7/16	1"	1-3/8	4"	182-6288	181-6288	183-6288	184-6288
3/32	3/8	1/2	2-1/2	182-6064	181-6064	183-6064	184-6064	15/32	3/4	1-3/8	3-3/4	182-6304	181-6304	183-6304	184-6304
7/64	3/8	5/8	2-1/2	182-6072	181-6072	183-6072	184-6072	1/2	3/4	1-1/2	3-7/8	182-6791	181-6791	183-6791	184-6791
1/8	1/2	5/8	3"	182-6080	181-6080	183-6080	184-6080	1/2	1"	1-1/2	4-1/8	182-6320	181-6320	183-6320	184-6320
1/8	3/8	5/8	3"	182-6668	181-6668	183-6668	184-6668	17/32	3/4	1-1/2	3-7/8	182-6338	181-6338	183-6338	184-6338
9/64	1/2	3/4	3"	182-6098	181-6098	183-6098	184-6098	17/32	1"	1-1/2	4-1/8	182-6346	181-6346	183-6346	184-6346
5/32	1/2	3/4	3"	182-6106	181-6106	183-6106	184-6106	9/16	3/4	1-5/16	4"	182-6353	181-6353	183-6353	184-6353
11/64	1/2	3/4	3"	182-6114	181-6114	183-6114	184-6114	9/16	1"	1-5/16	4-1/4	182-6361	181-6361	183-6361	184-6361
3/16	1/2	7/8	3"	182-6122	181-6122	183-6122	184-6122	19/32	3/4	1-15/16	4"	182-6379	181-6379	183-6379	184-6379
3/16	3/4	7/8	3-1/8	182-6130	181-6130	183-6130	184-6130	19/32	1"	1-15/16	4-1/4	182-6387	181-6387	183-6387	184-6387
13/64	1/2	7/8	3-1/8	182-6676	181-6676	183-6676	184-6676	5/8	3/4	1-15/16	4"	182-6403	181-6403	183-6403	184-6403
13/64	3/4	7/8	3-1/8	182-6684	181-6684	183-6684	184-6684	5/8	1"	1-15/16	4-1/4	182-6395	181-6395	183-6395	184-6395
7/32	3/4	7/8	3-1/4	182-6692	181-6692	183-6692	184-6692	21/32	3/4	1-15/16	4"	182-6411	181-6411	183-6411	184-6411
7/32	1/2	7/8	3-1/4	182-6148	181-6148	183-6148	184-6148	21/32	1"	1-15/16	4-1/4	182-6429	181-6429	183-6429	184-6429
15/64	1/2	7/8	3-1/8	182-6155	181-6155	183-6155	184-6155	11/16	3/4	2-1/4	4-1/8	182-6437	181-6437	183-6437	184-6437
1/4	1/2	1"	3-1/8	182-6163	181-6163	183-6163	184-6163	11/16	1"	2-1/4	4-5/16	182-6445	181-6445	183-6445	184-6445
1/4	3/4	1"	3-1/4	182-6171	181-6171	183-6171	184-6171	23/32	3/4	2-1/4	4-1/8	182-6452	181-6452	183-6452	184-6452
17/64	3/4	1"	3-1/8	182-6718	181-6718	183-6718	184-6718	23/32	1"	2-1/4	4-5/16	182-6460	181-6460	183-6460	184-6460
9/32	1/2	1-1/8	3-1/4	182-6189	181-6189	183-6189	184-6189	3/4	3/4	1-7/8	4"	182-6486	181-6486	183-6486	184-6486
9/32	3/4	1-1/8	3-1/4	182-6197	181-6197	183-6197	184-6197	3/4	1"	2-1/4	4-5/16	182-6478	181-6478	183-6478	184-6478
19/64	1/2	1-1/8	3-1/4	182-6726	181-6726	183-6726	184-6726	25/32	3/4	2-1/4	4-1/8	182-6494	181-6494	183-6494	184-6494
19/64	3/4	1-1/8	3-1/4	182-6734	181-6734	183-6734	184-6734	25/32	1"	2-1/4	4-5/16	182-6502	181-6502	183-6502	184-6502
5/16	1/2	1-1/8	3-1/4	182-6205	181-6205	183-6205	184-6205	13/16	3/4	2-1/4	4-1/8	182-6510	181-6510	183-6510	184-6510
5/16	3/4	1-1/8	3-1/4	182-6742	181-6742	183-6742	184-6742	13/16	1"	2-1/4	4-5/16	182-6528	181-6528	183-6528	184-6528
5/16	7/8	1-1/8	3-1/2	182-6213	181-6213	183-6213	184-6213	27/32	3/4	2-1/2	4-1/2	182-6536	181-6536	183-6536	184-6536
5/16	5/8	1-1/8	3-1/2	182-6215	181-6215	183-6215	184-6215	27/32	1"	2-1/2	4-1/2	182-6544	181-6544	183-6544	184-6544
21/64	1/2	1-1/8	3-1/4	182-6759	181-6759	183-6759	184-6759	7/8	3/4	2-1/2	4-1/2	182-6551	181-6551	183-6551	184-6551
21/64	3/4	1-1/8	3-1/4	182-6767	181-6767	183-6767	184-6767	7/8	1"	2-1/2	4-1/2	182-6569	181-6569	183-6569	184-6569
11/32	1/2	1-1/8	3-1/2	182-6221	181-6221	183-6221	184-6221	15/16	3/4	2-5/8	4-1/2	182-6593	181-6593	183-6593	184-6593
11/32	3/4	1-1/8	3-1/2	182-6775	181-6775	183-6775	184-6775	15/16	1"	2-5/8	4-3/4	182-6601	181-6601	183-6601	184-6601
3/8	1/2	1-1/4	3-1/2	182-6247	181-6247	183-6247	184-6247	1"	3/4	2-5/8	4-1/2	182-6635	181-6635	183-6635	184-6635
3/8	3/4	1-1/4	3-1/2	182-6783	181-6783	183-6783	184-6783	1"	1"	2-5/8	4-3/4	182-6643	181-6643	183-6643	184-6643



4 PIECE SETS

WITH STAND

One each Size: 1/2, 9/16, 5/8, 3/4 have 3/4" shank

Descriptions	Model No.
M2	182-6908
M2AL	181-6908
Tin-Coated	183-6908
M42 8% Cobalt	184-6908



8 PIECE SETS

WITH STAND

These end mills are of the formed relieved type and can be resharpened many times without changing the form.

One each size: 1/16, 3/32, 1/8, 5/32, 3/16, 1/4, 5/16, 3/8

1/16 thru 1/8" have 3/8" shank

5/32 thru 3/8" have 1/2" shank

One each size: 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 have 3/4 shk.

Descriptions	Model No.
M2	182-6007
M2AL	181-6007
Tin-Coated	183-6007
M42 8% Cobalt	184-6007

Descriptions	Model No.
M2	182-6008
M2AL	181-6008
Tin-Coated	183-6008
M42 8% Cobalt	184-6008

HRC60 END MILLS

Two Flute Standard



Size	Shank Dia.	Flute Length	Overall length	Model No.
1.0	4	4	50	244-0001
1.0	4	6	60	244-0003
1.5	4	4	50	244-0005
1.5	4	8	60	244-0007
2.0	4	6	50	244-0009
2.0	4	8	60	244-0011
2.5	4	8	50	244-0013
2.5	4	10	60	244-0015
3.0	4	8	50	244-0017
3.0	4	12	60	244-0019
3.5	4	10	50	244-0021
3.5	4	15	60	244-0023
4.0	4	10	50	244-0025
4.0	4	15	60	244-0027
1.0	6	4	50	244-0029
1.5	6	6	50	244-0031
2.0	6	8	50	244-0033
2.5	6	10	50	244-0035
3.0	6	10	50	244-0037
3.5	6	12	50	244-0039
4.0	6	12	50	244-0041
4.5	6	12	50	244-0043
4.5	6	25	75	244-0045
5.0	6	12	50	244-0047
5.0	6	25	75	244-0049
5.5	6	12	50	244-0051
6.0	6	12	50	244-0053
6.0	6	25	75	244-0055
6.5	8	20	60	244-0057
7.0	8	20	60	244-0059
7.0	8	30	75	244-0061
7.5	8	20	60	244-0063
8.0	8	20	60	244-0065
8.0	8	30	75	244-0067
8.5	10	25	75	244-0069
9.0	10	25	75	244-0071
9.0	10	40	100	244-0073
9.5	10	25	75	244-0075
10.0	10	25	75	244-0077
10.0	10	40	100	244-0079
11.0	12	25	75	244-0081
11.0	12	45	100	244-0083
12.0	12	25	75	244-0085
12.0	12	45	100	244-0087
13.0	14	30	90	244-0089
13.0	14	45	100	244-0091
14.0	14	30	90	244-0093
14.0	14	45	100	244-0095
15.0	16	35	100	244-0097
15.0	16	60	150	244-0099
16.0	16	35	100	244-0101
16.0	16	60	150	244-0103
17.0	18	40	100	244-0105
18.0	18	40	100	244-0107
18.0	18	60	150	244-0109
19.0	20	40	100	244-0111
20.0	20	40	100	244-0113
20.0	20	60	150	244-0115
22.0	22	45	100	244-0117
25.0	25	45	100	244-0119
25.0	25	70	150	244-0121

METRIC SERIES FOR HRC60



Two Flute Ball Nose



Size	Shank Dia.	Flute length	Overall length	Model No.
R0.5	6	4	50	244-0201
R0.5	4	4	60	244-0203
R0.75	4	6	60	244-0205
R1.0	4	8	60	244-0207
R1.0	6	6	50	244-0209
R1.25	4	10	60	244-0211
R1.5	4	12	60	244-0213
R1.5	6	8	50	244-0215
R1.75	4	12	60	244-0217
R2.0	4	15	60	244-0219
R2.0	6	10	50	244-0221
R2.25	6	12	50	244-0223
R2.25	6	20	75	244-0225
R2.5	6	12	50	244-0227
R2.5	6	25	75	244-0229
R2.75	6	12	50	244-0231
R2.75	6	25	75	244-0233
R3.0	6	12	50	244-0235
R3.0	6	25	75	244-0237
R3.5	8	15	60	244-0239
R3.5	8	30	75	244-0241
R4.0	8	15	60	244-0243
R4.0	8	30	75	244-0245
R4.5	10	20	75	244-0247
R4.5	10	40	100	244-0249
R5.0	10	20	75	244-0251
R5.0	10	40	100	244-0253
R5.5	12	20	75	244-0255
R6.0	12	20	75	244-0257
R6.0	12	45	100	244-0259
R6.5	14	30	90	244-0261
R7.0	14	30	90	244-0263
R7.0	14	45	100	244-0265
R7.5	16	30	100	244-0267
R8.0	16	30	100	244-0269
R8.0	16	60	150	244-0271
R9.0	18	35	100	244-0273
R9.0	18	60	150	244-0275
R10.0	20	35	100	244-0277
R10.0	20	60	150	244-0279
R12.5	25	40	100	244-0281

Four Flute Standard

Size	Shank Dia.	Flute length	Overall length	Model No.
1.0	4	4	50	244-0301
1.0	4	6	60	244-0303
1.5	4	6	50	244-0305
1.5	4	8	60	244-0307
2.0	4	6	50	244-0309
2.0	4	8	60	244-0311
2.5	4	8	50	244-0313
2.5	4	10	60	244-0315
3.0	4	8	50	244-0317
3.0	4	12	60	244-0319
3.5	4	10	50	244-0321
3.5	4	15	60	244-0323
4.0	4	10	50	244-0325
4.0	4	15	60	244-0327
1.0	6	6	50	244-0329
1.5	6	8	50	244-0331
2.0	6	8	50	244-0333
2.5	6	10	50	244-0335
3.0	6	10	50	244-0337
3.5	6	12	50	244-0339
4.0	6	12	50	244-0341
4.5	6	12	50	244-0343
4.5	6	25	75	244-0345
5.0	6	15	50	244-0347
5.0	6	25	75	244-0349
5.5	6	15	50	244-0351
6.0	6	15	50	244-0353
6.0	6	25	75	244-0355
6.5	8	20	60	244-0357
7.0	8	20	60	244-0359
7.0	8	30	75	244-0361
7.5	8	20	60	244-0363
8.0	8	20	60	244-0365
8.0	8	35	75	244-0367
8.5	10	25	75	244-0369
9.0	10	25	75	244-0371
9.0	10	40	100	244-0373
9.5	10	25	75	244-0375
10.0	10	25	75	244-0377
10.0	10	40	100	244-0379
11.0	12	30	75	244-0381
11.0	12	45	100	244-0383
12.0	12	30	75	244-0385
12.0	12	45	100	244-0387
13.0	14	35	90	244-0389
13.0	14	45	100	244-0391
14.0	14	35	90	244-0393
14.0	14	45	100	244-0395
15.0	16	40	100	244-0397
15.0	16	60	150	244-0399
16.0	16	40	100	244-0401
16.0	16	60	150	244-0403
17.0	18	45	100	244-0405
18.0	18	45	100	244-0407
18.0	18	60	150	244-0409
18.0	18	60	150	244-0411
19.0	20	45	100	244-0413
20.0	20	45	100	244-0415
20.0	20	60	150	244-0417
22.0	22	45	100	244-0419
25.0	25	50	100	244-0421
25.0	25	70	150	244-0423

HRC60 END MILLS

Four Flute Ball Nose



Size	Shank Dia.	Flute length	Overall length	Model No.
R0.5	4	3	50	244-0501
R0.5	4	4	60	244-0503
R0.75	4	6	60	244-0505
R1.0	4	4	50	244-0507
R1.0	4	8	60	244-0509
R1.25	4	10	60	244-0511
R1.5	4	6	50	244-0513
R1.5	4	12	60	244-0515
R2.0	4	8	50	244-0517
R2.0	4	15	60	244-0519
R1.0	6	6	50	244-0521
R1.5	6	8	50	244-0523
R2.0	6	10	50	244-0525
R2.25	6	20	75	244-0527
R2.5	6	12	50	244-0529
R2.5	6	25	75	244-0531
R2.75	6	25	75	244-0533
R3.0	6	12	50	244-0535
R3.0	6	25	75	244-0537
R3.5	8	30	75	244-0539
R4.0	8	20	60	244-0541
R4.0	8	30	75	244-0543
R4.5	10	40	100	244-0545
R5.0	10	25	75	244-0547
R5.0	10	40	100	244-0549
R6.0	12	25	75	244-0551
R6.0	12	45	100	244-0553
R7.0	14	35	90	244-0555
R7.0	14	45	100	244-0557
R8.0	16	35	100	244-0559
R8.0	16	60	150	244-0561
R9.0	18	40	100	244-0563
R9.0	18	60	150	244-0565
R10.0	20	40	100	244-0567
R10.0	20	60	150	244-0569

Multiple Flute Standard for Super Finishing



Size	Shank Dia.	Flute length	Overall length	Flute No.	Model No.
6.0	6	15	50	6	244-0601
6.0	6	20	75	6	244-0603
8.0	8	20	60	6	244-0605
8.0	8	30	75	6	244-0607
10.0	10	25	75	6	244-0609
10.0	10	40	100	6	244-0611
12.0	12	30	75	6	244-0613
12.0	12	45	100	6	244-0615
14.0	14	40	100	6	244-0617
16.0	16	40	100	6	244-0619
16.0	16	60	150	6	244-0621
18.0	18	45	100	6	244-0623
18.0	18	60	150	6	244-0625
20.0	20	45	100	8	244-0627
20.0	20	60	150	8	244-0629
25.0	25	50	100	8	244-0631
25.0	25	75	150	8	244-0633

DIN STANDARD FOR HRC60

TWO FLUTE STANDARD



Size	Shank Dia.	Flute Length	Overall Length	Model No.
1.0	3	3	38	244-0701
1.5	3	5	38	244-0703
2.0	3	6	38	244-0705
2.5	3	7	38	244-0707
3.0	3	7	38	244-0709
3.0	3	15	57	244-0711
3.5	4	10	50	244-0713
3.5	4	19	57	244-0715
4.0	4	10	50	244-0717
4.0	4	19	57	244-0719
4.5	5	11	50	244-0721
4.5	5	25	63	244-0723
5.0	5	11	50	244-0725
5.0	5	25	63	244-0727
5.5	6	13	57	244-0729
5.5	6	25	75	244-0731
6.0	6	13	57	244-0733
6.0	6	25	75	244-0735

FOUR FLUTE STANDARD



Size	Shank Dia.	Flute Length	Overall Length	Model No.
7.0	8	16	63	244-0737
8.0	8	19	63	244-0739
8.0	8	30	75	244-0741
9.0	10	19	72	244-0743
10.0	10	22	72	244-0745
10.0	10	35	75	244-0747
12.0	12	26	83	244-0749
14.0	14	26	83	244-0751
14.0	14	45	100	244-0757
16.0	16	32	92	244-0759
16.0	16	50	100	244-0761
18.0	18	32	92	244-0763
18.0	18	50	100	244-0765
20.0	20	38	104	244-0767
20.0	20	60	120	244-0769
25.0	25	38	104	244-0771
25.0	25	60	120	244-0773

Size	Shank Dia.	Flute Length	Overall Length	Model No.
1	3	3	38	244-0801
1.5	3	5	38	244-0803
2.0	3	6	38	244-0805
2.5	3	7	38	244-0807
3.0	3	7	38	244-0809
3.0	3	15	57	244-0811
3.5	4	10	50	244-0813
3.5	4	19	57	244-0815
4.0	4	10	50	244-0817
4.0	4	19	57	244-0819
4.5	5	11	50	244-0821
4.5	5	25	63	244-0823
5.0	5	11	50	244-0825
5.0	5	25	63	244-0827
5.5	6	13	57	244-0829
5.5	6	25	75	244-0831
6.0	6	13	57	244-0833
6.0	6	25	75	244-0835

HRC60 END MILLS

FOUR FLUTE STANDARD

TWO FLUTE BALL NOSE STANDARD



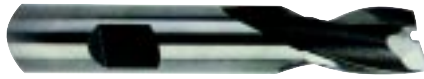
continued

Size	Shank Dia.	Flute Length	Overall Length	Model No.
8	7.0	16	63	244-0837
8	8.0	19	63	244-0839
8	8.0	35	75	244-0841
10	9.0	19	72	244-0843
10	10.0	22	72	244-0845
10	10.0	35	75	244-0847
12	12.0	26	83	244-0849
12	12.0	45	100	244-0851
14	14.0	26	83	244-0853
14	14.0	45	100	244-0855
16	16.0	32	92	244-0857
16	16.0	50	100	244-0859
18	18.0	32	92	244-0861
18	18.0	50	100	244-0863
20	20.0	38	104	244-0865
20	20.0	60	120	244-0867
25	25.0	38	104	244-0869
25	25.0	60	120	244-0871

Size	Shank Dia.	Flute Length	Overall Length	Model No.
1.0	3	3	38	244-0901
1.5	3	5	38	244-0903
2.0	3	6	38	244-0905
2.5	3	7	38	244-0907
3.0	3	7	38	244-0909
3.0	3	15	57	244-0911
3.5	4	10	50	244-0913
4.0	4	10	50	244-0915
4.0	4	19	57	244-0917
5.0	5	11	50	244-0919
5.0	5	25	63	244-0921
6.0	6	13	57	244-0923
6.0	6	25	75	244-0925
7.0	8	13	63	244-0927
8.0	8	16	63	244-0929
8.0	8	30	75	244-0931
9.0	10	16	72	244-0933
10.0	10	19	72	244-0935

Size	Shank Dia.	Flute Length	Overall Length	Model No.
10.0	10	35	75	244-0937
12.0	12	22	83	244-0939
12.0	12	45	100	244-0941
14.0	14	22	83	244-0943
16.0	16	26	92	244-0945
16.0	16	50	100	244-0947
18.0	18	26	92	244-0949
18.0	18	50	100	244-0951
20.0	20	32	104	244-0953
20.0	20	60	120	244-0955
25.0	25	60	120	244-0957

TWO FLUTE STUB LENGTH



Size	Shank Dia.	Flute Length	Overall Length	Model No.
1.0	3	3	38	244-0901
1.5	3	3	38	244-0903
2.0	3	3	38	244-0905
2.5	3	3	38	244-0907
3.0	3	4	38	244-0909
3.5	4	4	50	244-0911
4.0	4	6	50	244-0913
4.5	5	6	50	244-0915
5.0	5	8	50	244-0917
5.5	6	8	54	244-0919
6.0	6	10	54	244-0921
7.0	8	12	58	244-0923
8.0	8	12	58	244-0925
9.0	10	14	66	244-0927
10.0	10	14	66	244-0929
12.0	13	16	73	244-0931
14.0	14	18	75	244-0933
16.0	16	22	82	244-0935
18.0	18	24	84	244-0937
20.0	20	26	92	244-0939

FOUR FLUTE BALL NOSE STANDARD



Size	Shank Dia.	Flute Length	Overall Length	Model No.
1.0	3	3	38	244-1001
1.5	3	5	38	244-1003
2.0	3	6	38	244-1005
2.5	3	7	38	244-1007
3.0	3	7	38	244-1009
3.0	3	15	57	244-1011
3.5	4	10	50	244-1013
4.0	4	10	50	244-1015
4.0	4	19	57	244-1017
5.0	5	11	50	244-1019
5.0	5	25	63	244-1021
6.0	6	13	57	244-1023
6.0	6	25	75	244-1025
7.0	8	13	63	244-1027
8.0	8	16	63	244-1029
8.0	8	30	75	244-1031
9.0	10	16	72	244-1033
10.0	10	19	72	244-1035
10.0	10	35	75	244-1037
12.0	12	22	83	244-1039
12.0	12	45	100	244-1041
14.0	14	22	83	244-1043
14.0	14	45	100	244-1045
16.0	16	26	92	244-1047
16.0	16	50	100	244-1049
18.0	18	26	92	244-1051
18.0	18	50	100	244-1053
20.0	20	32	104	244-1055
20.0	20	60	120	244-1057
25.0	25	60	120	244-1059

MULTIPLE FLUTE STANDARD FOR SUPER FINISHING



Size	Shank Dia.	Flute Length	Overall Length	Flute No.	Model No.
6.0	6	13	57	6	244-1101
6.0	6	18	62	6	244-1103
8.0	8	19	63	6	244-1105
8.0	8	24	68	6	244-1107
10.0	10	22	72	6	244-1109
10.0	10	30	80	6	244-1111
12.0	12	26	83	6	244-1113
12.0	12	26	83	6	244-1115
14.0	14	36	93	6	244-1117
14.0	14	42	99	6	244-1119
16.0	16	32	92	6	244-1121
16.0	16	48	108	6	244-1123
18.0	18	32	92	6	244-1125
18.0	18	54	114	6	244-1127
20.0	20	38	104	8	244-1129
20.0	20	60	126	8	244-1131
25.0	25	38	104	8	244-1133
25.0	25	60	126	8	244-1135

HRC60 END MILLS

TWO FLUTE BALL NOSE PENCIL NECK



Size	Shank Dia.	Flute Length	Overall Length	Neck Length	Neck Incline	Model No.
1	6	2	70	20	1.5 $\frac{1}{8}$ "	244-1101
1	6	2	80	40	3 $\frac{1}{8}$ "	244-1103
2	6	5	70	20	1.5 $\frac{1}{8}$ "	244-1105
2	6	5	80	40	3 $\frac{1}{8}$ "	244-1107
3	6	8	70	30	3 $\frac{1}{8}$ "	244-1109
3	6	8	90	50	1.5 $\frac{1}{8}$ "	244-1111
4	6	8	70	28	3 $\frac{1}{8}$ "	244-1113
4	6	8	90	48	1.5 $\frac{1}{8}$ "	244-1115
5	8	10	90	40	3 $\frac{1}{8}$ "	244-1117
5	8	10	110	60	1.5 $\frac{1}{8}$ "	244-1119
6	8	12	90	33	3 $\frac{1}{8}$ "	244-1121
6	8	12	110	52	1.5 $\frac{1}{8}$ "	244-1123
8	10	14	100	35	3 $\frac{1}{8}$ "	244-1125
8	10	14	120	54	1.5 $\frac{1}{8}$ "	244-1127
10	12	18	110	39	3 $\frac{1}{8}$ "	244-1129
10	12	18	130	58	1.5 $\frac{1}{8}$ "	244-1131
12	16	22	140	60	3 $\frac{1}{8}$ "	244-1133
12	16	22	160	80	1.5 $\frac{1}{8}$ "	244-1135

End Mills

CARBIDE INDEXABLE END MILL



Shank	Cut Dia.	Teeth	Model No.
R8	16mm	1	210-0816
R8	18mm	1	210-0818
R8	20mm	2	210-0820
R8	22mm	2	210-0822
R8	25mm	2	210-0825
R8	28mm	2	210-0828
R8	32mm	2	210-0832
R8	36mm	2	210-0836
R8	40mm	3	210-0840
R8	5/8"	1	210-0841
R8	11/16"	1	210-0844
R8	45mm	3	210-0845
R8	50mm	3	210-0850
R8	13/16"	2	210-0852
R8	7/8"	2	210-0856
R8	1"	2	210-0864
R8	1-1/16"	2	210-0870
R8	1-1/4"	2	210-0875
R8	1-3/8"	2	210-0880
R8	1-5/8"	3	210-0885
R8	1-13/16"	3	210-0890
R8	2"	3	210-0895
R8	2-1/2"	4	210-0896
16mm	16mm	1	210-1616
16mm	18mm	1	210-1618
16mm	20mm	2	210-1618
16mm	22mm	2	210-1620
16mm	25mm	2	210-1622
16mm	28mm	2	210-1625
16mm	32mm	2	210-1628
16mm	36mm	2	210-1632
16mm	40mm	3	210-1636
16mm	45mm	3	210-1640
16mm	50mm	3	210-1645
20mm	16mm	1	210-2016
20mm	18mm	1	210-2018
20mm	20mm	2	210-2020
20mm	22mm	2	210-2022
20mm	25mm	2	210-2025
20mm	28mm	2	210-2028
20mm	32mm	2	210-2032
20mm	36mm	2	210-2036
20mm	40mm	3	210-2040
20mm	45mm	3	210-2045
20mm	50mm	3	210-2050
25mm	16mm	1	210-1716
25mm	18mm	1	210-1718
25mm	20mm	2	210-1720
25mm	22mm	2	210-1722
25mm	25mm	2	210-1725
25mm	28mm	2	210-1728
25mm	32mm	2	210-1732
25mm	36mm	2	210-1736
25mm	40mm	3	210-1740
25mm	45mm	3	210-1745
25mm	50mm	3	210-1750
32mm	16mm	1	210-1816
32mm	18mm	1	210-1818
32mm	20mm	2	210-1820
32mm	22mm	2	210-1822
32mm	25mm	2	210-1825
32mm	28mm	2	210-1828
32mm	32mm	2	210-1832
32mm	36mm	2	210-1836
32mm	40mm	3	210-1840
32mm	45mm	3	210-1845
32mm	50mm	3	210-1850

Shank	Cut Dia.	Teeth	Model No.
MT3	16mm	1	210-2316
MT3	18mm	1	210-2318
MT3	20mm	2	210-2320
MT3	22mm	2	210-2322
MT3	25mm	2	210-2325
MT3	28mm	2	210-2328
MT3	32mm	2	210-2332
MT3	36mm	2	210-2336
MT3	40mm	3	210-2340
MT3	5/8"	1	210-2341
MT3	11/16"	1	210-2344
MT3	45mm	3	210-2345
MT3	50mm	3	210-2350
MT3	13/16"	2	210-2352
MT3	7/8"	2	210-2356
MT3	1"	2	210-2364
MT3	1-1/16"	2	210-2370
MT3	1-1/4"	2	210-2375
MT3	1-3/8"	2	210-2380
MT3	1-5/8"	3	210-2385
MT3	1-13/16"	3	210-2390
MT3	2"	3	210-2395
MT4	16mm	1	210-2416
MT4	18mm	1	210-2418
MT4	20mm	2	210-2420
MT4	22mm	2	210-2422
MT4	25mm	2	210-2425
MT4	28mm	2	210-2428
MT4	32mm	2	210-2432
MT4	36mm	2	210-2436
MT4	40mm	3	210-2440
MT4	5/8"	1	210-2441
MT4	11/16"	1	210-2444
MT4	45mm	3	210-2445
MT4	50mm	3	210-2450
MT4	13/16"	2	210-2452
MT4	7/8"	2	210-2456
MT4	1"	2	210-2464
MT4	1-1/16"	2	210-2470
MT4	1-1/4"	2	210-2475
MT4	1-3/8"	2	210-2480
MT4	1-5/8"	3	210-2485
MT4	1-13/16"	3	210-2490
MT4	2"	3	210-2495
MT5	16mm	1	210-2516
MT5	18mm	1	210-2518
MT5	20mm	2	210-2520
MT5	22mm	2	210-2522
MT5	25mm	2	210-2525
MT5	28mm	2	210-2528
MT5	32mm	2	210-2532
MT5	36mm	2	210-2536
MT5	40mm	3	210-2540
MT5	5/8"	1	210-2541
MT5	11/16"	1	210-2544
MT5	45mm	3	210-2545
MT5	50mm	3	210-2550
MT5	13/16"	2	210-2552
MT5	7/8"	2	210-2556
MT5	1"	2	210-2564
MT5	1-1/16"	2	210-2570
MT5	1-1/4"	2	210-2575
MT5	1-3/8"	2	210-2580
MT5	1-5/8"	3	210-2585
MT5	1-13/16"	3	210-2590
MT5	2"	3	210-2595

Shank	Cut Dia.	Teeth	Model No.
5/8"	5/8"	1	210-2640
5/8"	11/16"	1	210-2644
5/8"	13/16"	2	210-2652
5/8"	7/8"	2	210-2656
5/8"	1"	2	210-2664
5/8"	1-1/8"	2	210-2670
5/8"	1-1/4"	2	210-2675
5/8"	1-3/8"	2	210-2680
5/8"	1-5/8"	3	210-2685
5/8"	1-13/16"	3	210-2690
5/8"	2"	3	210-2695
1/4"	5/8"	1	210-2740
1/4"	11/16"	1	210-2744
1/4"	13/16"	2	210-2752
1/4"	7/8"	2	210-2756
1/4"	1"	2	210-2764
1/4"	1-1/8"	2	210-2770
1/4"	1-1/4"	2	210-2775
1/4"	1-3/8"	2	210-2780
1/4"	1-5/8"	3	210-2785
1/4"	1-13/16"	3	210-2790
1/4"	2"	3	210-2795
1"	5/8"	1	210-2840
1"	11/16"	1	210-2844
1"	13/16"	2	210-2852
1"	7/8"	2	210-2856
1"	1"	2	210-2864
1"	1-1/8"	2	210-2870
1"	1-1/4"	2	210-2875
1"	1-3/8"	2	210-2880
1"	1-5/8"	3	210-2885
1"	1-13/16"	3	210-2890
1"	2"	3	210-2895
1-1/4"	5/8"	1	210-2941
1-1/4"	11/16"	1	210-2944
1-1/4"	13/16"	2	210-2952
1-1/4"	7/8"	2	210-2956
1-1/4"	1"	2	210-2964
1-1/4"	1-1/8"	2	210-2970
1-1/4"	1-1/4"	2	210-2975
1-1/4"	1-3/8"	2	210-2980
1-1/4"	1-5/8"	3	210-2985
1-1/4"	1-13/16"	3	210-2990
1-1/4"	2"	3	210-2995
30	16mm	1	210-8316
30	18mm	1	210-8318
30	20mm	2	210-8320
30	22mm	2	210-8322
30	25mm	2	210-8325
30	28mm	2	210-8328
30	32mm	2	210-8332
30	36mm	2	210-8336
30	40mm	3	210-8340
30	5/8"	1	210-8341
30	11/16"	1	210-8344

Shank	Cut Dia.	Teeth	Model No.
30	45mm	3	210-8345
30	50mm	3	210-8350
30	13/16"	2	210-8352
30	7/8"	2	210-8356
30	1"	2	210-8364
30	1-1/16"	2	210-8370
30	1-1/4"	2	210-8375
30	1-3/8"	2	210-8380
30	1-5/8"	3	210-8385
30	1-13/16"	3	210-8390
30	2"	3	210-8395
40	16mm	1	210-8416
40	18mm	1	210-8418
40	20mm	2	210-8420
40	22mm	2	210-8422
40	25mm	2	210-8425
40	28mm	2	210-8428
40	32mm	2	210-8432
40	36mm	2	210-8436
40	40mm	3	210-8440
40	5/8"	1	210-8441
40	11/16"	1	210-8444
40	45mm	3	210-8445
40	50mm	3	210-8450
40	13/16"	2	210-8452
40	7/8"	2	210-8456
40	1"	2	210-8464
40	1-1/16"	2	210-8470
40	1-1/4"	2	210-8475
40	1-3/8"	2	210-8480
40	1-5/8"	3	210-8485
40	1-13/16"	3	210-8490
40	2"	3	210-8495
50	16mm	1	210-8516
50	18mm	1	210-8518
50	20mm	2	210-8520
50	22mm	2	210-8522
50	25mm	2	210-8525
50	28mm	2	210-8528
50	32mm	2	210-8532
50	36mm	2	210-8536
50	40mm	3	210-8540
50	5/8"	1	210-8541
50	11/16"	1	210-8544
50	45mm	3	210-8545
50	50mm	3	210-8550
50	13/16"	2	210-8552
50	7/8"	2	210-8556
50	1"	2	210-8564
50	1-1/16"	2	210-8570
50	1-1/4"	2	210-8575
50	1-3/8"	2	210-8580
50	1-5/8"	3	210-8585
50	1-13/16"	3	210-8590
50	2"	3	210-8595

CONVEX SHANK TYPE MILLING CUTTER

HSS



Use for milling female half circle

- Teeth are from relieved and straight gashed
- Cutting surfaces may be resharpened on face without changing contour or form for increased tool life

Radius	Cutter Dia.	Shank Dia.	No. of Flute	Overall Length	Model Number
1/32	3/4	1/2	6	3	317-4026
1/16	3/4	1/2	6	3	317-4042
3/32	7/8	1/2	6	3	317-4067
1/8	1-1/4	3/4	6	3-1/2	317-4083
5/32	1-5/16	3/4	6	3-1/2	317-4109
3/16	1-3/8	3/4	6	3-1/2	317-4125
1/4	1-1/2	3/4	4.6	4	317-4166
5/16	1-5/8	3/4	4.6	4	317-4208
3/8	1-3/4	3/4	4.6	4	317-4240

CONCAVE SHANK TYPE MILLING CUTTER

HSS

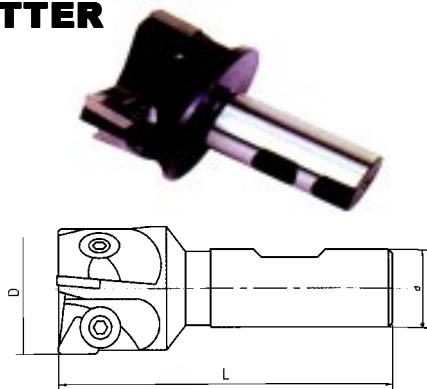


Use for milling male half circle

- Teeth are from relieved and straight gashed
- Cutting surfaces may be resharpened on face without changing contour or form for increased tool life

Radius	Cutter Dia.	Shank Dia.	No. of Flute	Overall Length	Model Number
1/32	3/4	1/2	6	3	316-3028
1/16	3/4	1/2	6	3	316-3044
3/32	3/4	1/2	6	3	316-3069
1/8	1	3/4	6	3-1/2	316-3085
5/32	1	3/4	6	3-1/2	316-3101
3/16	1	3/4	6	3-1/2	316-3127
1/4	1-1/4	3/4	4.6	4	316-3168
5/16	1-1/4	3/4	4.6	4	316-3200
3/8	1-1/2	3/4	4.6	4-3/16	316-3242

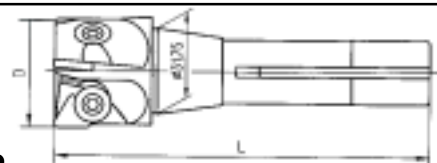
STRAIGHT SHANK CARBIDE INDEXABLE END MILLING CUTTER



D(in)	L(mm)	Insert	d(in)	Model No.
3/4	89.7	1	3/4	328-4800
7/8	89.7	2	3/4	328-4802
1	89.7	2	3/4	328-4804
1-1/4	89.7	2	3/4	328-4806
1-3/8	89.7	2	3/4	328-4808
1-1/2	89.7	3	3/4	328-4810
1-5/8	89.7	3	3/4	328-4812
1-3/4	89.7	3	3/4	328-4814
2	89.7	3	3/4	328-4816
1	95.7	2	1	328-4818
1-1/4	95.7	2	1	328-4820
1-3/8	95.7	2	1	328-4822
1-1/2	95.7	3	1	328-4824
1-5/8	95.7	3	1	328-4826
1-3/4	95.7	3	1	328-4828
2	95.7	3	1	328-4830



R8 CARBIDE INDEXABLE END MILLING CUTTER



D(in)	L(mm)	Insert	Model No.
3/4	139.7	2	328-7001
7/8	139.7	2	328-7002
1"	139.7	2	328-7003
1-1/8	139.7	2	328-7004
1-1/4	147.6	2	328-7005
1-3/8	139.7	2	328-7006
1-1/2	147.1	3	328-7007
1-5/8	139.7	3	328-7008
1-3/4	139.7	3	328-7009
2"	155.6	3	328-7010
2-1/2	139.7	4	328-7011
3"	139.7	5	328-7012

D(mm)	L(mm)	Insert	Model No.
19	139.7	2	328-7101
20	139.7	2	328-7102
22	139.7	2	328-7103
25	139.7	2	328-7104
27	139.7	2	328-7105
30	147.6	2	328-7106
32	147.6	2	328-7107
40	139.7	3	328-7108
50	155.6	3	328-7109
60	139.7	4	328-7110
63	139.7	4	328-7111
75	139.7	5	328-7112

Cutters

CARBIDE INDEXABLE FACE MILLING CUTTER



Milling Dia	Shank taper	MaxDia of shank	Overall length	Model No.
2-1/2"	MT3	18/19"	5"	328-5000
2-1/2"	R8	1-1/4"	5-5/8"	328-5008
2-1/2"	STRAIGHT 1"	1"	3-3/4"	328-5016

WOODRUFF KEYSEAT CUTTER

1/2" SHANK

HSS or M42 Cobalt

Designed for using together with normal end mills for milling standard woodruff keyseat, slots



Staggered Teeth

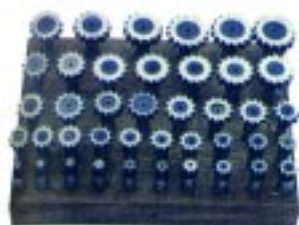


Straight Teeth

American Standard	Dia.	Width of Face	Overall Length	High Speed Steel		M42 Cobalt	
				Straight Teeth Model No.	Staggered Teeth Model No.	Straight Teeth Model No.	Staggered Teeth Model No.
202	1/4	1/16	2-1/16	296-2016	297-2016	295-2016	299-2016
202-1/2	5/16	1/16	2-1/16	296-2065	297-2065	295-2065	299-2065
302-1/2	5/16	3/32	2-3/32	296-2073	297-2073	295-2073	299-2073
203	3/8	1/16	2-1/16	296-2115	297-2115	295-2115	299-2115
303	3/8	3/32	2-3/32	296-2123	297-2123	295-2123	299-2123
403	3/8	1/8	2-1/8	296-2131	297-2131	295-2131	299-2131
204	1/2	1/16	2-1/16	296-0010	297-0010	295-0010	299-0010
304	1/2	3/32	2-3/32	296-0028	297-0028	295-0028	299-0028
404	1/2	1/8	2-1/8	296-0036	297-0036	295-0036	299-0036
305	5/8	3/32	2-3/32	296-0044	297-0044	295-0044	299-0044
405	5/8	1/8	2-1/8	296-0051	297-0051	295-0051	299-0051
505	5/8	5/32	2-5/32	296-0069	297-0069	295-0069	299-0069
605	5/8	3/16	2-3/16	296-0614	297-0614	295-0614	299-0614
406	3/4	1/8	2-1/8	296-0077	297-0077	295-0077	299-0077
506	3/4	5/32	2-5/32	296-0085	297-0085	295-0085	299-0085
606	3/4	3/16	2-3/16	296-0093	297-0093	295-0093	299-0093
806	3/4	1/4	2-1/4	296-0911	297-0911	295-0911	299-0911
507	7/8	5/32	2-5/32	296-0101	297-0101	295-0101	299-0101
607	7/8	3/16	2-3/16	296-0119	297-0119	295-0119	299-0119
707	7/8	7/32	2-7/32	296-0127	297-0127	295-0127	299-0127
807	7/8	1/4	2-1/4	296-9011	297-9011	295-9011	299-9011
608	1	3/16	2-3/16	296-0135	297-0135	295-0135	299-0135
708	1	7/32	2-7/32	296-0143	297-0143	295-0143	299-0143
808	1	1/4	2-1/4	296-0150	297-0150	295-0150	299-0150
1008	1	5/16	2-5/16	296-9029	297-9029	295-9029	299-9029
1208	1	3/8	2-3/8	296-1521	297-1521	295-1521	299-1521
609	1-1/8	3/16	2-3/16	296-0168	297-0168	295-0168	299-0168
709	1-1/8	7/32	2-7/32	296-0176	297-0176	295-0176	299-0176
809	1-1/8	1/4	2-1/4	296-0184	297-0184	295-0184	299-0184
1009	1-1/8	5/16	2-5/16	296-9037	297-9037	295-9037	299-9037
610	1-1/4	3/16	2-3/16	296-0192	297-0192	295-0192	299-0192
710	1-1/4	7/32	2-7/32	296-0200	297-0200	295-0200	299-0200
810	1-1/4	1/4	2-1/4	296-0218	297-0218	295-0218	299-0218
1010	1-1/4	5/16	2-5/16	296-9045	297-9045	295-9045	299-9045
1210	1-1/4	3/8	2-3/8	296-9052	297-9052	295-9052	299-9052
811	1-3/8	1/4	2-1/4	296-0226	297-0226	295-0226	299-0226
1011	1-3/8	5/16	2-5/16	296-0234	297-0234	295-0234	299-0234
1211	1-3/8	3/8	2-3/8	296-9060	297-9060	295-9060	299-9060
812	1-1/2	1/4	2-1/4	296-0242	297-0242	295-0242	299-0242
1012	1-1/2	5/16	2-5/16	296-0259	297-0259	295-0259	299-0259
1212	1-1/2	3/8	2-3/8	296-9078	297-9078	295-9078	299-9078

WOODRUFF KEYSEAT CUTTER SETS

1/2" Shank, High Speed Steel or M42 Cobalt



Pieces	American Standard	High Speed Steel		M42 Cobalt	
		Straight Tooth Mode No.	Staggered Tooth Model No.	Straight Tooth Mode No.	Staggered Tooth Model No.
10	403,204,404,305,505,406, 606,806,608,808	296-9810	296-9910	296-9811	296-9911
41	202 thru 1212	296-9841	297-9941	296-9842	297-9942

Cutters

DOVETAIL CUTTERS



Dia.	Width of cutter	Shank Dia.	Overall Length	45° H.S.S Model No.	45° Tin coated Model No.	45° Cobalt(M35) Model No.
3/8	1/8	3/8	2-1/8	243-7001	243-7101	243-7201
1/2	5/32	3/8	2-1/8	243-7002	243-7102	243-7202
3/4	1/4	3/8	2-1/8	243-7003	243-7103	243-7203
1-3/8	7/16	5/8	2-7/8	243-7004	243-7104	243-7204
1-7/8	9/16	7/8	2-1/4	243-7005	243-7105	243-7205
2-1/4	5/8	1	2-3/4	243-7006	243-7106	243-7206

Dia.	Width of cutter	Shank Dia.	Overall Length	60° H.S.S Model No.	60° Tin coated Model No.	60° Cobalt(M35) Model No.
3/8	3/16	3/8	2-1/8	243-8001	243-8101	243-8201
1/2	1/4	3/8	2-1/8	243-8002	243-8102	243-8202
3/4	5/16	3/8	2-1/8	243-8003	243-8103	243-8203
1-3/8	9/16	5/8	2-7/8	243-8004	243-8104	243-8204
1-7/8	13/16	7/8	2-1/4	243-8005	243-8105	243-8205
2-1/4	1-1/16	1	2-3/4	243-8006	243-8106	243-8206



SET 3/8-1-7/8" 5pc. Supplied on a wooden stand

Description	Model No.
HSS - 45°	243-8010
HSS - 60°	243-8020
HSS - (Tin) Coated - 45°	243-8030
HSS - (Tin) Coated - 60°	243-8040
Cobalt - 45°	243-8050
Cobalt - 60°	243-8060

SET 13/16/20/25/32mm 5pc. Supplied on a wooden stand

Description	Model No.
13/16/20/25/32mm HSS - 45°	243-8310
13/16/20/25/32mm HSS - 60°	243-8320
13/16/20/25/32mm HSS - (Tin) Coated - 45°	243-8330
13/16/20/25/32mm HSS - (Tin) Coated - 60°	243-8340
13/16/20/25/32mm Cobalt - 45°	243-8350
13/16/20/25/32mm Cobalt - 60°	243-8360

SINGLE ANGLE CHAMFERING CUTTERS

Use for chamfering and angle milling operations Right hand



Cutter Dia.	Width of cutter	OAL	Angle	HSS Model No.
1/2	1/8	3/8	45°	245-0001
3/4	3/16	3/8	45°	245-0002
1	5/16	1/2	45°	245-0003
1-1/2	1/2	3/4	45°	245-0004
1/2	7/32	3/8	60°	245-0005
3/4	5/16	3/8	60°	245-0006
1	7/16	1/2	60°	245-0007
1-1/2	5/8	3/4	60°	245-0008

DOUBLE ANGLE CUTTERS



Cutter Dia.	Shank Dia.	OAL	Angle	Cutter Thickness	HSS Model No.	M35 Cobalt Model No.
3/4	3/8	2-3/8	60°	3/16	245-0100	245-0200
1	1/2	2-27/32	60°	5/16	245-0101	245-0201
1-3/8	5/8	3-7/32	60°	7/16	245-0102	245-0202
1-1/2	5/8	3-3/8	60°	1/2	245-0103	245-0203
1-7/8	3/4	3-25/32	60°	5/8	245-0104	245-0204
2-1/4	7/8	4-5/32	60°	3/4	245-0105	245-0205
3/4	3/8	2-7/16	90°	1/4	245-0106	245-0206
1	1/2	2-29/32	90°	3/8	245-0107	245-0207
1-3/8	5/8	3-9/32	90°	1/2	245-0108	245-0208
1-1/2	5/8	3-7/16	90°	9/16	245-0109	245-0209
1-7/8	3/4	3-25/32	90°	5/8	245-0110	245-0210
2-1/4	7/8	4-5/32	90°	3/4	245-0111	245-0211

T-SLOT CUTTER



H.S.S



ROUGHING

Bolt Size	Cutter Dia.	Neck Dia.	Overall Length	Shank Dia.	H.S.S Model No.	Tin-Coated Model No.	Cobalt(M35) Model No.	Roughing H.S.S Model No.	Roughing Cobalt(M35) Model No.
1/4	9/16	17/64	2-19/32	1/2	245-2001	245-2101	245-2201	245-2301	245-2401
5/16	21/32	21/64	2-11/16	1/2	245-2002	245-2102	245-2202	245-2302	245-2402
3/8	25/32	13/32	3-1/4	3/4	245-2003	245-2103	245-2203	245-2303	245-2403
1/2	31/32	17/32	3-7/16	3/4	245-2004	245-2104	245-2204	245-2304	245-2404
5/8	1-1/4	21/32	3-15/16	1	245-2005	245-2105	245-2205	245-2305	245-2405
3/4	1-15/32	25/32	4-7/16	1	245-2006	245-2106	245-2206	245-2306	245-2406
1	1-27/32	1-1/32	4-13/16	1-1/4	245-2007	245-2107	245-2207	245-2307	245-2407
1-1/4	2-7/32	1-9/32	5-3/8	1-1/4	245-2008	245-2108	245-2208	245-2308	245-2408
1-1/2	2-21/32	1-17/32	5-23/32	1-1/4	245-2009	245-2109	245-2209	245-2309	245-2409

SHELL END MILLS

- Shell end mills for steel and for aluminum.
- Right hand (RH) cut and left hand (LH) cut.
- Finishers and roughers.



Steel



Aluminum

Dia.	LOC	Hole Dia.	H.S.S.-RH Model No.	H.S.S.-LH Model No.	Aluminum Model No.
1-1/4	1	1/2	245-3001	245-3101	245-3201
1-3/8	1-1/8	1/2	245-3002	245-3102	245-3202
1-1/2	1-1/8	1/2	245-3003	245-3103	245-3203
1-5/8	1-1/4	3/4	245-3004	245-3104	245-3204
1-3/4	1-1/4	3/4	245-3005	245-3105	245-3205
1-7/8	1-3/8	3/4	245-3006	245-3106	245-3206
2	1-3/8	3/4	245-3007	245-3107	245-3207
2-1/8	1-1/2	1	245-3008	245-3108	245-3208
2-1/4	1-1/2	1	245-3009	245-3109	245-3209
2-3/8	1-5/8	1	245-3010	245-3110	245-3210
2-1/2	1-5/8	1	245-3011	245-3111	245-3211
2-5/8	1-5/8	1	245-3012	245-3112	245-3212
2-3/4	1-5/8	1	245-3013	245-3113	245-3213
2-7/8	1-3/4	1-1/4	245-3014	245-3114	245-3214
3	1-3/4	1-1/4	245-3015	245-3115	245-3215
3-1/4	1-7/8	1-1/4	245-3016	245-3116	245-3216
3-1/2	1-7/8	1-1/4	245-3017	245-3117	245-3217
3-3/4	2-1/4	1-1/2	245-3018	245-3118	245-3218
4	2-1/4	1-1/2	245-3019	245-3119	245-3219
4-1/2	2-1/4	1-1/2	245-3020	245-3120	245-3220
5	2-1/4	1-1/2	245-3021	245-3121	245-3221
5-1/2	2-1/4	2	245-3022	245-3122	245-3222
6	2-1/4	2	245-3023	245-3123	245-3223



Finishing



Roughing

Dia.	LOC	Hole Dia.	Cobalt(M42) Finishing	Cobalt(M42) Roughing
1-1/4	1	1/2	245-3301	245-3401
1-3/8	1-1/8	1/2	245-3302	245-3402
1-1/2	1-1/8	1/2	245-3303	245-3403
1-5/8	1-1/4	3/4	245-3304	245-3404
1-3/4	1-1/4	3/4	245-3305	245-3405
1-7/8	1-3/8	3/4	245-3306	245-3406
2	1-3/8	3/4	245-3307	245-3407
2-1/8	1-1/2	1	245-3308	245-3408
2-1/4	1-1/2	1	245-3309	245-3409
2-3/8	1-5/8	1	245-3310	245-3410
2-1/2	1-5/8	1	245-3311	245-3411
2-5/8	1-5/8	1	245-3312	245-3412
2-3/4	1-5/8	1	245-3313	245-3413
2-7/8	1-3/4	1-1/4	245-3314	245-3414
3	1-3/4	1-1/4	245-3315	245-3415
3-1/4	1-7/8	1-1/4	245-3316	245-3416
3-1/2	1-7/8	1-1/4	245-3317	245-3417
3-3/4	2-1/4	1-1/2	245-3318	245-3418
4	2-1/4	1-1/2	245-3319	245-3419
4-1/2	2-1/4	1-1/2	245-3320	245-3420
5	2-1/4	1-1/2	245-3321	245-3421
5-1/2	2-1/4	2	245-3322	245-3422
6	2-1/4	2	245-3323	245-3423

HALF SIDE MILLING CUTTERS

H.S.S



Right Hand



Left Hand

Dia.	Width of Face	Hole Dia.	RH Model No.	LH Model No.
4	3/4	1-1/4	306-0001	306-0011
5	3/4	1-1/4	306-0002	306-0012
6	3/4	1-1/4	306-0003	306-0013
6	1	1-1/2	306-0004	306-0014
7	3/4	1-1/2	306-0005	306-0015
7	1	1-1/2	306-0006	306-0016
8	3/4	1-1/2	306-0007	306-0017
8	1	1-1/2	306-0008	306-0018

WOODRUFF KEYSEAT CUTTERS

ARBOR TYPE, STAGGERED TOOTH



Dia.	Width of Face	Hole Dia.	Model No.
2-1/8	3/16	3/4	306-0100
2-1/8	1/4	3/4	306-0101
2-1/8	5/16	3/4	306-0102
2-1/8	3/8	3/4	306-0103
2-3/4	1/4	1	306-0104
2-3/4	5/16	1	306-0105
2-3/4	3/8	1	306-0106
2-3/4	7/16	1	306-0107
2-3/4	1/2	1	306-0108
3-1/2	3/8	1	306-0109
3-1/2	7/16	1	306-0110
3-1/2	1/2	1	306-0111
3-1/2	9/16	1	306-0112
3-1/2	5/8	1	306-0113
3-1/2	11/16	1	306-0114
3-1/2	3/4	1	306-0115

Cutters

SIDE MILLING CUTTERS-H.S.S.

Plain Tooth

Features:

- Use for straddle milling and side milling.
- Designed for use in a wide range of shallow slotting operations



Staggered Tooth

Features:

- Provides great chip clearance and reduced chatter.
- Designed for deep slotting.



Cutter Dia.	Arbor Hole	Face Width	Plain Tooth Model No.	Staggered Tooth Model No.
2-1/2	1"	1/4	362-1380	362-5460
2-1/2	1"	7/16	362-1410	362-5490
2-1/2	1"	1/2	362-1420	362-5500
3"	1"	3/16	362-1530	362-5530
3"	1"	7/32	362-1540	362-5540
3"	1"	1/4	362-1550	362-5550
3"	1"	5/16	362-1570	362-5570
3"	1"	3/8	362-1590	362-5590
3"	1"	7/16	362-1610	362-5610
3"	1"	1/2	362-1620	362-5620
3"	1"	5/8	362-1640	362-5640
3"	1"	3/4	362-1650	362-5660
3"	1-1/4	3/8	362-1670	362-5770
3"	1-1/4	1/2	362-1690	362-5800
3-1/2	1"	1/4	362-1710	362-5900
3-1/2	1"	3/8	362-1720	362-5920
3-1/2	1"	1/2	362-1730	362-5940
3-1/2	1"	5/8	362-1740	362-5950
4"	1"	3/16	362-1980	362-5980
4"	1"	1/4	362-2000	362-6000
4"	1"	3/8	362-2040	362-6020
4"	1"	1/2	362-2070	362-6030
4"	1"	5/8	362-2090	362-6040
4"	1-1/4	3/16	362-2190	362-6041
4"	1-1/4	1/4	362-2210	362-6042
4"	1-1/4	5/16	362-2220	362-6043
4"	1-1/4	3/8	362-2250	362-6250
4"	1-1/4	7/16	362-2260	362-6260
4"	1-1/4	1/2	362-2280	362-6280
4"	1-1/4	9/16	362-2290	362-6290
4"	1-1/4	13/16	362-2310	362-6330
4"	1-1/4	1-1/8	362-2320	362-6370
5"	1-9/16	5/16	362-2440	362-6440
5"	1-9/16	3/4	362-2530	362-6530
5"	1-9/16	7/8	362-2560	362-6550
5"	1-1/4	3/8	362-2650	362-6620
5"	1-1/4	1/2	362-2670	362-6650
6"	1"	1/2	362-2790	362-6790
6"	1"	5/8	362-2810	362-6810
6"	1-1/4	1/4	362-2910	362-6890
6"	1-1/4	5/16	362-2920	362-6900
6"	1-1/4	3/8	362-2930	362-6930
6"	1-1/4	1/2	362-2940	362-6960
6"	1-1/4	5/8	362-2950	362-6980
6"	1-1/4	3/4	362-2960	362-7000

Metric

Cutter Dia.	Arbor Hole	Face Width	Plain Tooth Model No.	Staggered Tooth Model No.
63mm	22	5	362-6050	362-5050
63mm	22	6	362-6060	362-5060
63mm	22	7	362-6070	362-5070
63mm	22	8	362-6080	362-5080
63mm	22	10	362-6090	362-5090
63mm	22	12	362-6100	362-5100
80mm	27	6	362-6110	362-5110
80mm	27	7	362-6120	362-5120
80mm	27	8	362-6130	362-5130
80mm	27	10	362-6140	362-5140

Cutter Dia.	Arbor Hole	Face Width	Plain Tooth Model No.	Staggered Tooth Model No.
80mm	27	12	362-6150	362-5150
80mm	27	14	362-6160	362-5160
80mm	27	16	362-6170	362-5170
100mm	32	8	362-6180	362-5180
100mm	32	10	362-6190	362-5190
100mm	32	12	362-6200	362-5200
100mm	32	14	362-6210	362-5210
100mm	32	16	362-6220	362-5220
100mm	32	18	362-6230	362-5230
100mm	32	20	362-6240	362-5240

STRAIGHT TOOTH SIDE MILLING CUTTERS

High Speed Steel

Used in slotting, light-duty side milling and straddle milling.



Dia	Width of Face	Hole Size	Model No.
2"	3/16	1/2	301-2127
2"	3/16	5/8	301-2135
2"	1/4	1/2	301-2168
2"	1/4	5/8	301-2176
2"	5/16	1/2	301-2200
2"	5/16	5/8	301-2218
2"	3/8	1/2	301-2242
2"	3/8	5/8	301-2259
2-1/2	1/4	7/8	301-2515
2-1/2	5/16	7/8	301-2523
2-1/2	3/8	7/8	301-2531
2-1/2	1/2	7/8	301-2556
2-1/2	3/16	1"	301-2614
2-1/2	1/4	1"	301-2622
2-1/2	5/16	1"	301-2630
2-1/2	3/8	1"	301-2648
2-1/2	7/16	1"	301-2655
2-1/2	1/2	1"	301-2663
2-1/2	5/8	1"	301-2671
3"	3/16	1"	301-3125
3"	7/32	1"	301-3141
3"	1/4	1"	301-3166
3"	1/4	1-1/4	301-3174
3"	9/32	1"	301-3182
3"	5/16	1"	301-3208
3"	5/16	1-1/4	301-3216
3"	11/32	1"	301-3224
3"	3/8	1"	301-3240
3"	3/8	1-1/4	301-3257
3"	13/32	1"	301-3265
3"	7/16	1"	301-3281
3"	1/2	1"	301-3323
3"	1/2	1-1/4	301-3331
3"	5/8	1"	301-3406
3"	3/4	1"	301-3489
3"	13/16	1"	301-3497
3-1/2	1/4	1"	301-3513
3-1/2	5/16	1"	301-3521
3-1/2	3/8	1"	301-3539
3-1/2	7/16	1"	301-3547
3-1/2	1/2	1"	301-3554
3"	7/8	1"	301-3562
3-1/2	5/8	1"	301-3570
3"	15/16	1"	301-3604
3"	1	1"	301-3646
4"	3/16	1"	301-4123
4"	3/16	1-1/4	301-4131
4"	7/32	1"	301-4149
4"	1/4	1"	301-4164
4"	1/4	1-1/4	301-4172
4"	9/32	1"	301-4180
4"	9/32	1-1/4	301-4198
4"	5/16	1"	301-4206
4"	5/16	1-1/4	301-4214
4"	11/32	1"	301-4222
4"	3/8	1"	301-4248
4"	3/8	1-1/4	301-4255
4"	13/32	1"	301-4263
4"	7/16	1"	301-4289
4"	1/2	1"	301-4321
4"	1/2	1-1/4	301-4339
4"	9/16	1"	301-4362
4"	5/8	1"	301-4404
4"	5/8	1-1/4	301-4412
4"	11/16	1"	301-4446
4"	3/4	1"	301-4487
4"	3/4	1-1/4	301-4495
4"	13/16	1"	301-4529
4"	7/8	1"	301-4560
4"	7/8	1-1/4	301-4578
4"	15/16	1"	301-4602
4"	1	1"	301-4644
4"	1-1/8	1-1/4	301-4701
4"	1-1/4	1-1/4	301-4743
4-1/2	3/8	1-1/4	301-4842
4-1/2	1/2	1-1/4	301-4867

Dia	Width of Face	Hole Size	Model No.
5"	1/4	1"	301-5161
5"	1/4	1-1/4	301-5179
5"	9/32	1"	301-5187
5"	9/32	1-1/4	301-5195
5"	5/16	1"	301-5203
5"	5/16	1-1/4	301-5211
5"	11/32	1"	301-5229
5"	3/8	1"	301-5245
5"	3/8	1-1/4	301-5252
5"	13/32	1"	301-5260
5"	7/16	1"	301-5286
5"	1/2	1"	301-5328
5"	1/2	1-1/4	301-5336
5"	9/16	1"	301-5369
5"	5/8	1"	301-5401
5"	5/8	1-1/4	301-5419
5"	11/16	1"	301-5443
5"	3/4	1"	301-5484
5"	3/4	1-1/4	301-5492
5"	13/16	1"	301-5526
5"	7/8	1"	301-5567
5"	15/16	1"	301-5609
5"	1"	1-1/4	301-5641
6"	1/4	1"	301-6169
6"	1/4	1-1/4	301-6177
6"	9/32	1-1/4	301-6193
6"	5/16	1"	301-6201
6"	5/16	1-1/4	301-6219
6"	3/8	1"	301-6243
6"	3/8	1-1/4	301-6250
6"	7/16	1-1/4	301-6284
6"	1/2	1"	301-6326
6"	1/2	1-1/4	301-6334
6"	9/16	1-1/4	301-6367
6"	5/8	1-1/4	301-6409
6"	11/16	1-1/4	301-6441
6"	3/4	1"	301-6482
6"	3/4	1-1/4	301-6490
6"	13/16	1-1/4	301-6524
6"	7/8	1-1/4	301-6565
6"	15/16	1-1/4	301-6607
6"	1"	1-1/4	301-6649
7"	1/4	1-1/4	301-7167
7"	5/16	1-1/4	301-7209
7"	3/8	1-1/4	301-7241
7"	7/16	1-1/4	301-7282
7"	1/2	1-1/4	301-7324
7"	5/8	1-1/4	301-7407
7"	3/4	1-1/4	301-7480
7"	1"	1-1/4	301-7647
8"	1/4	1"	301-8165
8"	1/4	1-1/4	301-8173
8"	5/16	1"	301-8207
8"	5/16	1-1/4	301-8215
8"	3/8	1"	301-8249
8"	3/8	1-1/4	301-8256
8"	7/16	1"	301-8280
8"	1/2	1"	301-8322
8"	1/2	1-1/4	301-8330
8"	9/16	1-1/4	301-8363
8"	5/8	1-1/4	301-8405
8"	11/16	1-1/4	301-8447
8"	3/4	1-1/4	301-8488
8"	13/16	1-1/4	301-8520
8"	7/8	1-1/4	301-8561
8"	15/16	1-1/4	301-8603
8"	1"	1-1/4	301-8645
10"	1/4	1-1/2	301-9163
10"	5/16	1-1/2	301-9205
10"	3/8	1-1/2	301-9247
10"	1/2	1-1/2	301-9320
10"	5/8	1-1/2	301-9403
10"	3/4	1-1/2	301-9486
10"	7/8	1-1/2	301-9569
10"	1"	1-1/2	301-9643

STAGGERED TOOTH SIDE MILLING CUTTERS

High Speed Steel

- For milling deep slots, grooves and the other operations where either or both the peripheral or side cutting edges are used for machining
- Arbor mounted with mounting holes having standardized size and made to suit a variety of machine arbors of shallow slotting operations
- Well suited for use in a variety of ferrous and non-ferrous materials
- Ground from solid
- Bright and black finish



Dia.	Width of Face	Hole Size	Model No.
2-1/8	1/4	3/4	306-1168
2-1/8	5/16	3/4	306-1200
2-1/8	3/8	3/4	306-1242
2-1/2	3/16	7/8	306-2505
2-1/2	1/4	7/8	306-2513
2-1/2	5/16	7/8	306-2521
2-1/2	3/8	7/8	306-2539
2-1/2	1/2	7/8	306-2554
2-3/4	1/4	1"	306-2711
2-3/4	5/16	1"	306-2729
2-3/4	3/8	1"	306-2737
2-3/4	7/16	1"	306-2745
2-3/4	1/2	1"	306-2752
3"	1/8	1"	306-2900
3"	5/32	1"	306-3107
3"	3/16	1"	306-3123
3"	3/16	1-1/4	306-3131
3"	7/32	1"	306-3149
3"	1/4	1"	306-3164
3"	1/4	1-1/4	306-3172
3"	9/32	1"	306-3180
3"	5/16	1"	306-3206
3"	5/16	1-1/4	306-3214
3"	11/32	1"	306-3222
3"	3/8	1"	306-3248
3"	3/8	1-1/4	306-3255
3"	13/32	1"	306-3263
3"	7/16	1"	306-3289
3"	1/2	1"	306-3313
3"	1/2	1-1/4	306-3321
3"	9/16	1"	306-3336
3"	9/16	1-1/4	306-3362
3"	5/8	1"	306-3378
3"	5/8	1-1/4	306-3404
3"	3/4	1-1/4	306-3487
3"	7/8	1-1/4	306-3560
3"	1"	1-1/4	306-3644
3-1/2	7/32	1"	306-3670
3-1/2	1/4	1"	306-3685
3-1/2	9/32	1"	306-3701
3-1/2	5/16	1"	306-3727
3-1/2	3/8	1"	306-3735
3-1/2	7/16	1"	306-3743
3-1/2	1/2	1"	306-3750
3-1/2	9/16	1"	306-3768
3-1/2	5/8	1"	306-3776
3-1/2	11/16	1"	306-3784
3-1/2	3/4	1"	306-3792
4"	1/8	1"	306-3856
4"	3/16	1"	306-4121
4"	3/16	1-1/4	306-4139
4"	7/32	1-1/4	306-4147
4"	1/4	1"	306-4154

Dia.	Width of Face	Hole Size	Model No.
4"	1/4	1-1/4	306-4162
4"	9/32	1-1/4	306-4188
4"	5/16	1"	306-4196
4"	5/16	1-1/4	306-4204
4"	11/32	1-1/4	306-4220
4"	3/8	1"	306-4238
4"	3/8	1-1/4	306-4246
4"	13/32	1-1/4	306-4261
4"	7/16	1-1/4	306-4287
4"	7/16	1"	306-4295
4"	1/2	1"	306-4311
4"	1/2	1-1/4	306-4329
4"	9/16	1-1/4	306-4360
4"	5/8	1"	306-4378
4"	5/8	1-1/4	306-4402
4"	3/4	1"	306-4477
4"	3/4	1-1/4	306-4485
4"	7/8	1-1/4	306-4568
4"	1/8	1"	306-4579
4"	5/32	1"	306-4586
4"	1"	1-1/4	306-4642
4"	1-1/8	1-1/4	306-4709
4"	1-1/4	1-1/4	306-4741
4"	1-1/2	1-1/4	306-4824
5"	1/8	1-1/4	306-5036
5"	5/32	1-1/4	306-5089
5"	3/16	1-1/4	306-5118
5"	7/32	1-1/4	306-5134
5"	1/4	1"	306-5151
5"	1/4	1-1/4	306-5169
5"	9/32	1-1/4	306-5176
5"	5/16	1"	306-5193
5"	5/16	1-1/4	306-5201
5"	3/8	1-1/4	306-5243
5"	3/8	1"	306-5250
5"	7/16	1-1/4	306-5284
5"	1/2	1"	306-5318
5"	1/2	1-1/4	306-5326
5"	5/8	1-1/4	306-5409
5"	3/4	1-1/4	306-5482
5"	1"	1-1/4	306-5649
6"	1/8	1-1/4	306-6016
6"	5/32	1-1/4	306-6087
6"	3/16	1-1/4	306-6136
6"	7/32	1-1/4	306-6151
6"	1/4	1"	306-6159
6"	1/4	1-1/4	306-6167
6"	9/32	1-1/4	306-6183
6"	5/16	1"	306-6191
6"	5/16	1-1/4	306-6209
6"	3/8	1"	306-6233
6"	3/8	1-1/4	306-6241
6"	7/16	1-1/4	306-6282

Dia.	Width of Face	Hole Size	Model No.
6"	1/2	1"	306-6316
6"	1/2	1-1/4	306-6324
6"	9/16	1-1/4	306-6365
6"	5/8	1-1/4	306-6407
6"	11/16	1-1/4	306-6449
6"	3/4	1-1/4	306-6480
6"	13/16	1-1/4	306-6522
6"	7/8	1-1/4	306-6563
6"	15/16	1-1/4	306-6605
6"	1"	1-1/4	306-6647
6"	1-1/8	1-1/4	306-6704
6"	1-1/4	1-1/4	306-6746
6"	1-1/2	1-1/4	306-6829
7"	1/4	1-1/4	306-7165
7"	5/16	1-1/4	306-7207
7"	3/8	1-1/4	306-7249
7"	7/16	1-1/4	306-7280
7"	1/2	1-1/4	306-7322
7"	9/16	1-1/4	306-7363
7"	5/8	1-1/4	306-7405
7"	11/16	1-1/4	306-7447
7"	3/4	1-1/4	306-7488
7"	7/8	1-1/4	306-7561
7"	1"	1-1/4	306-7645
8"	1/4	1-1/4	306-8163
8"	5/16	1-1/4	306-8205
8"	3/8	1-1/2	306-8247
8"	7/16	1-1/2	306-8288
8"	1/2	1-1/2	306-8320
8"	9/16	1-1/2	306-8361
8"	5/8	1-1/2	306-8403
8"	11/16	1-1/2	306-8445
8"	3/4	1-1/2	306-8486
8"	13/16	1-1/2	306-8528
8"	7/8	1-1/2	306-8569
8"	1"	1-1/2	306-8643
8"	1-1/8	1-1/2	306-8700
8"	1-1/4	1-1/2	306-8742
8"	1-1/2	1-1/2	306-8825
10"	1/4	1-1/2	306-9161
10"	5/16	1-1/2	306-9203
10"	3/8	1-1/2	306-9245
10"	7/16	1-1/2	306-9286
10"	1/2	1-1/2	306-9328
10"	9/16	1-1/2	306-9369
10"	5/8	1-1/2	306-9401
10"	3/4	1-1/2	306-9484
10"	7/8	1-1/2	306-9567
10"	1"	1-1/2	306-9641
10"	1-1/8	1-1/2	306-9708
10"	1-1/4	1-1/2	306-9740
10"	1-1/2	1-1/2	306-9823

LIGHT DUTY PLAIN MILLING CUTTERS

High Speed Steel

Recommended for light milling or finishing cuts. Cutters less than 3/4" wide have straight teeth. Cutters 3/4" wide and over have spiral teeth and are regularly furnished with L.H. spiral.



Dia	Width of Face	Hole Size	Model No.
2-1/4	1/4	7/8	301-0401
2-1/4	1/2	7/8	301-0402
2-1/4	1	7/8	301-0403
2-1/2	3/16	1	301-0404
2-1/2	1/4	1	301-0405
2-1/2	5/16	1	301-0406
2-1/2	3/8	1	301-0407
2-1/2	7/16	1	301-0408
2-1/2	1/2	1	301-0409
2-1/2	5/8	1	301-0410
2-1/2	3/4	1	301-0411
2-1/2	7/8	1	301-0412
2-1/2	1	1	301-0413
2-1/2	1-1/2	1	301-0414
2-1/2	2	1	301-0415
2-1/2	2-1/2	1	301-0416
2-1/2	3	1	301-0417
3	3/16	1	301-0418
3	1/4	1	301-0419
3	5/16	1	301-0420
3	3/8	1	301-0421
3	7/16	1	301-0422
3	1/2	1	301-0423
3	9/16	1	301-0424
3	5/8	1	301-0425
3	11/16	1	301-0426
3	3/4	1	301-0427
3	13/16	1	301-0428
3	7/8	1	301-0429
3	1	1	301-0430
3	1/4	1-1/4	301-0431
3	5/16	1-1/4	301-0432
3	3/8	1-1/4	301-0433
3	7/16	1-1/4	301-0434
3	1/2	1-1/4	301-0435
3	9/16	1-1/4	301-0436
3	5/8	1-1/4	301-0437
3	11/16	1-1/4	301-0438
3	3/4	1-1/4	301-0439
3	13/16	1-1/4	301-0440
3	7/8	1-1/4	301-0441
3	1	1-1/4	301-0442
3	1-1/4	1-1/4	301-0443
3	1-1/2	1-1/4	301-0444
3	2	1-1/4	301-0445
3	2-1/2	1-1/4	301-0446
3	3	1-1/4	301-0447
3	4	1-1/4	301-0448
4	1/4	1	301-0449
4	5/16	1	301-0450
4	3/8	1	301-0451
4	7/16	1	301-0452
4	1/2	1	301-0453
4	1	1	301-0454
4	1/4	1-1/4	301-0455
4	5/16	1-1/4	301-0456
4	3/8	1-1/4	301-0457
4	1/2	1-1/4	301-0458
4	5/8	1-1/4	301-0459
4	3/4	1-1/4	301-0460
4	7/8	1-1/4	301-0461
4	1	1-1/4	301-0462
4	1-1/4	1-1/4	301-0463
4	1-1/2	1-1/4	301-0464
4	2	1-1/4	301-0465
4	2-1/2	1-1/4	301-0466
4	3	1-1/4	301-0467
4	4	1-1/4	301-0468
4	2	1-1/2	301-0469
4	4	1-1/2	301-0470

HEAVY DUTY PLAN MILLING CUTTERS

High Speed Steel



Dia	Width of Face	Hole Size	Model No.
2-1/2	2	1	301-0501
2-1/2	4	1	301-0502
3	1-1/4	1-1/4	301-0503
3	2	1-1/4	301-0504
3	2-1/2	1-1/4	301-0505
3	3	1-1/4	301-0506
3	4	1-1/4	301-0507
3	6	1-1/4	301-0508
4	2	1-1/2	301-0509
4	3	1-1/2	301-0510
4	4	1-1/2	301-0511
4	6	1-1/2	301-0512
4-1/2	6	2	301-0513
4-1/2	12	2	301-0514

HIGH HELIX PLAN MILLING CUTTERS

High Speed Steel

Helical milling cutters can be run at high speeds and will produce a smooth finish. Helical milling cutters will not "hog" in when entering or leaving a cut and for this reason are well suited for milling thin pieces of steel, or another pieces of metal which cannot be held securely in the milling machine.



Dia	Width of Face	Hole Size	Model No.
3	4	1-1/4	301-0601
3	6	1-1/4	301-0602
4	3	1-1/2	301-0603
4	4	1-1/2	301-0604
4	6	1-1/2	301-0605
4	8	1-1/2	301-0606
4	10	1-1/2	301-0607
4-1/2	6	2	301-0608
4-1/2	12	2	301-0609

Cutters

CORNER ROUNDING MILLING CUTTERS

High Speed Steel

Corner rounding cutters are designed for radius milling arbor type milling machines. They may be used singly or in pairs. These cutters have side and radical clearance and can be sharpened by grinding the face without changing their form



Left Hand



Right Hand

Radius of Circle	Dia.	Hole Dia	Width of Face	RH Model No.	LH Model No.
1/8	2	7/8	1/4	301-2701	301-2801
1/8	2-1/2	1	1/4	301-2702	301-2802
3/16	2-1/2	1	5/16	301-2703	301-2803
1/4	2-1/4	7/8	13/32	301-2704	301-2804
1/4	3	1	13/32	301-2705	301-2805
5/16	2-3/4	1	7/16	301-2706	301-2806
5/16	3	1	7/16	301-2707	301-2807
3/8	3	1	9/16	301-2708	301-2808
3/8	3-3/4	1-1/4	9/16	301-2709	301-2809
7/16	3-1/4	1	3/4	301-2710	301-2810
7/16	3-1/4	1	5/8	301-2711	301-2811
1/2	3-1/4	1	3/4	301-2712	301-2812
1/2	4-1/4	1-1/4	3/4	301-2713	301-2813
9/16	3-1/2	1	13/16	301-2714	301-2814
9/16	4-1/4	1-1/4	13/16	301-2715	301-2815
5/8	3-1/2	1	15/16	301-2716	301-2816
5/8	4-1/4	1-1/4	15/16	301-2717	301-2817
3/4	3-3/4	1	1-1/8	301-2718	301-2818
3/4	4-1/4	1-1/4	1-1/8	301-2719	301-2819
7/8	4-1/2	1-1/4	1-1/4	301-2720	301-2820
7/8	4-1/2	1-1/4	1-5/16	301-2721	301-2821
1	4-1/2	1-1/4	1-3/8	301-2722	301-2822
1	4-1/2	1-1/4	1-9/16	301-2723	301-2823

CORNER ROUNDING MILLING CUTTERS

High Speed Steel

Pressure Angle 20°

For each model listed from 0.5mm to 7mm, 8 cutters are required to produce a full set of gears from 10 teeth to a rack. Note: These cutters may be sharpened repeatedly without changing their original form.

For 20°

Pressure Angle



Cutter No.	Range of teeth cut.
1	12 & 13
2	14-16
3	17-20
4	21-2525
5	26-34
6	35-54
7	55-134
8	135 to BACK

Hole Dia	Hole Dia	Width of Face	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	Set(1-8)
0.5	40	16	1-0001	2-0001	3-0001	4-0001	5-0001	6-0001	7-0001	8-0001	S-0001
0.7	40	16	1-0002	2-0002	3-0002	4-0002	5-0002	6-0002	7-0002	8-0002	S-0002
1.0	50	16	1-0003	2-0003	3-0003	4-0003	5-0003	6-0003	7-0003	8-0003	S-0003
1.25	50	16	1-0004	2-0004	3-0004	4-0004	5-0004	6-0004	7-0004	8-0004	S-0004
1.5	56	22	1-0005	2-0005	3-0005	4-0005	5-0005	6-0005	7-0005	8-0005	S-0005
1.75	56	22	1-0006	2-0006	3-0006	4-0006	5-0006	6-0006	7-0006	8-0006	S-0006
2.0	63	22	1-0007	2-0007	3-0007	4-0007	5-0007	6-0007	7-0007	8-0007	S-0007
2.25	63	22	1-0008	2-0008	3-0008	4-0008	5-0008	6-0008	7-0008	8-0008	S-0008
2.5	63	22	1-0009	2-0009	3-0009	4-0009	5-0009	6-0009	7-0009	8-0009	S-0009
2.75	71	27	1-0010	2-0010	3-0010	4-0010	5-0010	6-0010	7-0010	8-0010	S-0010
3.00	71	27	1-0011	2-0011	3-0011	4-0011	5-0011	6-0011	7-0011	8-0011	S-0011
3.25	71	27	1-0012	2-0012	3-0012	4-0012	5-0012	6-0012	7-0012	8-0012	S-0012
3.50	80	27	1-0013	2-0013	3-0013	4-0013	5-0013	6-0013	7-0013	8-0013	S-0013
3.75	80	27	1-0014	2-0014	3-0014	4-0014	5-0014	6-0014	7-0014	8-0014	S-0014
4.0	80	27	1-0015	2-0015	3-0015	4-0015	5-0015	6-0015	7-0015	8-0015	S-0015
4.5	90	32	1-0016	2-0016	3-0016	4-0016	5-0016	6-0016	7-0016	8-0016	S-0016
5.0	90	32	1-0017	2-0017	3-0017	4-0017	5-0017	6-0017	7-0017	8-0017	S-0017
5.5	90	32	1-0018	2-0018	3-0018	4-0018	5-0018	6-0018	7-0018	8-0018	S-0018
6.0	100	32	1-0019	2-0019	3-0019	4-0019	5-0019	6-0019	7-0019	8-0019	S-0019
6.5	100	32	1-0020	2-0020	3-0020	4-0020	5-0020	6-0020	7-0020	8-0020	S-0020
7.0	100	32	1-0021	2-0021	3-0021	4-0021	5-0021	6-0021	7-0021	8-0021	S-0021

INVOLUTE GEAR CUTTERS

Pressure Angle 14-1/2° — Used to mill spur gears having a 14-1/2° pressure angle. For each diametral pitch listed, 8 cutters are required to produce a full set of gears from 12 teeth to rack. When ordering, state diametral pitch and the number of cutter from the chart in accordance with the number of teeth to be cut. Specify the arbor hole where choice exists. These cutters may be sharpened repeatedly without changing their original form.

Diametral Pitch	Cutter Dia.	Hole Dia.	Cutter #1	Cutter #2	Cutter #3	Cutter #4	Cutter #6	Cutter #7	Cutter #8
2	5-3/4	1-1/2	301-0701	301-0801	301-0901	301-1501	301-1601	301-1701	301-1801
2-1/2	5-3/4	1	301-0702	301-0802	301-0902	301-1502	301-1602	301-1702	301-1802
2-1/2	5-3/4	1-1/2	301-0703	301-0803	301-0903	301-1503	301-1603	301-1703	301-1803
3	4-3/4	1-1/4	301-0704	301-0804	301-0904	301-1504	301-1604	301-1704	301-1804
3	5-1/4	1-1/2	301-0705	301-0805	301-0905	301-1505	301-1605	301-1705	301-1805
3	5-1/4	1-1/4	301-0706	301-0806	301-0906	301-1506	301-1606	301-1706	301-1806
3	5-3/4	1-1/2	301-0707	301-0807	301-0907	301-1507	301-1607	301-1707	301-1807
4	3-5/8	1	301-0708	301-0808	301-0908	301-1508	301-1608	301-1708	301-1808
4	4-1/4	1-1/4	301-0709	301-0809	301-0909	301-1509	301-1609	301-1709	301-1809
4	4-1/2	1-1/2	301-0710	301-0810	301-0910	301-1510	301-1610	301-1710	301-1810
5	3-3/8	1	301-0711	301-0811	301-0911	301-1511	301-1611	301-1711	301-1811
5	3-3/4	1-1/4	301-0712	301-0812	301-0912	301-1512	301-1612	301-1712	301-1812
5	3-5/8	1	301-0713	301-0813	301-0913	301-1513	301-1613	301-1713	301-1813
6	3-1/8	1	301-0714	301-0814	301-0914	301-1514	301-1614	301-1714	301-1814
6	3-1/2	1-1/4	301-0715	301-0815	301-0915	301-1515	301-1615	301-1715	301-1815
7	2-7/8	1	301-0716	301-0816	301-0916	301-1516	301-1616	301-1716	301-1816
7	3-3/8	1-1/4	301-0717	301-0817	301-0917	301-1517	301-1617	301-1717	301-1817
8	2-7/8	1	301-0718	301-0818	301-0918	301-1518	301-1618	301-1718	301-1818
8	3-1/4	1-1/4	301-0719	301-0819	301-0919	301-1519	301-1619	301-1719	301-1819
9	2-3/4	1	301-0720	301-0820	301-0920	301-1520	301-1620	301-1720	301-1820
9	3-1/8	1-1/4	301-0721	301-0821	301-0921	301-1521	301-1621	301-1721	301-1821
10	2-3/8	7/8	301-0722	301-0822	301-0922	301-1522	301-1622	301-1722	301-1822
10	2-3/4	1	301-0723	301-0823	301-0923	301-1523	301-1623	301-1723	301-1823
11	2-3/8	7/8	301-0724	301-0824	301-0924	301-1524	301-1624	301-1724	301-1824
11	2-5/8	1	301-0725	301-0825	301-0925	301-1525	301-1625	301-1725	301-1825
12	2-1/4	7/8	301-0726	301-0826	301-0926	301-1526	301-1626	301-1726	301-1826
12	2-5/8	1	301-0727	301-0827	301-0927	301-1527	301-1627	301-1727	301-1827
14	2-1/8	7/8	301-0728	301-0828	301-0928	301-1528	301-1628	301-1728	301-1828
14	2-1/2	1	301-0729	301-0829	301-0929	301-1529	301-1629	301-1729	301-1829
16	2-1/8	7/8	301-0730	301-0830	301-0930	301-1530	301-1630	301-1730	301-1830
16	2-1/8	1	301-0731	301-0831	301-0931	301-1531	301-1631	301-1731	301-1831
16	2-1/2	1	301-0732	301-0832	301-0932	301-1532	301-1632	301-1732	301-1832
18	2	7/8	301-0733	301-0833	301-0933	301-1533	301-1633	301-1733	301-1833
18	2-3/8	1	301-0734	301-0834	301-0934	301-1534	301-1634	301-1734	301-1834
20	2	7/8	301-0735	301-0835	301-0935	301-1535	301-1635	301-1735	301-1835
20	2-3/8	1	301-0736	301-0836	301-0936	301-1536	301-1636	301-1736	301-1836
22	2	7/8	301-0737	301-0837	301-0937	301-1537	301-1637	301-1737	301-1837
22	2-1/4	1	301-0738	301-0838	301-0938	301-1538	301-1638	301-1738	301-1838
24	1-3/4	7/8	301-0739	301-0839	301-0939	301-1539	301-1639	301-1739	301-1839
24	2-1/4	1	301-0740	301-0840	301-0940	301-1540	301-1640	301-1740	301-1840
26	1-3/4	7/8	301-0741	301-0841	301-0941	301-1541	301-1641	301-1741	301-1841
26	2-1/4	1	301-0742	301-0842	301-0942	301-1542	301-1642	301-1742	301-1842
28	1-3/4	7/8	301-0743	301-0843	301-0943	301-1543	301-1643	301-1743	301-1843
28	2-1/4	1	301-0744	301-0844	301-0944	301-1544	301-1644	301-1744	301-1844
30	1-3/4	7/8	301-0745	301-0845	301-0945	301-1545	301-1645	301-1745	301-1845
30	2-1/4	1	301-0746	301-0846	301-0946	301-1546	301-1646	301-1746	301-1846
32	1-3/4	7/8	301-0747	301-0847	301-0947	301-1547	301-1647	301-1747	301-1847
32	2-1/4	1	301-0748	301-0848	301-0948	301-1548	301-1648	301-1748	301-1848
32	2-1/4	7/8	301-0749	301-0849	301-0949	301-1549	301-1649	301-1749	301-1849
36	1-3/4	7/8	301-0750	301-0850	301-0950	301-1550	301-1650	301-1750	301-1850
36	2-1/4	1	301-0751	301-0851	301-0951	301-1551	301-1651	301-1751	301-1851
40	1-3/4	7/8	301-0752	301-0852	301-0952	301-1552	301-1652	301-1752	301-1852
40	2-1/4	1	301-0753	301-0853	301-0953	301-1553	301-1653	301-1753	301-1853
48	1-3/4	7/8	301-0754	301-0854	301-0954	301-1554	301-1654	301-1754	301-1854
48	2-1/4	1	301-0755	301-0855	301-0955	301-1555	301-1655	301-1755	301-1855



Eight different cutters are available for each diametral pitch to produce a full set of gears from 12 teeth to a rack as follows:

Cutter No.	Will cut Gears From
1	135 to BACK
2	55-134
3	35-54
4	26-34
5	21-25
6	17-20
7	14-16
8	12-13

Cutters

CONVEX ARBOR TYPE MILLING CUTTER

HSS



Use for milling male half circle

- Teeth are from relieved and straight gashed
- Cutting surfaces may be resharpened on face without changing contour of form for increased tool life

Dia.of Circle	Dia.of Cutter	Hole Size	Model No.
1/16	2-1/4	1	317-0040
3/32	2-1/4	1	317-0065
1/8	2	7/8	317-0081
1/8	2-1/4	1	317-0099
5/32	2-1/4	1	317-0107
3/16	2	7/8	317-0123
3/16	2-1/4	1	317-0131
7/32	2-1/4	1	317-0149
1/4	2	7/8	317-0164
1/4	2-1/2	1	317-0172
1/4	4	1-1/4	317-0178
9/32	2-1/2	1	317-0180
5/16	2-1/4	7/8	317-0206
5/16	2-3/4	1	317-0214
11/32	2-3/4	1	317-0222
3/8	2-1/4	7/8	317-0248
3/8	2-3/4	1	317-0255
3/8	5	1-1/4	317-0260
13/32	2-3/4	1	317-0263
7/16	2-1/4	7/8	317-0278
7/16	3	1	317-0297
1/2	2-1/4	7/8	317-0321
1/2	3	1	317-0339
1/2	5	1-1/4	317-0350
9/16	2-3/4	1	317-0362
9/16	3	1	317-0389
5/8	2-3/4	1	317-0404
5/8	3-1/2	1-1/4	317-0412
11/16	3	1	317-0446
3/4	3	1	317-0487
3/4	3-3/4	1-1/4	317-0495
3/4	6	1-1/4	317-0510
13/16	3-1/4	1	317-0529
13/16	3-1/4	1-1/4	317-0536
7/8	3-1/4	1	317-0569
7/8	4	1-1/4	317-0578
15/16	3-1/2	1	317-0602
1	3-1/4	1	317-0644
1	4-1/4	1-1/4	317-0651
1	6	1-1/4	317-0700
1-1/8	4	1-1/4	317-1089
1-1/4	4	1-1/4	317-1162
1-3/8	4-1/4	1-1/4	317-1246
1-1/2	4-1/4	1-1/4	317-1329
1-5/8	5-1/2	1-1/4	317-1402
1-3/4	5-1/2	1-1/4	317-1485
1-7/8	6	1-1/2	317-1568
2	6	1-1/2	317-2004

CONCAVE ARBOR TYPE MILLING CUTTER



Dia.of Circle	Dia.of Cutter	Hole Size	Model No.
1/16	2-1/4	1	316-0041
3/32	2-1/4	1	316-0066
1/8	2	7/8	316-0090
1/8	2-1/4	1	316-0098
5/32	2-1/4	1	316-0108
3/16	2	7/8	316-0116
3/16	2-1/4	1	316-0132
7/32	2-1/4	1	316-0140
1/4	2	7/8	316-0165
1/4	2-1/2	1	316-0173
9/32	2-1/2	1	316-0181
5/16	2-3/4	1	316-0215
3/8	2-3/4	1	316-0256
7/16	3	1	316-0298
1/2	2-1/4	7/8	316-0322
1/2	3	1	316-0330
9/16	3	1	316-0363
5/8	3	1	316-0378
5/8	3-1/2	1-1/4	316-0413
11/16	3	1	316-0447
3/4	3	1	316-0488
3/4	3-3/4	1-1/4	316-0496
13/16	3-1/4	1	316-0520
7/8	3-1/4	1	316-0561
7/8	4	1-1/4	316-0579
15/16	3-1/2	1	316-0603
1	3-1/4	1	316-0645
1	4-1/4	1-1/4	316-0652
1-1/8	4	1-1/4	316-1080
1-1/4	4	1-1/4	316-1163
1-3/8	4-1/4	1-1/4	316-1247
1-1/2	4-1/4	1-1/4	316-1320
1-5/8	5-1/2	1-1/4	316-1403
1-3/4	5-1/2	1-1/4	316-1486
1-7/8	6	1-1/2	316-1569
2	6	1-1/2	316-2005

ARBOR TYPE SINGLE ANGLE CUTTER

HSS



Use for dovetails cutting

Cutter Dia.	Think.	Hole Size	45° Right Hand Model No.	45° Left Hand Model No.	60° Right Hand Model No.	60° Left Hand Model No.
2-1/2	1/2	7/8	328-0110	328-1110	328-2110	328-3110
2-3/4	1/2	1	328-0219	328-1219	328-2219	328-3219
3	1/2	1	328-0316	328-1316	328-2316	328-3316
3	1/2	1-1/4	328-0318	328-1318	328-2318	328-3318
3	5/8	1	328-0326	328-1326	328-2326	328-3326
3	5/8	1-1/4	328-0330	328-1330	328-2330	328-3330
3	3/4	1	328-0334	328-1334	328-2334	328-3334
3	3/4	1-1/4	328-0400	328-1400	328-2400	328-3400
4	1/2	1	328-0417	328-1417	328-2417	328-3417
4	1/2	1-1/4	328-0420	328-1420	328-2420	328-3420
4	3/4	1	328-0433	328-1433	328-2433	328-3433
4	3/4	1-1/4	328-0436	328-1436	328-2436	328-3436
4	1	1-1/4	328-0441	328-1441	328-2441	328-3441
5	3/4	1-1/4	328-0532	328-1532	328-2532	328-3532
5	1	1-1/4	328-0540	328-1540	328-2540	328-3540
6	3/4	1-1/4	328-0631	328-1631	328-2631	328-3631
6	1	1-1/4	328-0649	328-1649	328-2649	328-3649

DOUBLE ANGLE CUTTER ARBOR TYPE

HSS



Use for milling threads, notches, V-grooves angles, serrations and chamfers

Dia.	Think.	Hole Size	45° Model Number	60° Model Number	90° Model Number
2-3/4	1/2	1	328-4211	328-5211	328-6211
3	5/8	1	328-4328	328-5328	328-6328
3	3/4	1	328-4366	328-5366	328-6366
4	1/2	1-1/4	328-4427	328-5427	328-6427
4	3/4	1	328-4435	328-5435	328-6435
4	3/4	1-1/4	328-4446	328-5446	328-6446
4	1	1-1/4	328-4468	328-5468	328-6468
5	3/4	1-1/4	328-4534	328-5534	328-6534
5	1	1-1/4	328-4542	328-5542	328-6542
6	3/4	1-1/4	328-4633	328-5633	328-6633
6	1	1-1/4	328-4641	328-5641	328-6641
6	1-1/4	1-1/4	328-4649	328-5649	328-6649
6	1-1/2	1-1/4	328-4658	328-5658	328-6658

UNIVERSAL THREAD CUTTER GAGES



615-7000

square 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8 /angle 45° 53° 55° 60° 70° 75°



615-7001

Din 103, Tape 2, 3, 4, 5, 6, 7, 8, 9, 10, 12/ 30°



615-7002

Tape 2, 3, 4, 5, 6, 7, 8, 9, 10, 12/ whitworth 55° Metrisch 60° schnittwinkel 40° 45° 50° 55° 60° 65° 70° 75° 80°



615-7003

Tape 2, 3, 4, 5, 6, 7, 8, 9, 10, 12/ whitworth 55° Metrisch 60° square 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8



615-7004

Tape 2, 3, 4, 5, 6, 7, 8, 9, 10, 12/ whitworth 55° Metrisch 60° schnittwinkel, 40° 45° 50° 55° 60° 65° 70° 75° 80°

Cutters

CARBIDE TIPPED SIDE MILLING CUTTERS



For
Steel



For
Non-Ferrous



For
Cast Iron

			For Steel	For Non-Ferrous	For Cast Iron	For Stainless Steel
Cutter Face Dia.	Arbor Width	Hole	No. Of Teeth	Model No.	No. Of Teeth	Model No.
3"	1/4	1"	6	245-7001	6	245-6901
3"	5/16	1"	6	245-7002	6	245-6902
3"	3/8	1"	6	245-7003	6	245-6903
3"	7/16	1"	6	245-7004	6	245-6904
3"	1/2	1"	6	245-7005	6	245-6905
4"	1/4	1"	8	245-7006	8	245-6906
4"	5/16	1"	8	245-7007	8	245-6907
4"	3/8	1"	8	245-7008	8	245-6908
4"	3/8	1-1/4	8	245-7009	8	245-6909
4"	1/2	1"	8	245-7011	8	245-6911
4"	1/2	1-1/4	8	245-7012	8	245-6912
4"	5/8	1"	8	245-7014	8	245-6914
4"	5/8	1-1/4		245-6815	8	245-6915
4"	3/4	1"		245-6816	8	245-6916
4"	3/4	1-1/4		245-6817	8	245-6917
5"	1/2	1"	10	245-7017	10	245-6919
5"	1/2	1-1/4	10	245-7018	10	245-6920
5"	5/8	1-1/4	10	245-7020	10	245-6922
5"	3/4	1"		245-6823	10	245-6923
5"	3/4	1-1/4		245-6824	10	245-6924
6"	1/2	1"		245-6825	12	245-6925
6"	1/2	1-1/4		245-6826	12	245-6926
6"	5/8	1-1/4		245-6827	12	245-6927
6"	3/4	1"		245-6828	12	245-6928
6"	3/4	1-1/4		245-6829	12	245-6929
7"	3/4	1-1/4		245-6830	12	245-6930
8"	3/4	1-1/4		245-6831	12	245-6931
8"	3/4	1-1/2		245-6832	12	245-6932

Staggered Tooth for Steel

Cutter Face Dia.	Arbor Width	Hole	No. Of Teeth	Model No.
4"	3/4	1"	8	245-7044
4"	3/4	1-1/4	8	245-7045
5"	3/4	1"	10	245-7046
6"	3/4	1"	12	245-7049
6"	1"	1-1/4	12	245-7051

Staggered Tooth for Non- Ferrous and Cast Iron

Cutter Face Dia.	Arbor Width	Hole	For Non-Ferrous No. Of Teeth	For Non-Ferrous Model No.	For Cast Iron No. Of Teeth	For Cast Iron Model No.
5"	1"	1-1/4	8	245-6855	10	245-6955
6"	1"	1-1/4	8	245-6856	12	245-6956

CARBIDE TIPPED DOVETAIL CUTTERS

Straight Shank. C2 Grade

Features:

- Used for all dovetail work.
- Convenient for production and tool room work.



Cutter Dia.	Shank Dia.	Overall Length	No. Of Teeth	45° Cutter Width	45° Model No.	60° Cutter Width	60° Model No.
3/4	3/8	2-1/4	3	1/4	243-5048	1/4	243-5248
1"	1/2	2-1/2	4	5/16	243-5064	3/8	243-5264
1-1/4	5/8	2-3/4	4	3/8	243-5080	1/2	243-5280
1-1/2	3/4	3-1/4	4	1/2	243-5096	5/8	243-5296
2"	1"	4-1/4	6	5/8	243-5128	3/4	243-5328
2-1/2	1-1/4	4-3/8	6	3/4	243-5160	7/8	243-5360
3"	1-1/4	4-1/2	6	1"	243-5192	1-1/8	243-5392

CARBIDE TIPPED SHELL END MILLS



				Right hand Helix	Straight Flute	Left Hand Helix
Mill Dia.	Hole Dia.	Overall Length	No. Of Teeth	For Non-Ferrous	For Cast Iron	For Steel
1-1/4	1"	1/2	4	244-8601	244-8701	244-8801
1-1/2	1-1/8	1/2	4	244-8602	244-8702	244-8802
1-3/4	1-1/4	3/4	4	244-8603	244-8703	244-8803
2"	1-3/8	3/4	4	244-8604	244-8704	244-8804
2-1/4	1-1/2	1"	6	244-8605	244-8705	244-8805
2-1/2	1-5/8	1"	6	244-8606	244-8706	244-8806
2-3/4	1-5/8	1"	6	244-8607	244-8707	244-8807
3"	1-3/4	1-1/4	6	244-8608	244-8708	244-8808
3-1/2	1-7/8	1-1/4	6	244-8609	244-8709	244-8809
4"	2-1/4	1-1/2	6	244-8610	244-8710	244-8810

PLAIN METAL SLITTING SAWS-H.S.S.

Features:

- Used in slitting and slotting.
- Sides are concave for clearance.
- Supplied with Keyway.

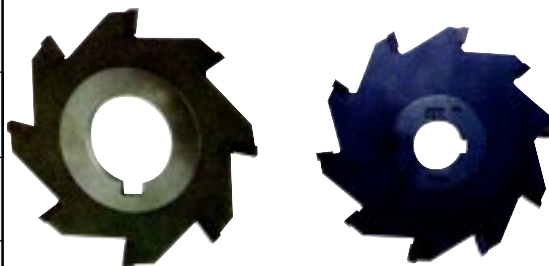


Cutting Diameter	Face Width	Hole Size	No. Of Teeth	Model No.
2"	1/16	1/2	28	370-4004
2"	1/8	1/2	28	370-4008
2-1/2	3/64	3/8	28	370-4013
2-1/2	1/32	7/8	28	370-4102
2-1/2	3/ 64	7/8	28	370-4103
2-1/2	1/16	7/8	28	370-4104
2-1/2	3/32	7/8	28	370-4106
2-1/2	1/8	7/8	28	370-4108
3"	1/64	1"	30	370-4201
3"	1/32	1"	30	370-4202
3"	3/64	1"	30	370-4203
3"	1/16	1"	30	370-4204
3"	5/64	1"	30	370-4205
3"	3/32	1"	30	370-4206
3"	7/64	1"	30	370-4207
3"	1/8	1"	30	370-4208
3"	9/64	1"	30	370-4209
3"	5/32	1"	30	370-4210
3-1/2	1/32	1"	30	370-4302
3-1/2	3/64	1"	30	370-4303
3-1/2	1/16	1"	30	370-4304
3-1/2	3/32	1"	30	370-4306
3-1/2	1/8	1"	30	370-4308
4"	1/64	1"	36	370-4401
4"	1/32	1"	36	370-4402
4"	3/64	1"	36	370-4403
4"	1/16	1"	36	370-4404
4"	5/64	1"	36	370-4405
4"	3/32	1"	36	370-4406
4"	7/64	1"	36	370-4407
4"	1/8	1"	36	370-4408
4"	9/64	1"	36	370-4409
4"	5/32	1"	36	370-4410
4"	3/16	1"	36	370-4412
4-1/2	1/32	1"	36	370-4502
4-1/2	3/64	1"	36	370-4503
4-1/2	1/16	1"	36	370-4504

Cutting Diameter	Face Width	Hole Size	No. Of Teeth	Model No.
4-1/2	3/32	1"	36	370-4506
4-1/2	1/8	1"	36	370-4508
5"	3/64	1"	40	370-4603
5"	1/16	1"	40	370-4604
5"	5/64	1"	40	370-4605
5"	3/32	1"	40	370-4606
5"	7/64	1"	40	370-4607
5"	1/8	1"	40	370-4608
5"	9/64	1"	40	370-4609
5"	5/32	1"	40	370-4610
5"	3/16	1"	40	370-4612
5"	1/16	1-1/4	40	370-4704
5"	3/32	1-1/4	40	370-4706
5"	1/8	1-1/4	40	370-4708
5"	5/32	1-1/4	40	370-4710
5"	3/16	1-1/4	40	370-4712
6"	3/64	1"	42	370-4803
6"	1/16	1"	42	370-4804
6"	5/64	1"	42	370-4805
6"	3/32	1"	42	370-4806
6"	7/64	1"	42	370-4807
6"	1/8	1"	42	370-4808
6"	9/64	1"	42	370-4809
6"	5/32	1"	42	370-4810
6"	3/16	1"	42	370-4812
6"	1/16	1-1/4	42	370-4904
6"	3/32	1-1/4	42	370-4906
6"	1/8	1-1/4	42	370-4908
6"	5/32	1-1/4	42	370-4910
6"	3/16	1-1/4	42	370-4912
8"	1/8	1"	48	370-5008
8"	3/16	1"	48	370-5012
8"	3/32	1-1/4	48	370-5106
8"	1/8	1-1/4	48	370-5108
8"	3/16	1-1/4	48	370-5112
10"	1/8	1-1/4	48	370-5208
10"	3/16	1-1/4	48	370-5212

			For Steel		For Non-Ferrous		For Stainless Steel	
Cutter Dia.	Face Width	Arbor Hole	No. Of Teeth	Model No.	No. Of Teeth	Model No.	No. Of Teeth	Model No.
3"	3/32	1"					8	245-6671
3"	1/8	1"					8	245-6672
3"	3/16	1"					8	245-6673
4"	3/32	1"			6	245-6501	10	245-6674
4"	1/8	1"	8	245-6546	6	245-6502	10	245-6675
4"	3/16	1"	8	245-6547	6	245-6503	10	245-6676
5"	3/32	1"					12	245-6677
5"	3/16	1"					12	245-6678
5"	3/16	1"					12	245-6679
6"	1/8	1-1/4	12	245-6548	8	245-6504	14	245-6680
6"	3/16	1-1/4	12	245-6549			14	245-6681
6"	1/4	1-1/4	12	245-6550			14	245-6682
8"	1/8	1-1/4			10	245-6505		

CARBIDE TIPPED METAL SLITTING SAWS



SCREW SLOTTING SAWS-H.S.S.**Features:**

- Used in slotting sheets and tubing.
- Good for shallow cuts and screw heads.
- Supplied with key-way.



Cutting Dia	Thickness	Hole Size	No. Of Teeth	Model No.
1-3/4"	.006"	5/8"	90	370-7006
1-3/4"	.008	5/8"	90	370-7008
1-3/4"	.010	5/8"	90	370-7010
1-3/4"	.012	5/8"	90	370-7012
1-3/4"	.014	5/8"	90	370-7014
1-3/4"	.016	5/8"	90	370-7016
1-3/4"	.018	5/8"	90	370-7018
1-3/4"	.020	5/8"	90	370-7020
1-3/4"	.023	5/8"	90	370-7023
1-3/4"	.025	5/8"	90	370-7025
1-3/4"	.028	5/8"	90	370-7028
1-3/4"	.032	5/8"	90	370-7032
1-3/4"	.036	5/8"	90	370-7036
1-3/4"	.040	5/8"	90	370-7040
1-3/4"	.045	5/8"	90	370-7045
1-3/4"	.051	5/8"	90	370-7051
1-3/4"	.057	5/8"	90	370-7057
1-3/4"	.064	5/8"	90	370-7064
2-1/4"	.010	5/8"	60	370-7110
2-1/4"	.012	5/8"	60	370-7112
2-1/4"	.014	5/8"	60	370-7114
2-1/4"	.016	5/8"	60	370-7116
2-1/4"	.018	5/8"	60	370-7118
2-1/4"	.020	5/8"	60	370-7120
2-1/4"	.023	5/8"	60	370-7123
2-1/4"	.025	5/8"	60	370-7125
2-1/4"	.028	5/8"	60	370-7128
2-1/4"	.032	5/8"	60	370-7132
2-1/4"	.036	5/8"	60	370-7136
2-1/4"	.040	5/8"	60	370-7140
2-1/4"	.045	5/8"	60	370-7145
2-1/4"	.051	5/8"	60	370-7151
2-1/4"	.057	5/8"	60	370-7157
2-1/4"	.064	5/8"	60	370-7164
2-1/4"	.072	5/8"	60	370-7172
2-1/4"	.081	5/8"	60	370-7181
2-1/4"	.091	5/8"	60	370-7191
2-1/4"	.102	5/8"	60	370-7202
2-3/4"	.010	3/4"	72	370-8010
2-3/4"	.012	3/4"	72	370-8012
2-3/4"	.014	3/4"	72	370-8014
2-3/4"	.016	3/4"	72	370-8016
2-3/4"	.018	3/4"	72	370-8018

Cutting Dia	Thickness	Hole Size	No. Of Teeth	Model No.
2-3/4"	.020"	3/4"	72	370-8020
2-3/4"	.023	3/4"	72	370-8023
2-3/4"	.025	3/4"	72	370-8025
2-3/4"	.028	3/4"	72	370-8028
2-3/4"	.032	3/4"	72	370-8032
2-3/4"	.036	3/4"	72	370-8036
2-3/4"	.040	3/4"	72	370-8040
2-3/4"	.045	3/4"	72	370-8045
2-3/4"	.051	3/4"	72	370-8051
2-3/4"	.057	3/4"	72	370-8057
2-3/4"	.064	3/4"	72	370-8064
2-3/4"	.072	3/4"	72	370-8072
2-3/4"	.081	3/4"	72	370-8081
2-3/4"	.091	3/4"	72	370-8091
2-3/4"	.102	3/4"	72	370-8102
2-3/4"	.114	3/4"	72	370-8114
2-3/4"	.128	3/4"	72	370-8128
2-3/4"	.010	1"	72	370-8210
2-3/4"	.012	1"	72	370-8212
2-3/4"	.014	1"	72	370-8214
2-3/4"	.016	1"	72	370-8216
2-3/4"	.018	1"	72	370-8218
2-3/4"	.020	1"	72	370-8220
2-3/4"	.023	1"	72	370-8223
2-3/4"	.025	1"	72	370-8225
2-3/4"	.028	1"	72	370-8228
2-3/4"	.032	1"	72	370-8232
2-3/4"	.036	1"	72	370-8236
2-3/4"	.040	1"	72	370-8240
2-3/4"	.045	1"	72	370-8245
2-3/4"	.051	1"	72	370-8251
2-3/4"	.057	1"	72	370-8257
2-3/4"	.064	1"	72	370-8264
2-3/4"	.072	1"	72	370-8272
2-3/4"	.081	1"	72	370-8281
2-3/4"	.091	1"	72	370-8291
2-3/4"	.102	1"	72	370-8302
2-3/4"	.114	1"	72	370-8314
2-3/4"	.128	1"	72	370-8328
2-3/4"	.144	1"	72	370-8344
2-3/4"	.162	1"	72	370-8362
2-3/4"	.182	1"	72	370-8382

SLITTING & SLOTTING SAW ARBORS

- Spring loaded mechanism readily accepts saw blades with hole diameters from 1/2" to 1"

- Black oxide finish

Shank Dia.	Overall Length	Inside Hole Dia.	Model No.
1/2"	2-9/16"	1/2, 5/8, 3/4, 7/8, 1"	712-0005
1/2"	4-3/4"	3/8"	712-1010
R8	5-3/32"	1/2, 5/8, 3/4, 7/8, 1"	712-0010

- A hex head screw makes saws firmly in position.

CIRCULAR SAW ARBOR

Use with saw blades .001" to 3/16" thick. black oxide finish

Circular Saw Arbor Set**712-0300**

3pcs /set, 1/2", 5/8", 3/4" in wooden stand

Flange Size	Shank	Inside Hole Dia.	Model No.
1/2	1/2	1/4"	712-0205
5/8	1/2	3/8"	712-0210
3/4	1/2	1/2"	712-0215
1	5/8	5/8"	712-0220

METRIC PLAIN METAL SLOTTING SAWS

DIN 1838B, H.S.S.

Features

- For general purpose slotting and cut-off operations.
- The number of teeth given is the standard number which is supplied for general purpose work.



Width of Face	Cutter Dia.	Arbor Dia	No. Of Teeth	Model No.
0.3	50	13	48	373-0003
0.4	50	13	48	373-0004
0.5	50	13	48	373-0005
0.6	50	13	48	373-0006
0.8	50	13	40	373-0008
1.0	50	13	40	373-0010
1.2	50	13	40	373-0012
1.6	50	13	32	373-0016
2.0	50	13	32	373-0020
2.5	50	13	32	373-0025
3.0	50	13	24	373-0030
4.0	50	13	24	373-0040
5.0	50	13	24	373-0050
6.0	50	13	20	373-0060
0.5	63	16	64	373-0105
0.6	63	16	48	373-0106
0.8	63	16	48	373-0108
1.0	63	16	48	373-0110
1.2	63	16	40	373-0112
1.6	63	16	40	373-0116
1.7	63	16	40	373-0117
2.0	63	16	40	373-0120
2.5	63	16	32	373-0125
3.0	63	16	32	373-0130
4.0	63	16	32	373-0140
5.0	63	16	24	373-0150
6.0	63	16	24	373-0160
0.5	80	22	64	373-0205
0.6	80	22	64	373-0206
0.8	80	22	64	373-0208
1.0	80	22	48	373-0210
1.2	80	22	48	373-0212
1.6	80	22	48	373-0216
2.0	80	22	40	373-0220
2.5	80	22	40	373-0225
3.0	80	22	40	373-0230
4.0	80	22	32	373-0240
5.0	80	22	32	373-0250
6.0	80	22	32	373-0260
0.6	80	27	64	373-0306
0.8	80	27	64	373-0308
1.0	80	27	48	373-0310
1.2	80	27	48	373-0312
1.6	80	27	48	373-0316
2.0	80	27	40	373-0320
2.5	80	27	40	373-0325
3.0	80	27	40	373-0330
4.0	80	27	32	373-0340
0.6	100	22	80	373-0406
0.8	100	22	64	373-0408
1.0	100	22	64	373-0410
1.2	100	22	64	373-0412
1.6	100	22	48	373-0416
2.0	100	22	48	373-0420
2.5	100	22	48	373-0425
3.0	100	22	40	373-0430
4.0	100	22	40	373-0440
5.0	100	22	40	373-0450

Width of Face	Cutter Dia.	Arbor Dia	No. Of Teeth	Model No.
6.0	100	22	32	373-0460
0.8	100	27	64	373-0508
1.0	100	27	64	373-0510
1.2	100	27	64	373-0512
1.6	100	27	48	373-0516
2.0	100	27	48	373-0520
2.5	100	27	48	373-0525
3.0	100	27	40	373-0530
4.0	100	27	40	373-0540
5.0	100	27	40	373-0550
0.8	125	22	80	373-0608
1.0	125	22	80	373-0610
1.2	125	22	64	373-0612
1.6	125	22	64	373-0616
2.0	125	22	64	373-0620
2.5	125	22	48	373-0625
3.0	125	22	48	373-0630
4.0	125	22	48	373-0640
5.0	125	22	40	373-0650
6.0	125	22	40	373-0660
0.8	125	27	80	373-0708
1.0	125	27	80	373-0710
1.2	125	27	64	373-0712
1.6	125	27	64	373-0716
2.0	125	27	64	373-0720
2.5	125	27	48	373-0725
3.0	125	27	48	373-0730
4.0	125	27	48	373-0740
5.0	125	27	40	373-0750
1.0	160	32	80	373-0810
1.2	160	32	80	373-0812
1.6	160	32	80	373-0816
2.0	160	32	64	373-0820
2.5	160	32	64	373-0825
3.0	160	32	64	373-0830
4.0	160	32	48	373-0840
5.0	160	32	48	373-0850
6.0	160	32	48	373-0860
1.2	200	32	100	373-0912
1.6	200	32	80	373-0916
2.0	200	32	80	373-0920
2.5	200	32	80	373-0925
3.0	200	32	64	373-0930
4.0	200	32	64	373-0940
5.0	200	32	64	373-0950
6.0	200	32	48	373-0960
1.6	250	32	100	373-1016
2.0	250	32	100	373-1020
2.5	250	32	80	373-1025
3.0	250	32	80	373-1030
4.0	250	32	80	373-1040
5.0	250	32	64	373-1050
6.0	250	32	64	373-1060
2.5	315	40	100	373-1125
3.0	315	40	100	373-1130
4.0	315	40	80	373-1140
5.0	315	40	80	373-1150
6.0	315	40	80	373-1160

METRIC PLAIN METAL SLOTTING SAWS

DIN 1837 A, H.S.S.

Features:

- For general purpose slotting and cut-off operations.
- The number of teeth given is the standard number which is supplied for general purpose work.



Width Of Face	Cutter Dia	Arbor Dia	No. Of Teeth	Model No.
0.2	20	5	80	373-1201
0.25	20	5	64	373-1202
0.3	20	5	64	373-1203
0.4	20	5	64	373-1204
0.5	20	5	48	373-1205
0.6	20	5	48	373-1206
0.8	20	5	48	373-1208
1.0	20	5	40	373-1210
1.2	20	5	40	373-1212
1.6	20	5	40	373-1216
2.0	20	5	32	373-1220
2.5	20	5	32	373-1225
3.0	20	5	32	373-1230
4.0	20	5	24	373-1240
5.0	20	5	24	373-1250
6.0	20	5	24	373-1260
0.2	25	8	80	373-1301
0.25	25	8	80	373-1302
0.3	25	8	80	373-1303
0.4	25	8	64	373-1304
0.5	25	8	64	373-1305
0.6	25	8	64	373-1306
0.8	25	8	48	373-1308
1.0	25	8	48	373-1310
1.2	25	8	48	373-1312
1.6	25	8	40	373-1316
2.0	25	8	40	373-1320
2.5	25	8	40	373-1325
3.0	25	8	32	373-1330
4.0	25	8	32	373-1340
5.0	25	8	32	373-1350
6.0	25	8	24	373-1360
0.2	32	8	100	373-1401
0.25	32	8	100	373-1402
0.3	32	8	80	373-1403
0.4	32	8	80	373-1404
0.5	32	8	80	373-1405
0.6	32	8	64	373-1406
0.8	32	8	64	373-1408
1.0	32	8	64	373-1410
1.2	32	8	48	373-1412
1.6	32	8	48	373-1416
2.0	32	8	48	373-1420
2.5	32	8	40	373-1425
3.0	32	8	40	373-1430
4.0	32	8	40	373-1440
5.0	32	8	32	373-1450
6.0	32	8	32	373-1460
0.2	40	10	128	373-1501
0.25	40	10	100	373-1502
0.3	40	10	100	373-1503
0.4	40	10	100	373-1504
0.5	40	10	80	373-1505
0.6	40	10	80	373-1506
0.8	40	10	80	373-1508
1.0	40	10	64	373-1510
1.2	40	10	64	373-1512
1.6	40	10	64	373-1516
2.0	40	10	48	373-1520
2.5	40	10	48	373-1525
3.0	40	10	48	373-1530
4.0	40	10	40	373-1540
5.0	40	10	40	373-1550
6.0	40	10	40	373-1560
0.2	50	13	128	373-1601

Width Of Face	Cutter Dia	Arbor Dia	No. Of Teeth	Model No.
0.25	50	13	128	373-1602
0.3	50	13	128	373-1603
0.4	50	13	100	373-1604
0.5	50	13	100	373-1605
0.6	50	13	100	373-1606
0.8	50	13	80	373-1608
1.0	50	13	80	373-1610
1.2	50	13	80	373-1612
1.6	50	13	64	373-1616
2.0	50	13	64	373-1620
2.5	50	13	64	373-1625
3.0	50	13	48	373-1630
4.0	50	13	48	373-1640
5.0	50	13	48	373-1650
6.0	50	13	40	373-1660
0.25	63	16	160	373-1702
0.3	63	16	128	373-1703
0.4	63	16	128	373-1704
0.5	63	16	128	373-1705
0.6	63	16	100	373-1706
0.8	63	16	100	373-1708
1.0	63	16	100	373-1710
1.2	63	16	80	373-1712
1.6	63	16	80	373-1716
1.7	63	16	80	373-1717
2.0	63	16	80	373-1720
2.5	63	16	64	373-1725
3.0	63	16	64	373-1730
4.0	63	16	64	373-1740
5.0	63	16	48	373-1750
6.0	63	16	48	373-1760
0.3	80	22	160	373-1803
0.4	80	22	160	373-1804
0.5	80	22	128	373-1805
0.6	80	22	128	373-1806
0.8	80	22	128	373-1808
1.0	80	22	100	373-1810
1.2	80	22	100	373-1812
1.6	80	22	100	373-1816
2.0	80	22	80	373-1820
2.5	80	22	80	373-1825
3.0	80	22	80	373-1830
4.0	80	22	64	373-1840
5.0	80	22	64	373-1850
6.0	80	22	64	373-1860
0.5	80	27	128	373-1905
0.6	80	27	128	373-1906
0.8	80	27	128	373-1908
1.0	80	27	100	373-1910
1.2	80	27	100	373-1912
1.6	80	27	100	373-1916
2.0	80	27	80	373-1920
2.5	80	27	80	373-1925
3.0	80	27	80	373-1930
4.0	80	27	64	373-1940
0.5	100	22	160	373-2005
0.6	100	22	160	373-2006
0.8	100	22	128	373-2008
1.0	100	22	128	373-2010
1.2	100	22	128	373-2012
1.6	100	22	100	373-2016
2.0	100	22	100	373-2020
2.5	100	22	100	373-2025
3.0	100	22	80	373-2030

Width Of Face	Cutter Dia	Arbor Dia	No. Of Teeth	Model No.
4.0	100	22	80	373-2040
5.0	100	22	80	373-2050
6.0	100	22	64	373-2060
0.5	100	27	160	373-2105
0.6	100	27	160	373-2106
0.8	100	27	128	373-2108
1.0	100	27	128	373-2110
1.2	100	27	128	373-2112
1.6	100	27	100	373-2116
2.0	100	27	100	373-2120
2.5	100	27	100	373-2125
3.0	100	27	80	373-2130
4.0	100	27	80	373-2140
5.0	100	27	80	373-2150
0.6	125	22	160	373-2206
0.8	125	22	160	373-2208
1.0	125	22	160	373-2210
1.2	125	22	128	373-2212
1.6	125	22	128	373-2216
2.0	125	22	128	373-2220
2.5	125	22	100	373-2225
3.0	125	22	100	373-2230
4.0	125	22	100	373-2240
5.0	125	22	80	373-2250
6.0	125	22	80	373-2260
0.8	125	27	80	373-2308
1.0	125	27	80	373-2310
1.2	125	27	64	373-2312
1.6	125	27	64	373-2316
2.0	125	27	64	373-2320
2.5	125	27	48	373-2325
3.0	125	27	48	373-2330
4.0	125	27	48	373-2340
5.0	125	27	40	373-2350
1.0	160	32	160	373-2410
1.2	160	32	160	373-2412
1.6	160	32	160	373-2416
2.0	160	32	128	373-2420
2.5	160	32	128	373-2425
3.0	160	32	128	373-2430
4.0	160	32	100	373-2440
5.0	160	32	100	373-2450
6.0	160	32	100	373-2460
1.0	200	32	200	373-2510
1.2	200	32	200	373-2512
1.6	200	32	160	373-2516
2.0	200	32	160	373-2520
2.5	200	32	160	373-2525
3.0	200	32	128	373-2530
4.0	200	32	128	373-2540
5.0	200	32	128	373-2550
6.0	200	32	100	373-2560
1.6	250	32	200	373-2616
2.0	250	32	200	373-2620
2.5	250	32	160	373-2625
3.0	250	32	160	373-2630
4.0	250	32	160	373-2640
5.0	250	32	128	373-2650
6.0	250	32	128	373-2660
2.0	315	40	200	373-2720
3.0	315	40	200	373-2730
4.0	315	40	160	373-2740
5.0	315	40	160	373-2750
6.0	315	40	160	373-2760

JEWELERS SLOTTING SAWS

H.S.S



Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
1	.006	3/8	98	373-2801
1	.008	1/4	98	373-2802
1	.008	5/16	98	373-2803
1	.008	3/8	98	373-2804
1	.008	1/2	98	373-2805
1	.010	1/4	98	373-2806
1	.010	5/16	98	373-2807
1	.010	3/8	98	373-2808
1	.010	1/2	98	373-2809
1	.012	1/4	76	373-2810
1	.012	5/16	76	373-2811
1	.012	3/8	76	373-2812
1	.012	1/2	76	373-2813
1	.014	1/4	76	373-2814
1	.014	5/16	76	373-2815
1	.014	3/8	76	373-2816
1	.014	1/2	76	373-2817
1	.016	1/4	76	373-2818
1	.016	5/16	76	373-2819
1	.016	3/8	76	373-2820
1	.016	1/2	76	373-2821
1	.018	1/4	76	373-2822
1	.018	5/16	76	373-2823
1	.018	3/8	76	373-2824
1	.018	1/2	76	373-2825
1	.020	1/4	76	373-2826
1	.020	5/16	76	373-2827
1	.020	3/8	76	373-2828
1	.020	1/2	76	373-2829
1	.023	1/4	76	373-2830
1	.023	5/16	76	373-2831
1	.023	3/8	76	373-2832
1	.023	1/2	76	373-2833
1	.025	1/4	76	373-2834
1	.025	5/16	76	373-2835
1	.025	3/8	76	373-2836
1	.025	1/2	76	373-2837
1	.028	1/4	76	373-2838
1	.028	5/16	76	373-2839
1	.028	3/8	76	373-2840
1	.028	1/2	76	373-2841
1	.032	1/4	76	373-2842
1	.032	5/16	76	373-2843
1	.032	3/8	76	373-2844
1	.032	1/2	76	373-2845
1-1/4	.006	3/8	120	373-2846
1-1/4	.008	5/16	120	373-2847
1-1/4	.008	3/8	120	373-2848
1-1/4	.008	1/2	120	373-2849
1-1/4	.010	5/16	120	373-2850
1-1/4	.010	3/8	120	373-2851
1-1/4	.010	1/2	120	373-2852
1-1/4	.012	5/16	120	373-2853
1-1/4	.012	3/8	120	373-2854
1-1/4	.012	1/2	120	373-2855
1-1/4	.014	5/16	98	373-2856
1-1/4	.014	3/8	98	373-2857
1-1/4	.014	1/2	98	373-2858
1-1/4	.016	5/16	98	373-2859
1-1/4	.016	3/8	98	373-2860
1-1/4	.016	1/2	98	373-2861
1-1/4	.018	5/16	98	373-2862
1-1/4	.018	3/8	98	373-2863

Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
1-1/4	.018	1/2	98	373-2864
1-1/4	.020	5/16	98	373-2865
1-1/4	.020	3/8	98	373-2866
1-1/4	.020	1/2	98	373-2867
1-1/4	.023	5/16	98	373-2868
1-1/4	.023	3/8	98	373-2869
1-1/4	.023	1/2	98	373-2870
1-1/4	.025	5/16	98	373-2871
1-1/4	.025	3/8	98	373-2872
1-1/4	.025	1/2	98	373-2873
1-1/4	.028	5/16	98	373-2874
1-1/4	.028	3/8	98	373-2875
1-1/4	.028	1/2	98	373-2876
1-1/4	.032	5/16	98	373-2877
1-1/4	.032	3/8	98	373-2878
1-1/4	.032	1/2	98	373-2879
1-1/2	.006	1/2	140	373-2880
1-1/2	.008	3/8	140	373-2881
1-1/2	.008	1/2	140	373-2882
1-1/2	.010	3/8	140	373-2883
1-1/2	.010	1/2	140	373-2884
1-1/2	.012	3/8	140	373-2885
1-1/2	.012	1/2	140	373-2886
1-1/2	.014	3/8	110	373-2887
1-1/2	.014	1/2	110	373-2888
1-1/2	.016	3/8	110	373-2889
1-1/2	.016	1/2	110	373-2890
1-1/2	.018	3/8	110	373-2891
1-1/2	.018	1/2	110	373-2892
1-1/2	.020	3/8	110	373-2893
1-1/2	.020	1/2	110	373-2894
1-1/2	.023	3/8	110	373-2895
1-1/2	.023	1/2	110	373-2896
1-1/2	.025	3/8	110	373-2897
1-1/2	.025	1/2	110	373-2898
1-1/2	.028	3/8	110	373-2899
1-1/2	.028	1/2	110	373-2900
1-1/2	.032	3/8	110	373-2901
1-1/2	.032	1/2	110	373-2902
1-3/4	.006	1/2	160	373-2903
1-3/4	.008	3/8	160	373-2904
1-3/4	.008	1/2	160	373-2905
1-3/4	.010	3/8	160	373-2906
1-3/4	.010	1/2	160	373-2907
1-3/4	.012	3/8	160	373-2908
1-3/4	.012	1/2	160	373-2909
1-3/4	.014	3/8	132	373-2910
1-3/4	.014	1/2	132	373-2911
1-3/4	.016	3/8	132	373-2912
1-3/4	.016	1/2	132	373-2913
1-3/4	.018	3/8	132	373-2914
1-3/4	.018	1/2	132	373-2915
1-3/4	.020	3/8	132	373-2916
1-3/4	.020	1/2	132	373-2917
1-3/4	.023	3/8	132	373-2918
1-3/4	.023	1/2	132	373-2919
1-3/4	.025	3/8	132	373-2920
1-3/4	.025	1/2	132	373-2921
1-3/4	.028	3/8	132	373-2922
1-3/4	.028	1/2	132	373-2923
1-3/4	.032	3/8	132	373-2924
1-3/4	.032	1/2	132	373-2925
2	.006	1/2	190	373-2926
2	.008	3/8	190	373-2927
2	.008	1/2	190	373-2928
2	.010	3/8	190	373-2929
2	.010	1/2	190	373-2930
2	.012	3/8	190	373-2931
2	.012	1/2	190	373-2932
2	.014	3/8	152	373-2933
2	.014	1/2	152	373-2934
2	.016	3/8	152	373-2935
2	.016	1/2	152	373-2936

JEWELERS SLOTTING SAWS--(continued)

Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
2	.018	3/8	152	373-2937
2	.018	1/2	152	373-2938
2	.020	3/8	152	373-2939
2	.020	1/2	152	373-2940
2	.023	3/8	152	373-2941
2	.023	1/2	152	373-2942
2	.025	3/8	152	373-2943
2	.025	1/2	152	373-2944
2	.028	3/8	152	373-2945
2	.028	1/2	152	373-2946
2	.032	3/8	110	373-2947
2	.032	1/2	110	373-2948
2	.035	3/8	110	373-2949
2	.035	1/2	110	373-2950
2	.040	3/8	110	373-2951
2	.040	1/2	110	373-2952
2	.045	3/8	110	373-2953
2	.045	1/2	110	373-2954
2	.051	3/8	110	373-2955
2	.051	1/2	110	373-2956
2	.057	3/8	110	373-2957
2	.057	1/2	110	373-2958
2-1/4	.008	1/2	210	373-2959
2-1/4	.010	1/2	210	373-2960
2-1/4	.012	1/2	210	373-2961
2-1/4	.014	1/2	210	373-2962
2-1/4	.016	1/2	210	373-2963
2-1/4	.018	1/2	210	373-2964
2-1/2	.006	1/2	240	373-2965
2-1/2	.008	1/2	240	373-2966
2-1/2	.010	1/2	240	373-2967
2-1/2	.012	1/2	240	373-2968
2-1/2	.014	1/2	190	373-2969
2-1/2	.016	1/2	190	373-2970
2-1/2	.018	1/2	190	373-2971
2-1/2	.020	1/2	190	373-2972
2-1/2	.023	1/2	190	373-2973
2-1/2	.025	1/2	190	373-2974
2-1/2	.028	1/2	190	373-2975
2-1/2	.032	1/2	140	373-2976
2-1/2	.035	1/2	140	373-2977
2-1/2	.040	1/2	140	373-2978
2-1/2	.045	1/2	140	373-2979
2-1/2	.051	1/2	140	373-2980
2-1/2	.057	1/2	140	373-2981
3	.008	1/2	280	373-2982
3	.008	1	280	373-2983
3	.010	1/2	280	373-2984
3	.010	3/4	280	373-2985
3	.010	1	280	373-2986
3	.012	1/2	280	373-2987
3	.012	3/4	280	373-2988
3	.012	1	280	373-2989
3	.014	1/2	230	373-2990
3	.014	3/4	230	373-2991
3	.014	1	230	373-2992
3	.016	1/2	230	373-2993
3	.016	3/4	230	373-2994
3	.016	1	230	373-2995
3	.018	1/2	230	373-2996
3	.018	3/4	230	373-2997
3	.018	1	230	373-2998
3	.020	1/2	230	373-2999
3	.020	3/4	230	373-3000
3	.020	1	230	373-3001
3	.023	1/2	230	373-3002
3	.023	3/4	230	373-3003
3	.023	1	230	373-3004
3	.025	1/2	230	373-3005
3	.025	3/4	230	373-3006
3	.025	1	230	373-3007
3	.028	1/2	230	373-3008
3	.028	3/4	230	373-3009

Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
3	.028	1	230	373-3010
3	.032	1/2	168	373-3011
3	.032	3/4	168	373-3012
3	.032	1	168	373-3013
3	.035	1/2	168	373-3014
3	.035	3/4	168	373-3015
3	.035	1	168	373-3016
3	.040	1/2	168	373-3017
3	.040	3/4	168	373-3018
3	.040	1	168	373-3019
3	.045	1/2	168	373-3020
3	.045	3/4	168	373-3021
3	.045	1	168	373-3022
3	.051	1/2	168	373-3023
3	.051	3/4	168	373-3024
3	.051	1	168	373-3025
3	.057	1/2	168	373-3026
3	.057	3/4	168	373-3027
3	.057	1	168	373-3028
4	.010	1/2	310	373-3029
4	.010	1	310	373-3030
4	.012	1/2	310	373-3031
4	.012	1	310	373-3032
4	.014	1/2	310	373-3033
4	.014	1	310	373-3034
4	.016	1/2	310	373-3035
4	.016	3/4	310	373-3036
4	.016	1	310	373-3037
4	.018	1/2	310	373-3038
4	.018	3/4	310	373-3039
4	.018	1	310	373-3040
4	.020	1/2	310	373-3041
4	.020	3/4	310	373-3042
4	.020	1	310	373-3043
4	.023	1/2	310	373-3044
4	.023	3/4	310	373-3045
4	.023	1	310	373-3046
4	.025	1/2	310	373-3047
4	.025	3/4	310	373-3048
4	.025	1	310	373-3049
4	.028	1/2	310	373-3050
4	.028	3/4	310	373-3051
4	.028	1	310	373-3052
4	.032	1/2	220	373-3053
4	.032	3/4	220	373-3054
4	.032	1	220	373-3055
4	.035	1/2	220	373-3056
4	.035	3/4	220	373-3057
4	.035	1	220	373-3058
4	.040	1/2	220	373-3059
4	.040	3/4	220	373-3060
4	.040	1	220	373-3061
4	.045	1/2	220	373-3062
4	.045	3/4	220	373-3063
4	.045	1	220	373-3064
4	.051	1/2	220	373-3065
4	.051	3/4	220	373-3066
4	.051	1	220	373-3067
4	.057	1/2	220	373-3068
4	.057	3/4	220	373-3069
4	.057	1	220	373-3070
4	.064	1/2	220	373-3071
4	.064	3/4	220	373-3072
4	.064	1	220	373-3073
5	.016	1/2	380	373-3074
5	.016	1	380	373-3075
5	.018	1/2	380	373-3076
5	.018	1	380	373-3077
5	.020	1/2	380	373-3078
5	.020	1	380	373-3079
5	.023	1/2	380	373-3080
5	.023	1	380	373-3081
5	.025	1/2	380	373-3082
5	.025	1	380	373-3083

JEWELERS SLOTTING SAWS--(continued)

Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
5	.028	1/2	280	373-3084
5	.028	1	280	373-3085
5	.032	1/2	280	373-3086
5	.032	1	280	373-3087
5	.035	1/2	280	373-3085
5	.035	1	280	373-3086
5	.040	1/2	280	373-3087
5	.040	1	280	373-3088
5	.045	1/2	280	373-3089
5	.045	1	280	373-3090
5	.051	1/2	280	373-3091
5	.051	1	280	373-3092
5	.057	1/2	280	373-3093
5	.057	1	280	373-3094
5	.064	1/2	280	373-3095
5	.064	1	280	373-3096
6	.025	1/2	460	373-3097
6	.025	1	460	373-3098
6	.028	1/2	340	373-3099
6	.028	1	340	373-3100
6	.032	1/2	340	373-3101
6	.032	1	340	373-3102

Dia.	Thickness	Hole Dia	Teeth Per saw	Model No.
6	.035	1/2	340	373-3103
6	.035	1	340	373-3104
6	.040	1/2	340	373-3105
6	.040	1	340	373-3106
6	.045	1/2	340	373-3107
6	.045	1	340	373-3108
6	.051	1/2	232	373-3109
6	.051	1	232	373-3110
6	.057	1/2	232	373-3111
6	.057	1	232	373-3112
6	.064	1/2	232	373-3113
6	.064	1	232	373-3114
6	.072	1/2	232	373-3115
6	.072	1	232	373-3116
6	.081	1/2	232	373-3117
6	.081	1	232	373-3118
6	.091	1/2	232	373-3119
6	.091	1	232	373-3120
6	.102	1/2	232	373-3121
6	.102	1	232	373-3122
6	.114	1/2	232	373-3123
6	.114	1	232	373-3124
6	.128	1/2	232	373-3125
6	.128	1	232	373-3126

METAL SLITTING SAWS

WITH SIDE CHIP CLEARANCE

Dia.	Thickness	Hole Dia	No. of Teeth	Model No.
2	1/16	5/8	22	373-3200
2	5/64	5/8	22	373-3201
2	3/32	5/8	22	373-3202
2	7/64	5/8	22	373-3203
2	1/8	5/8	22	373-3204
2	9/64	5/8	22	373-3205
2	5/32	5/8	22	373-3206
2-1/2	1/16	7/8	28	373-3207
2-1/2	1/16	1	28	373-3208
2-1/2	5/64	7/8	28	373-3209
2-1/2	3/32	7/8	28	373-3210
2-1/2	3/32	1	28	373-3211
2-1/2	7/64	7/8	28	373-3212
2-1/2	1/8	7/8	28	373-3213
2-1/2	1/8	1	28	373-3214
2-1/2	9/64	7/8	28	373-3215
2-1/2	11/64	7/8	28	373-3216
2-1/2	3/16	7/8	28	373-3217
3	1/16	1	32	373-3218
3	5/64	1	32	373-3219
3	5/64	1-1/4	32	373-3220
3	3/32	1	32	373-3221
3	7/64	1	32	373-3222
3	7/64	1-1/4	32	373-3223
3	1/8	1	32	373-3224
3	9/64	1	32	373-3225
3	9/64	1-1/4	32	373-3226
3	5/32	1	32	373-3227
3	11/64	1	32	373-3228
3	11/64	1-1/4	32	373-3229
3	3/16	1	32	373-3230
3	3/16	1-1/4	32	373-3231
3	7/32	1	32	373-3232
3	7/32	1-1/4	32	373-3233
3	1/4	1	32	373-3234
3	1/4	1-1/4	32	373-3235
4	1/16	1	36	373-3236
4	1/16	1-1/4	36	373-3237
4	5/64	1	36	373-3238
4	5/64	1-1/4	36	373-3239
4	3/32	1	36	373-3240
4	3/32	1-1/4	36	373-3241



Dia.	Thickness	Hole Dia	No. of Teeth	Model No.
4	7/64	1	36	373-3242
4	7/64	1-1/4	36	373-3243
4	1/8	1	36	373-3244
4	1/8	1-1/4	36	373-3245
4	9/64	1	36	373-3246
4	9/64	1-1/4	36	373-3247
4	5/32	1	36	373-3248
4	5/32	1-1/4	36	373-3249
4	11/64	1	36	373-3250
4	11/64	1-1/4	36	373-3251
4	3/16	1	36	373-3252
4	3/16	1-1/4	36	373-3253
4	7/32	1	36	373-3254
4	7/32	1-1/4	36	373-3255
4	1/4	1	36	373-3256
4	1/4	1-1/4	36	373-3257
5	1/16	1	40	373-3258
5	1/16	1-1/4	40	373-3259
5	3/32	1	40	373-3260
5	3/32	1-1/4	40	373-3261
5	7/64	1	40	373-3262
5	7/64	1-1/4	40	373-3263
5	1/8	1	40	373-3264
5	1/8	1-1/4	40	373-3265
5	9/64	1	40	373-3267
5	9/64	1-1/4	40	373-3268
5	5/32	1	40	373-3269
5	5/32	1-1/4	40	373-3270
5	11/64	1	40	373-3271
5	11/64	1-1/4	40	373-3272
5	3/16	1	40	373-3273
5	3/16	1-1/4	40	373-3274
5	7/32	1	40	373-3275
5	7/32	1-1/4	40	373-3276
5	1/4	1	40	373-3277
5	1/4	1-1/4	40	373-3278

METAL SLITTING SAWS--(Continued)

Dia.	Thickness	Hole Dia	No.of Teeth	Model No.
6	1/4	1	42	373-3279
6	1/4	1-1/4	42	373-3280
6	1/16	1	42	373-3281
6	1/16	1-1/4	42	373-3282
6	3/32	1	42	373-3283
6	3/32	1-1/4	42	373-3284
6	7/64	1	42	373-3285
6	7/64	1-1/4	42	373-3286
6	1/8	1	42	373-3287
6	1/8	1-1/4	42	373-3288
6	9/64	1	42	373-3289
6	9/64	1-1/4	42	373-3290
6	5/32	1	42	373-3291
6	5/32	1-1/4	42	373-3292

Dia.	Thickness	Hole Dia	No.of Teeth	Model No.
6	11/64	1	42	373-3293
6	11/64	1-1/4	42	373-3294
6	3/16	1	42	373-3295
6	3/16	1-1/4	42	373-3296
6	1/4	1	42	373-3297
6	1/4	1-1/4	42	373-3298
8	1/8	1	48	373-3299
8	1/8	1-1/4	48	373-3310
8	3/16	1-1/4	48	373-3311
8	1/4	1-1/4	48	373-3312
10	3/16	1-1/4	50	373-3313
10	3/16	1-1/2	50	373-3314
10	1/4	1-1/4	50	373-3315
10	1/4	1-1/2	50	373-3316

METAL SLITTING SAWS

WITH STAGGERED SIDE THHTH

Dia.	Thickness	Hole Dia	No.of Teeth	Model No.
3	1/16	1	32	373-3401
3	1/16	1-1/4	32	373-3402
3	5/64	1	32	373-3403
3	5/64	1-1/4	32	373-3404
3	3/32	1	32	373-3405
3	3/32	1-1/4	32	373-3406
3	7/64	1	32	373-3407
3	7/64	1-1/4	32	373-3408
3	1/8	1	32	373-3409
3	1/8	1-1/4	32	373-3410
3	9/64	1	32	373-3411
3	9/64	1-1/4	32	373-3412
3	5/32	1	32	373-3413
3	5/32	1-1/4	32	373-3414
3	11/64	1	32	373-3415
3	11/64	1-1/4	32	373-3416
3	3/16	1	32	373-3417
3	3/16	1-1/4	32	373-3418
3	7/32	1	32	373-3419
3	7/32	1-1/4	32	373-3420
3	1/4	1	32	373-3421
4	1/16	1	34	373-3422
4	1/16	1-1/4	34	373-3423
4	5/64	1	34	373-3424
4	5/64	1-1/4	34	373-3425
4	3/32	1	34	373-3426
4	3/32	1-1/4	34	373-3427
4	7/64	1	34	373-3428
4	7/64	1-1/4	34	373-3429
4	1/8	1	34	373-3430
4	1/8	1-1/4	34	373-3431
4	9/64	1	34	373-3432
4	9/64	1-1/4	34	373-3433
4	5/32	1	34	373-3434
4	5/32	1-1/4	34	373-3435
4	11/64	1	34	373-3436
4	11/64	1-1/4	34	373-3437
4	3/16	1	34	373-3438
4	3/16	1-1/4	34	373-3439
4	7/32	1	34	373-3440
4	7/32	1-1/4	34	373-3441
4	1/4	1	34	373-3442
4	1/4	1-1/4	34	373-3443



Dia.	Thickness	Hole Dia	No.of Teeth	Model No.
5	3/32	1	38	373-3444
5	1/8	1	38	373-3445
5	1/8	1-1/4	38	373-3446
5	9/64	1	38	373-3447
5	9/64	1-1/4	38	373-3448
5	5/32	1	38	373-3449
5	5/32	1-1/4	38	373-3450
5	11/64	1	38	373-3451
5	11/64	1-1/4	38	373-3452
5	3/16	1	38	373-3453
5	3/16	1-1/4	38	373-3454
5	1/4	1	38	373-3455
5	1/4	1-1/4	42	373-3456
6	1/8	1	42	373-3457
6	1/8	1-1/4	42	373-3458
6	9/64	1	42	373-3459
6	9/64	1-1/4	42	373-3460
6	5/32	1	42	373-3461
6	5/32	1-1/4	42	373-3462
6	11/64	1	42	373-3463
6	11/64	1-1/4	42	373-3464
6	3/16	1	42	373-3465
6	3/16	1-1/4	42	373-3466
6	1/4	1	42	373-3467
6	1/4	1-1/4	42	373-3468
7	1/8	1	46	373-3469
7	1/8	1-1/4	46	373-3470
7	3/16	1	46	373-3471
7	3/16	1-1/4	46	373-3472
8	3/16	1	50	373-3473
8	3/16	1-1/4	50	373-3474
8	1/4	1-1/4	50	373-3475
10	3/16	1-1/4	60	373-3476
10	3/16	1-1/2	60	373-3477
10	1/4	1-1/4	60	373-3478
10	1/4	1-1/2	60	373-3479

STANDARD HAND TAPS

Ground Thread, High Speed Steel

- Used in all type of hand and machine tool operations

H Limit: Indicates amount basic pitch diameter exceeds nominal(0.0005" graduations)



Size	H Limit	No. Of Flute	Thread Length	Overall Length	Model No.			
					Taper	Plug	Bottoming	Set
0-80	H-1	2	5/16"	1-5/8"	440-1000	440-2000	440-3000	311-0604
1-64	H-1	2	3/8"	1-11/16"	440-1004	440-2004	440-3004	311-0614
1-72	H-1	2	3/8"	1-11/16"	440-1008	440-2008	440-3008	311-0624
2-56	H-2	3	7/16"	1-3/4"	440-1013	440-2013	440-3013	311-0634
2-64	H-2	3	7/16"	1-3/4"	440-1015	440-2015	440-3015	311-0644
3-48	H-2	3	1/2"	1-3/4"	440-1018	440-2018	440-3018	311-0654
3-56	H-2	3	1/2"	1-3/4"	440-1020	440-2020	440-3020	311-0664
4-40	H-2	3	9/16"	1-7/8"	440-1026	440-2026	440-3026	311-0684
4-48	H-2	3	9/16"	1-7/8"	440-1032	440-2032	440-3032	311-0694
5-40	H-2	3	5/8"	1-15/16"	440-1035	440-2035	440-3035	311-0704
5-44	H-2	3	5/8"	1-15/16"	440-1037	440-2037	440-3037	311-0714
6-32	H-3	3	11/16"	2"	440-1043	440-2043	440-3043	311-0724
6-40	H-2	3	11/16"	2"	440-1049	440-2049	440-3049	311-0734
8-32	H-3	4	3/4"	2-1/8"	440-1059	440-2059	440-3059	311-0744
8-36	H-2	4	3/4"	2-1/8"	440-1065	440-2065	440-3065	311-0754
10-24	H-3	4	7/8"	2-3/8"	440-1073	440-2073	440-3073	311-0764
10-32	H-3	4	7/8"	2-3/8"	440-1085	440-2085	440-3085	311-0774
12-24	H-3	4	15/16"	2-3/8"	440-1090	440-2090	440-3090	311-0784
12-28	H-3	4	15/16"	2-3/8"	440-1092	440-2092	440-3092	311-0794
1/4"-20	H-3	4	1"	2-1/2"	440-1116	440-2116	440-3116	311-0004
1/4"-28	H-3	4	1"	2-1/2"	440-1140	440-2140	440-3140	311-0014
5/16"-18	H-3	4	1-1/8"	2-23/32"	440-1156	440-2156	440-3156	311-0024
5/16"-24	H-3	4	1-1/8"	2-23/32"	440-1174	440-2174	440-3174	311-0034
3/8"-16	H-3	4	1-1/4"	2-15/16"	440-1188	440-2188	440-3188	311-0044
3/8"-24	H-3	4	1-1/4"	2-15/16"	440-1230	440-2230	440-3230	311-0054
7/16"-14	H-3	4	1-7/16"	3-5/32"	440-1242	440-2242	440-3242	311-0064
7/16"-20	H-3	4	1-7/16"	3-5/32"	440-1258	440-2258	440-3258	311-0074
1/2"-13	H-3	4	1-21/32"	3-3/8"	440-1270	440-2270	440-3270	311-0084
1/2"-20	H-3	4	1-21/32"	3-3/8"	440-1284	440-2284	440-3284	311-0094
9/16"-12	H-3	4	1-21/32"	3-19/32"	440-1316	440-2316	440-3316	311-0104
9/16"-18	H-3	4	1-21/32"	3-19/32"	440-1324	440-2324	440-3324	311-0114
5/8"-11	H-3	4	1-13/16"	3-13/16"	440-1332	440-2332	440-3332	311-0124
5/8"-18	H-3	4	1-13/16"	3-13/16"	440-1342	440-2342	440-3342	311-0134
11/16"-11	H-3	4	1-13/16"	4-1/32"	440-1344	440-2344	440-3344	311-0294
11/16"-16	H-3	4	1-13/16"	4-1/32"	440-1345	440-2345	440-3345	311-0304
3/4"-10	H-3	4	2"	4-1/4"	440-1350	440-2350	440-3350	311-0144
3/4"-16	H-3	4	2"	4-1/4"	440-1358	440-2358	440-3358	311-0154
7/8"-9	H-4	4	2-7/32"	4-11/16"	440-1366	440-2366	440-3366	311-0164
7/8"-14	H-4	4	2-7/32"	4-11/16"	440-1374	440-2374	440-3374	311-0174
1"-8	H-4	4	2-1/2"	5-1/8"	440-1380	440-2380	440-3380	311-0184
1"-12	H-4	4	2-1/2"	5-1/8"	440-1388	440-2388	440-3388	311-0194
1"-14	H-4	4	2-1/2"	5-1/8"	440-1394	440-2394	440-3394	311-0204
1-1/8"-7	H-4	4	2-9/16"	5-7/16"	440-1398	440-2398	440-3398	311-0214
1-1/8"-12	H-4	4	2-9/16"	5-7/16"	440-1400	440-2400	440-3400	311-0224
1-1/4"-7	H-4	4	2-9/16"	5-3/4"	440-1402	440-2402	440-3402	311-0234
1-1/4"-12	H-4	6	2-9/16"	5-3/4"	440-1404	440-2404	440-3404	311-0244
1-3/8"-6	H-4	4	3"	6-1/16"	440-1406	440-2406	440-3406	311-0254
1-3/8"-12	H-4	6	3"	6-1/16"	440-1408	440-2408	440-3408	311-0264
1-1/2"-6	H-4	4	3"	6-3/8"	440-1410	440-2410	440-3410	311-0274
1-1/2"-12	H-4	6	3"	6-3/8"	440-1412	440-2412	440-3412	311-0284

TIN COATED HAND TAPS

PLUG STYLE



Fractional Sizes

Size	No. Of Flute	Thread Length	Tin Coated Model No.
0-80	2	5/16"	311-1979
1-64	2	3/8"	311-1982
1-72	2	7/16"	311-1985
2-56	3	7/16"	311-1988
2-64	3	1/2"	311-1993
3-48	3	1/2"	311-1994
3-56	3	9/16"	311-1997
4-36	3	5/8"	311-2001
4-40	3	9/16"	311-2003
4-48	3	5/8"	311-2006

Size	No. Of Flute	Thread Length	Tin Coated Model No.
5-40	3	5/8"	311-2009
5-44	3	5/8"	311-2012
6-32	3	11/16"	311-2015
6-40	3	11/16"	311-2018
8-32	4	3/4"	311-2023
8-36	4	3/4"	311-2024
10-24	4	7/8"	311-2027
10-32	4	7/8"	311-2030
12-24	4	15/16"	311-2033
12-28	4	15/16"	311-2036

Machine Screw Sizes

Size	No. Of Flute	Thread Length	Tin Coated Model No.
1/4"-20	4	1"	311-2039
1/4"-28	4	1"	311-2042
5/16"-18	4	1-1/8"	311-2045
5/16"-24	4	1-1/8"	311-2048
3/8"-16	4	1-1/4"	311-2053
3/8"-24	4	1-1/4"	311-2054
7/16"-14	4	1-7/16"	311-2057
7/16"-20	4	1-7/16"	311-2060
1/2"-13	4	1-21/32"	311-2063
1/2"-20	4	1-21/32"	311-2066
9/16"-12	4	1-21/32"	311-2067
9/16"-18	4	1-21/32"	311-2068
5/8"-11	4	1-13/16"	311-2069
5/8"-18	4	1-13/16"	311-2072

Size	No. Of Flute	Thread Length	Tin Coated Model No.
3/4"-10	4	2"	311-2074
3/4"-16	4	2"	311-2078
7/8"-9	4	2-7/32"	311-2083
7/8"-14	4	2-7/32"	311-2084
1"-8	4	2-1/2"	311-2087
1"-12	4	2-1/2"	311-2090
1-1/8"-7	4	2-9/16"	311-2093
1-1/8"-12	4	2-9/16"	311-2096
1-1/4"-7	4	2-9/16"	311-2099
1-1/4"-12	4	2-9/16"	311-2102
1-3/8"-6	6	3"	311-2105
1-3/8"-12	6	3"	311-2108
1-1/2"-6	4	3"	311-2113
1-1/2"-12	6	3"	311-2114

SPECIAL HAND TAPS

High Speed Steel, Ground Thread



Size	Thread Per Inch	Model No.		
		Taper	Plug	Bott,
6	36	311-3560	311-4560	311-5560
6	48	311-3562	311-4562	311-5567
7	36	311-3565	311-4565	311-5565
7	40	311-3566	311-4566	311-5566
7	48	311-3568	311-4568	311-5568
8	24	311-3570	311-4570	311-5570
8	40	311-3572	311-4572	311-5577
8	48	311-3575	311-4575	311-5575
10	28	311-3576	311-4576	311-5576
10	36	311-3578	311-4578	311-5578
10	40	311-3580	311-4580	311-5580
10	48	311-3582	311-4582	311-5587
12	32	311-3585	311-4585	311-5585
12	36	311-3586	311-4586	311-5586
12	40	311-3588	311-4588	311-5588
12	48	311-3590	311-4590	311-5590
5/32	32	311-3592	311-4592	311-5597
5/32	40	311-3594	311-4594	311-5594
7/32	32	311-3596	311-4596	311-5596
7/32	40	311-3598	311-4598	311-5598
1/4	24	311-3600	311-4600	311-5600
1/4	32	311-3602	311-4602	311-5602
1/4	36	311-3603	311-4603	311-5603
1/4	40	311-3604	311-4604	311-5604
9/32	32	311-3605	311-4605	311-5605
9/32	40	311-3607	311-4607	311-5607
5/16	20	311-3606	311-4606	311-5606
5/16	22	311-3609	311-4609	311-5609
5/16	32	311-3608	311-4608	311-5608
5/16	36	311-3611	311-4611	311-5611
5/16	40	311-3610	311-4610	311-5610
11/32	32	311-3613	311-4613	311-5613
3/8	14	311-3612	311-4612	311-5612
3/8	18	311-3614	311-4614	311-5614
3/8	20	311-3616	311-4616	311-5616
3/8	32	311-3618	311-4618	311-5618
7/16	24	311-3620	311-4620	311-5620
7/16	27	311-3622	311-4622	311-5622
15/32	32	311-3624	311-4624	311-5624
1/2	12	311-3626	311-4626	311-5626
1/2	14	311-3628	311-4628	311-5628
1/2	16	311-3630	311-4630	311-5630
1/2	18	311-3632	311-4632	311-5632
1/2	24	311-3634	311-4634	311-5634
1/2	28	311-3633	311-4633	311-5633
1/2	32	311-3636	311-4636	311-5636
9/16	16	311-3640	311-4640	311-5640
9/16	20	311-3642	311-4642	311-5642
9/16	24	311-3644	311-4644	311-5644
9/16	27	311-3637	311-4637	311-5637
9/16	28	311-3639	311-4639	311-5639
9/16	30	311-3641	311-4641	311-5641
9/16	32	311-3643	311-4643	311-5643
9/16	40	311-3645	311-4645	311-5645
5/8	12	311-3646	311-4646	311-5646
5/8	14	311-3647	311-4647	311-5647
5/8	16	311-3648	311-4648	311-5648
5/8	20	311-3650	311-4650	311-5650
5/8	24	311-3652	311-4652	311-5652
5/8	26	311-3651	311-4651	311-5651
5/8	27	311-3653	311-4653	311-5653
5/8	28	311-3655	311-4655	311-5655
5/8	32	311-3654	311-4654	311-5654

Size	Thread Per Inch	Model No.		
		Taper	Plug	Bott,
5/8	36	311-3656	311-4656	311-5656
5/8	40	311-3657	311-4657	311-5657
11/16	12	311-3635	311-4635	311-5635
11/16	18	311-3662	311-4662	311-5662
11/16	20	311-3664	311-4664	311-5664
11/16	24	311-3666	311-4666	311-5666
11/16	27	311-3667	311-4667	311-5667
11/16	32	311-3668	311-4668	311-5668
3/4	12	311-3670	311-4670	311-5670
3/4	14	311-3671	311-4671	311-5671
3/4	18	311-3672	311-4672	311-5672
3/4	20	311-3674	311-4674	311-5674
3/4	24	311-3676	311-4676	311-5676
3/4	26	311-3677	311-4677	311-5677
3/4	27	311-3678	311-4678	311-5678
3/4	28	311-3679	311-4679	311-5679
3/4	32	311-3680	311-4680	311-5680
3/4	36	311-3681	311-4681	311-5681
13/16	10	311-3669	311-4669	311-5669
13/16	12	311-3673	311-4673	311-5673
13/16	14	311-3675	311-4675	311-5675
13/16	16	311-3682	311-4682	311-5682
13/16	18	311-3683	311-4683	311-5683
13/16	20	311-3684	311-4684	311-5684
13/16	24	311-3685	311-4685	311-5685
13/16	26	311-3689	311-4689	311-5689
13/16	28	311-3691	311-4691	311-5691
13/16	32	311-3686	311-4686	311-5686
13/16	36	311-3687	311-4687	311-5687
7/8	12	311-3688	311-4688	311-5688
7/8	16	311-3690	311-4690	311-5690
7/8	18	311-3692	311-4692	311-5692
7/8	20	311-3694	311-4694	311-5694
7/8	24	311-3693	311-4693	311-5693
7/8	27	311-3695	311-4695	311-5695
7/8	32	311-3697	311-4697	311-5697
7/8	40	311-3699	311-4699	311-5699
15/16	12	311-3696	311-4696	311-5696
15/16	16	311-3698	311-4698	311-5698
15/16	18	311-3701	311-4701	311-5701
15/16	20	311-3700	311-4700	311-5700
15/16	24	311-3703	311-4703	311-5703
15/16	27	311-3702	311-4702	311-5702
15/16	32	311-3704	311-4704	311-5704
1	10	311-3706	311-4706	311-5706
1	16	311-3708	311-4708	311-5708
1	18	311-3710	311-4710	311-5710
1	20	311-3712	311-4712	311-5712
1	24	311-3705	311-4705	311-5705
1	26	311-3707	311-4707	311-5707
1	27	311-3709	311-4709	311-5709
1	28	311-3711	311-4711	311-5711
1	32	311-3714	311-4714	311-5714
1	36	311-3713	311-4713	311-5713
1	40	311-3715	311-4715	311-5715
1-1/16	8	311-3716	311-4716	311-5716
1-1/16	10	311-3718	311-4718	311-5718
1-1/16	12	311-3720	311-4720	311-5720
1-1/16	14	311-3722	311-4722	311-5722
1-1/16	16	311-3724	311-4724	311-5724
1-1/16	18	311-3726	311-4726	311-5726
1-1/16	20	311-3728	311-4728	311-5728
1-1/16	24	311-3730	311-4730	311-5730

SPECIAL HAND TAPS

High Speed Steel, Ground Thread

(continued)



Size	Thread Per Inch	Model No.		
		Taper	Plug	Bott,
1-1/16	32	311-3732	311-4732	311-5732
1-1/8	8	311-3734	311-4734	311-5734
1-1/8	10	311-3736	311-4736	311-5736
1-1/8	16	311-3738	311-4738	311-5738
1-1/8	18	311-3740	311-4740	311-5740
1-1/8	20	311-3737	311-4737	311-5737
1-1/8	24	311-3739	311-4739	311-5739
1-1/8	27	311-3741	311-4741	311-5741
1-1/8	32	311-3742	311-4742	311-5742
1-3/16	8	311-3744	311-4744	311-5744
1-3/16	10	311-3746	311-4746	311-5746
1-3/16	12	311-3748	311-4748	311-5748
1-3/16	14	311-3750	311-4750	311-5750
1-3/16	16	311-3752	311-4752	311-5752
1-3/16	18	311-3754	311-4754	311-5754
1-3/16	20	311-3756	311-4756	311-5756
1-3/16	24	311-3758	311-4758	311-5758
1-3/16	32	311-3760	311-4760	311-5760
1-1/4	8	311-3762	311-4762	311-5762
1-1/4	10	311-3764	311-4764	311-5764
1-1/4	14	311-3766	311-4766	311-5766
1-1/4	16	311-3768	311-4768	311-5768
1-1/4	18	311-3770	311-4770	311-5770
1-1/4	20	311-3772	311-4772	311-5772
1-1/4	24	311-3773	311-4773	311-5773
1-1/4	26	311-3775	311-4775	311-5775
1-1/4	32	311-3774	311-4774	311-5774
1-5/16	8	311-3776	311-4776	311-5776
1-5/16	12	311-3778	311-4778	311-5778
1-5/16	14	311-3779	311-4779	311-5779
1-5/16	16	311-3780	311-4780	311-5780
1-5/16	18	311-3782	311-4782	311-5782
1-5/16	20	311-3783	311-4783	311-5783
1-3/8	8	311-3784	311-4784	311-5784
1-3/8	10	311-3786	311-4786	311-5786
1-3/8	14	311-3788	311-4788	311-5788
1-3/8	16	311-3790	311-4790	311-5790
1-3/8	18	311-3792	311-4792	311-5792
1-3/8	20	311-3794	311-4794	311-5794
1-3/8	24	311-3795	311-4795	311-5795
1-7/16	8	311-3796	311-4796	311-5796
1-7/16	12	311-3797	311-4797	311-5797
1-7/16	16	311-3798	311-4798	311-5798
1-7/16	18	311-3800	311-4800	311-5800
1-7/16	20	311-3801	311-4801	311-5801
1-1/2	8	311-3802	311-4802	311-5802
1-1/2	10	311-3804	311-4804	311-5804
1-1/2	14	311-3805	311-4805	311-5805
1-1/2	16	311-3806	311-4806	311-5806
1-1/2	18	311-3808	311-4808	311-5808
1-1/2	20	311-3810	311-4810	311-5810
1-1/2	24	311-3811	311-4811	311-5811
1-1/2	32	311-3809	311-4809	311-5809
1-9/16	12	311-3812	311-4812	311-5812
1-9/16	16	311-3813	311-4813	311-5813
1-9/16	18	311-3814	311-4814	311-5814
1-9/16	20	311-3816	311-4816	311-5816
1-5/8	5-1/2	311-3818	311-4818	311-5818
1-5/8	8	311-3820	311-4820	311-5820
1-5/8	10	311-3822	311-4822	311-5822
1-5/8	12	311-3824	311-4824	311-5824
1-5/8	16	311-3828	311-4828	311-5828
1-5/8	18	311-3830	311-4830	311-5830
1-5/8	20	311-3832	311-4832	311-5832
1-11/16	12	311-3836	311-4836	311-5836
1-11/16	16	311-3837	311-4837	311-5837
1-11/16	18	311-3838	311-4838	311-5838

Size	Thread Per Inch	Model No.		
		Taper	Plug	Bott,
1-11/16	20	311-3839	311-4839	311-5839
1-3/4	5	311-3840	311-4840	311-5840
1-3/4	6	311-3842	311-4842	311-5842
1-3/4	8	311-3844	311-4844	311-5844
1-3/4	10	311-3846	311-4846	311-5846
1-3/4	12	311-3848	311-4848	311-5848
1-3/4	14	311-3849	311-4849	311-5849
1-3/4	16	311-3850	311-4850	311-5850
1-3/4	18	311-3852	311-4852	311-5852
1-3/4	20	311-3854	311-4854	311-5854
1-3/4	24	311-3856	311-4856	311-5856
1-13/16	16	311-3860	311-4860	311-5860
1-7/8	5	311-3864	311-4864	311-5864
1-7/8	8	311-3868	311-4868	311-5868
1-7/8	10	311-3870	311-4870	311-5870
1-7/8	12	311-3872	311-4872	311-5872
1-7/8	16	311-3874	311-4874	311-5874
1-7/8	20	311-3878	311-4878	311-5878
1-15/16	12	311-3880	311-4880	311-5880
1-15/16	16	311-3882	311-4882	311-5882
1-15/16	18	311-3883	311-4883	311-5883
2	4-1/2	311-3884	311-4884	311-5884
2	6	311-3886	311-4886	311-5886
2	8	311-3888	311-4888	311-5888
2	10	311-3890	311-4890	311-5890
2	12	311-3892	311-4892	311-5892
2	14	311-3894	311-4894	311-5894
2	16	311-3896	311-4896	311-5896
2	18	311-3897	311-4897	311-5897
2	20	311-3898	311-4898	311-5898
2-1/16	12	311-3899	311-4899	311-5899
2-1/8	8	311-3900	311-4900	311-5900
2-1/8	12	311-3902	311-4902	311-5902
2-1/4	4-1/2	311-3908	311-4908	311-5908
2-1/4	8	311-3910	311-4910	311-5910
2-1/4	12	311-3912	311-4912	311-5912
2-1/4	14	311-3914	311-4914	311-5914
2-1/4	16	311-3915	311-4915	311-5915
2-1/4	18	311-3916	311-4916	311-5916
2-5/16	14	311-3917	311-4917	311-5917
2-5/16	16	311-3919	311-4919	311-5919
2-3/8	8	311-3920	311-4920	311-5920
2-3/8	12	311-3922	311-4922	311-5922
2-3/8	16	311-3921	311-4921	311-5921
2-1/2	4	311-3926	311-4926	311-5926
2-1/2	8	311-3930	311-4930	311-5930
2-1/2	12	311-3932	311-4932	311-5932
2-1/2	16	311-3934	311-4934	311-5934
2-5/8	8	311-3938	311-4938	311-5938
2-5/8	12	311-3940	311-4940	311-5940
2-5/8	16	311-3942	311-4942	311-5942
2-3/4	8	311-3948	311-4948	311-5948
2-3/4	12	311-3950	311-4950	311-5950
2-3/4	16	311-3952	311-4952	311-5952
2-7/8	8	311-3956	311-4956	311-5956
2-7/8	12	311-3958	311-4958	311-5958
3	4	311-3962	311-4962	311-5962
3	8	311-3964	311-4964	311-5964
3	12	311-3966	311-4966	311-5966
3	16	311-3967	311-4967	311-5967
3	18	311-3969	311-4969	311-5969
3-1/4	8	311-3970	311-4970	311-5970
3-1/2	4	311-3974	311-4974	311-5974
3-1/2	8	311-3976	311-4976	311-5976
3-1/2	12	311-3978	311-4978	311-5978
4	8	311-3984	311-4984	311-5984
4	12	311-3986	311-4986	311-5986

SPIRAL POINT GUN TAPS-PLUG TYPE

Ground Thread, High Speed Steel



Size	No. Of Flute	H Limit	Model No.	Tin-Coated Model No.
0-80NF	2	H-1	311-9002	311-7901
0-80NF	2	H-2	311-9004	311-7960
1-64NC	2	H-1	311-9006	311-7902
1-64NC	2	H-2	311-9008	311-7961
1-72NF	2	H-1	311-9010	311-7903
1-72NF	2	H-2	311-9012	311-7962
2-56NC	2	H-2	311-9014	311-7904
2-64NF	2	H-2	311-9016	311-7905
3-48NC	2	H-2	311-9018	311-7906
3-56NF	2	H-2	311-9020	311-7907
4-40NC	2	H-2	311-9022	311-7908
4-40NC	2	H-7	311-9024	311-7963
4-48NF	2	H-2	311-9026	311-7909
5-40NC	2	H-2	311-9028	311-7910
5-40NC	2	H-7	311-9030	311-7964
5-44NF	2	H-2	311-9032	311-7911
6-32NC	2	H-2	311-9034	311-7965
6-32NC	2	H-3	311-9036	311-7912
6-32NC	2	H-7	311-9038	311-7966
6-40NF	2	H-3	311-9040	311-7913
8-32NC	2	H-2	311-9042	311-7967
8-32NC	2	H-3	311-9044	311-7915
8-32NC	2	H-7	311-9046	311-7968
8-36NF	2	H-2	311-9048	311-7916
10-24NC	2	H-2	311-9050	311-7969
10-24NC	2	H-3	311-9052	311-7918
10-24NC	2	H-7	311-9054	311-7970
10-32NF	2	H-2	311-9056	311-7971
10-32NF	2	H-3	311-9058	311-7919
10-32NF	2	H-7	311-9060	311-7952
12-24NC	2	H-3	311-9062	311-7921
12-28NF	2	H-3	311-9064	311-7922
1/4"-20NC	2	H-2	311-9066	311-7972
1/4"-20NC	2	H-3	311-9068	311-7924
1/4"-20NC	2	H-5	311-9070	311-7973
1/4"-20NC	3	H-2	311-9072	311-7974
1/4"-20NC	3	H-3	311-9074	311-7975
1/4"-20NC	3	H-5	311-9076	311-7976
1/4"-28NF	2	H-2	311-9078	311-7977
1/4"-28NF	2	H-3	311-9080	311-7926
1/4"-28NF	3	H-2	311-9082	311-7978
1/4"-28NF	3	H-3	311-9084	311-7979
5/16"-18NC	2	H-2	311-9086	311-7980
5/16"-18NC	2	H-3	311-9088	311-7929

Size	No. Of Flute	H Limit	Model No.	Tin-Coated Model No.
5/16"-18NC	2	H-5	311-9090	311-7981
5/16"-18NC	3	H-2	311-9092	311-7982
5/16"-18NC	3	H-3	311-9094	311-7983
5/16"-18NC	3	H-5	311-9096	311-7984
5/16"-24NF	2	H2	311-9098	311-7985
5/16"-24NF	2	H3	311-9100	311-7930
5/16"-24NF	3	H3	311-9102	311-7986
3/8"-16NC	3	H2	311-9104	311-7987
3/8"-16NC	3	H3	311-9106	311-7932
3/8"-16NC	3	H5	311-9108	311-7988
3/8"-24NF	3	H2	311-9110	311-7989
3/8"-24NF	3	H3	311-9112	311-7933
7/16"-14NC	3	H3	311-9114	311-7935
7/16"-14NC	3	H5	311-9116	311-7990
7/16"-20NF	3	H3	311-9118	311-7936
7/16"-20NF	3	H5	311-9120	311-7991
1/2"-13NC	3	H3	311-9122	311-7937
1/2"-13NC	3	H5	311-9124	311-7992
1/2"-20NF	3	H3	311-9126	311-7938
1/2"-20NF	3	H5	311-9128	311-7993
9/16"-12NC	3	H3	311-9130	311-7941
9/16"-12NC	3	H5	311-9132	311-7994
9/16"-18NF	3	H3	311-9134	311-7942
9/16"-18NF	3	H5	311-9136	311-7995
5/8"-11NC	3	H3	311-9138	311-7943
5/8"-11NC	3	H5	311-9140	311-7996
5/8"-18NF	3	H3	311-9142	311-7944
5/8"-18NF	3	H5	311-9144	311-7997
11/16"-11NS	3	H3	311-9146	311-7998
11/16"-16NS	3	H3	311-9148	311-7999
3/4"-10NC	3	H3	311-9150	311-7945
3/4"-10NC	3	H5	311-9152	311-9200
3/4"-16NF	3	H3	311-9154	311-7946
3/4"-16NF	3	H5	311-9156	311-9201
7/8"-9NC	3	H4	311-9158	311-7947
7/8"-9NC	4	H4	311-9160	311-9202
7/8"-14NF	3	H4	311-9162	311-7948
7/8"-14NF	4	H4	311-9164	311-9203
1"-8NC	3	H4	311-9166	311-7949
1"-8NC	4	H4	311-9168	311-9204
1"-12NF	4	H4	311-9170	311-9205
1"-14NS	4	H4	311-9172	311-9206
1"-12NF	3	H4	311-9174	311-7950
1"-14NS	3	H4	311-9176	311-7951

Special Thread, High Speed Steel



Size	No. Of Flute	H Limit	Model No.	Tin-Coated Model No.
6-48	2	H-3	311-9041	311-7914
8-40	2	H-3	311-9049	311-7917
10-40	2	H-3	311-9061	311-7920
12-32	2	H-3	311-9065	311-7923
1/4-24	2	H-3	311-9075	311-7925
1/4-32	2	H-3	311-9077	311-7927
1/4-40	2	H-3	311-9085	311-7928
5/16-32	3	H-3	311-9089	311-7931
3/8-32	3	H-3	311-9113	311-7934
1/2-24	3	H-3	311-9129	311-7939
1/2-28	3	H-3	311-9131	311-7940

Ground Thread, Solid Carbide



Size	No. Of Flute	H Limit	Model No.
4-40	2	H-2	311-9180
6-32	2	H-3	311-9182
8-32	2	H-3	311-9184
10-24	2	H-3	311-9186
10-32	2	H-3	311-9188
1/4-20	2	H-3	311-9190
5/16-18	2	H-3	311-9192
3/8-16	2	H-3	311-9194

METRIC SPIRAL POINTED GUN TAPS--PLUG STYLE AMERICAN STANDARD

Ground Thread, High Speed Steel

Size (mm)	Pitch (mm)	H.S.S Model No.	Size (mm)	Pitch (mm)	H.S.S Model No.
1.6	.35	311-7720	10.0	1.00	311-7741
1.8	.35	311-7721	10.0	1.25	311-7742
2.0	.40	311-7722	10.0	1.50	311-7743
2.2	.45	311-7723	12.0	1.00	311-7744
2.5	.45	311-7724	12.0	1.25	311-7745
3.0	.50	311-7725	12.0	1.50	311-7746
3.5	.60	311-7726	12.0	1.75	311-7747
4.0	.70	311-7727	14.0	1.00	311-7748
4.5	.75	311-7728	14.0	1.25	311-7749
5.0	.50	311-7729	14.0	1.50	311-7750
5.0	.80	311-7730	14.0	2.00	311-7751
5.0	.90	311-7731	16.0	1.00	311-7752
6.0	.50	311-7732	16.0	1.50	311-7753
6.0	.75	311-7733	16.0	2.00	311-7754
6.0	1.00	311-7734	18.0	1.00	311-7755
6.3	1.00	311-7735	18.0	1.50	311-7756
7.0	1.00	311-7736	18.0	2.00	311-7757
8.0	.75	311-7737	18.0	2.50	311-7758
8.0	1.00	311-7738	20.0	1.00	311-7759
8.0	1.25	311-7739	20.0	1.50	311-7760
9.0	1.00	311-7740	20.0	2.50	311-7761



LEFT HAND SPIRAL POINTED GUN TAPS PLUG STYLE

Ground Thread, High Speed Steel



Size	Threads per Inch	Model No.
4	40	311-9208
5	40	311-9210
6	32	311-9212
8	32	311-9214
10	24	311-9216
10	32	311-9218
1/4	20	311-9220
5/16	18	311-9222
3/8	16	311-9224
1/2	13	311-9226

+ .005" OVERSIZED SPIRAL POINTED TAPS

High Speed Steel, Ground Steel, Plug Type



Size	No. Of Flute	Model No.
4-40	2	312-7102
5-40	2	312-7104
6-32	2	312-7106
8-32	2	312-7108
10-24	2	312-7110
10-32	2	312-7112
1/4-20	2	312-7114
1/4-28	2	312-7116
5/16-18	2	312-7118
5/16-24	2	312-7120
3/8-16	3	312-7122
3/8-24	3	312-7124
7/16-14	3	312-7126

Size	No. Of Flute	Model No.
7/16-20	3	312-7128
1/2-13	3	312-7130
1/2-20	3	312-7132
9/16-12	3	312-7134
9/16-18	3	312-7136
5/8-11	3	312-7138
5/8-18	3	312-7140
3/4-10	3	312-7142
3/4-16	3	312-7144
7/8-9	3	312-7146
7/8-14	3	312-7148
1-8	3	312-7150

LONG SPIRAL POINT GUN TAPS

High Speed Steel, Ground Thread



Size	Thread Per Inch	No. of Flutes	Overall Length	Model No.	Tin-Coated Model No.
4	40	GH3	6"	311-2150	311-7908
6	32	GH3	6"	311-2152	311-7912
8	32	GH3	6"	311-2154	311-7915
10	24	GH3	6"	311-2156	311-7918
10	32	GH3	6"	311-2158	311-7919
1/4	20	GH3	6"	311-2160	311-7924
1/4	28	GH3	6"	311-2162	311-7926
5/16	18	GH3	6"	311-2164	311-7929
5/16	24	GH3	6"	311-2166	311-7930
3/8	16	GH3	6"	311-2168	311-7932
3/8	24	GH3	6"	311-2170	311-7933
7/16	14	GH3	6"	311-2172	311-7935
7/16	20	GH3	6"	311-2174	311-7936
1/2	13	GH3	6"	311-2176	311-7937
1/2	20	GH3	6"	311-2178	311-7938

LEFT HAND TAPS

Ground Thread, High Speed Steel

Size	Model No.			
	Taper	Plug	Bott,	Set
0-80	311-5001	311-5002	311-5003	311-5004
1-64	311-5011	311-5012	311-5013	311-5014
1-72	311-5021	311-5022	311-5023	311-5024
2-56	311-5031	311-5032	311-5033	311-5034
2-64	311-5041	311-5042	311-5043	311-5044
3-48	311-5051	311-5052	311-5053	311-5054
3-56	311-5061	311-5062	311-5063	311-5064
4-40	311-5071	311-5072	311-5073	311-5074
4-48	311-5081	311-5082	311-5083	311-5084
5-40	311-5091	311-5092	311-5093	311-5094
5-44	311-5101	311-5102	311-5103	311-5104
6-32	311-5111	311-5112	311-5113	311-5114
6-40	311-5121	311-5122	311-5123	311-5124
8-32	311-5131	311-5132	311-5133	311-5134
8-36	311-5141	311-5142	311-5143	311-5144
10-24	311-5151	311-5152	311-5153	311-5154
10-32	311-5161	311-5162	311-5163	311-5164
12-24	311-5171	311-5172	311-5173	311-5174
12-28	311-5181	311-5182	311-5183	311-5184
14-24	311-5191	311-5192	311-5193	311-5194
1/4-20	311-5201	311-5202	311-5203	311-5204
1/4-28	311-5211	311-5212	311-5213	311-5214
5/16-18	311-5221	311-5222	311-5223	311-5224
5/16-24	311-5231	311-5232	311-5233	311-5234
3/8-16	311-5241	311-5242	311-5243	311-5244
3/8-24	311-5251	311-5252	311-5253	311-5254
7/16-14	311-5261	311-5262	311-5263	311-5264
7/16-20	311-5271	311-5272	311-5273	311-5274
1/2-13	311-5281	311-5282	311-5283	311-5284



Size	Model No.			
	Taper	Plug	Bott,	Set
1/2-20	311-5291	311-5292	311-5293	311-5294
9/16-12	311-5301	311-5302	311-5303	311-5304
9/16-18	311-5311	311-5312	311-5313	311-5314
5/8-11	311-5321	311-5322	311-5323	311-5324
5/8-18	311-5331	311-5332	311-5333	311-5334
3/4-10	311-5341	311-5342	311-5343	311-5344
3/4-16	311-5351	311-5352	311-5353	311-5354
7/8-9	311-5361	311-5362	311-5363	311-5364
7/8-14	311-5371	311-5372	311-5373	311-5374
1-8	311-5381	311-5382	311-5383	311-5384
1-12	311-5391	311-5392	311-5393	311-5394
1-14	311-5401	311-5402	311-5403	311-5404
1-1/8-7	311-5411	311-5412	311-5413	311-5414
1-1/8-12	311-5421	311-5422	311-5423	311-5424
1-1/4-7	311-5431	311-5432	311-5433	311-5434
1-1/4-10	311-5441	311-5442	311-5443	311-5444
1-1/4-12	311-5451	311-5452	311-5453	311-5454
1-3/8-6	311-5461	311-5462	311-5463	311-5464
1-3/8-12	311-5471	311-5472	311-5473	311-5474
1-1/2-6	311-5481	311-5482	311-5483	311-5484
1-1/2-12	311-5491	311-5492	311-5493	311-5494
1-5/8-5	311-5501	311-5502	311-5503	311-5504
1-3/4-5	311-5511	311-5512	311-5513	311-5514
2-6	311-5521	311-5522	311-5523	311-5524
2-1/4-4	311-5531	311-5532	311-5533	311-5534
2-1/4-4-1/2	311-5541	311-5542	311-5543	311-5544
2-1/4-8	311-5551	311-5552	311-5553	311-5554
2-1/2-4	311-5561	311-5562	311-5563	311-5564
2-1/2-6	311-5571	311-5572	311-5573	311-5574

+ .005" OVERSIZED TAPS

High Speed Steel, Ground Steel, Plug Type



Size	No. Of Flute	Model No.
6-32	4	312-7001
8-32	4	312-7002
10-24	4	312-7003
10-32	4	312-7004
1/4-20	4	312-7005
1/4-28	4	312-7006
5/16-18	4	312-7007
5/16-24	4	312-7008
3/8-16	4	312-7009
3/8-24	4	312-7010
7/16-14	4	312-7011
7/16-20	4	312-7012
1/2-13	4	312-7013
1/2-20	4	312-7014

Size	No. Of Flute	Model No.
9/16-12	4	312-7015
9/16-18	4	312-7016
5/8-11	4	312-7017
5/8-18	4	312-7018
3/4-10	4	312-7019
3/4-16	4	312-7020
7/8-9	4	312-7021
7/8-14	4	312-7022
1-8	4	312-7023
1-12	4	312-7024
1-14	4	312-7025
4-40	3	312-7030
5-40	3	312-7035

LEFT HAND TAPS PLUG STYLE METRIC SIZES

Ground Thread, High Speed Steel



Size(mm)	Pitch(mm)	Model No.
3.0	.50	311-7703
4.0	.70	311-7704
5.0	.80	311-7705
6.0	1.00	311-7706
7.0	1.00	311-7707
8.0	1.25	311-7708
10.0	1.50	311-7710
12.0	1.75	311-7712
14.0	2.00	311-7714
16.0	1.50	311-7716
16.0	2.00	311-7717
18.0	1.00	311-7718
18.0	1.50	311-7719

PULLEY TAPS (PLUG STYLE)

High Speed Steel, Ground Thread

Size	No. Of Flute	H Limit	Overall Length	Model No.
1/4"-20NC	4	H-3	4"	312-0402
5/16"-18NC	4	H-3	4"	312-0404
3/8"-16NC	4	H-3	4"	312-0406
6-32NC	3	H-3	6"	312-0502
6-40NF	3	H-2	6"	312-0504
8-32NC	3	H-3	6"	312-0506
8-36NF	3	H-3	6"	312-0508
10-24NC	3	H-3	6"	312-0510
10-32NF	3	H-3	6"	312-0512
1/4"-20NC	4	H-3	6"	312-0514
1/4"-28NF	4	H-3	6"	312-0516
5/16"-18NC	4	H-3	6"	312-0518
5/16"-24NF	4	H-3	6"	312-0520
3/8"-16NC	4	H-3	6"	312-0522
3/8"-24NF	4	H-3	6"	312-0524
7/16"-14NC	4	H-3	6"	312-0526
7/16"-20NF	4	H-3	6"	312-0528
1/2"-13NC	4	H-3	6"	312-0530
1/2"-20NF	4	H-3	6"	312-0532
5/8"-11NC	4	H-3	6"	312-0534
5/8"-18NF	4	H-3	6"	312-0536
3/4"-10NC	4	H-3	6"	312-0538
7/8"-9NC	4	H-4	6"	312-0540
1/4"-20NC	4	H-3	8"	312-0602
1/4"-28NF	4	H-3	8"	312-0604
5/16"-18NC	4	H-3	8"	312-0606



Size	No. Of Flute	H Limit	Overall Length	Model No.
5/16"-24NF	4	H-3	8"	312-0608
3/8"-16NC	4	H-3	8"	312-0610
3/8"-24NF	4	H-3	8"	312-0612
7/16"-14NC	4	H-3	8"	312-0614
7/16"-20NF	4	H-3	8"	312-0616
1/2"-13NC	4	H-3	8"	312-0618
1/2"-20NF	4	H-3	8"	312-0620
5/8"-11NC	4	H-3	8"	312-0622
5/8"-18NF	4	H-3	8"	312-0624
3/4"-10NC	4	H-3	8"	312-0626
7/8"-9NC	4	H-4	8"	312-0628
1"-8NC	4	H-4	8"	312-0630
3/8"-16NC	4	H-3	10"	312-0702
3/8"-24NF	4	H-3	10"	312-0704
7/16"-14NC	4	H-3	10"	312-0706
7/16"-20NF	4	H-3	10"	312-0708
1/2"-13NC	4	H-3	10"	312-0709
5/8"-11NC	4	H-3	10"	312-0710
3/4"-10NC	4	H-3	10"	312-0712
7/8"-9NC	4	H-4	10"	312-0714
3/8"-16NC	4	H-3	12"	312-0802
7/16"-14NC	4	H-3	12"	312-0804
1/2"-13NC	4	H-3	12"	312-0806
5/8"-11NC	4	H-3	12"	312-0808
5/8"-18NF	4	H-3	12"	312-0810
3/4"-10NC	4	H-3	12"	312-0812
1"-8NC	4	H-4	12"	312-0814

SPIRAL POINTED GUN PULLEY TAPS(PLUG STYLE)

High Speed Steel, Ground Thread



Size	Thread Per Inch	No. of Flutes	Overall Length	Model No.
10	24	2	6"	311-6910
10	32	2	6"	311-6915
1/4	20	2	6"	311-6920
1/4	28	2	6"	311-6925
5/16	18	2	6"	311-6930
5/16	24	2	6"	311-6935
3/8	16	3	6"	311-6940
3/8	24	3	6"	311-6945
1/2	13	3	6"	311-6950
1/2	20	3	6"	311-6955

NUT TAPS

High Speed Steel, Ground Thread

Long chamfer/Undercut Shank

Size	Thread Per Inch	Thread Length	Overall Length	Model No.
1/4	20	1-5/8	5	311-2202
1/4	28	1-1/4	5	311-2204
5/16	18	1-13/16	5-1/2	311-2206
5/16	24	1-3/8	5-1/2	311-2208
3/8	16	2	6	311-2210
3/8	24	1-1/2	6	311-2212
7/16	14	2-3/8	6-1/2	311-2214
7/16	20	1-3/4	6-1/2	311-2216
1/2	13	2-1/2	7	311-2218
1/2	20	1-7/8	7	311-2220
9/16	12	2-3/4	7-1/2	311-2222
9/16	18	2	7-1/2	311-2224
5/8	11	3	8	311-2226
5/8	18	2-1/4	8	311-2228
11/16	11	3	8-1/2	311-2227



Size	Thread Per Inch	Thread Length	Overall Length	Model No.
11/16	11	2-1/4	8-1/2	311-2229
3/4	10	3-1/4	9	311-2230
3/4	16	2-1/2	9	311-2232
7/8	9	3-5/8	10	311-2234
7/8	14	2-3/4	10	311-2236
1	8	4	11	311-2238
1	12	3-1/2	11	311-2240
1	14	3	11	311-2242
1-1/8	7	4-3/4	11-1/2	311-2244
1-1/8	12	3-1/2	11-1/2	311-2246
1-1/4	7	4-3/4	12	311-2248
1-1/4	12	3-1/2	12	311-2250
1-3/8	6	5-3/8	12-1/2	311-2252
1-3/8	12	4	12-1/2	311-2254
1-1/2	6	5-3/8	13	311-2256
1-1/2	12	4	13	311-2258

RIGHT & LEFT HAND ACME TAPS

High Speed Steel

RIGHTHAND

Size	Right Hand Model No.
3/8-12	312-9001
7/16-12	312-9002
1/2-10	312-9003
5/8-8	312-9004
3/4-6	312-9005
1"-5	312-9007
1-1/8-5	312-9008
1-1/4-5	312-9009
1-3/8-4	312-9010
1-1/2-4	312-9011
1-3/4-4	312-9012

LEFTHAND

Size	Left Hand Model No.
5/8-8	312-9020
3/4-6	312-9021
7/8-6	312-9022
1"-5	312-9023
1-1/8-5	312-9024
1-1/4-5	312-9025



SINGLE PASS ACME TAPS

Tandem Style, High Speed Steel, Ground Thread



Size	Thread Length	Overall length	Maximum Depth of Bronze or Steel Nut	Maximum Depth of Brass or Cast Iron Nut	Model No.
1/2"-10	2-9/16"	5"	1"	1-1/2"	312-0306
5/8"-8	3-3/16"	6-1/4"	1-1/4"	1-7/8"	312-0308
3/4"-6	4-5/16"	7-15/16"	1-1/2"	2-1/4"	312-0310
7/8"-6	4-3/8"	8-5/8"	1-3/4"	2-5/8"	312-0312
1"-5	5-1/4"	10-1/8"	2"	3"	312-0314
1-1/8"-5	5-1/4"	10"-3/4"	2-1/4"	3-3/8"	312-0316
1-1/4"-5	5-1/4"	11-1/8"	2-1/2"	3-3/4"	312-0318
1-3/8"-4	5-7/8"	12-1/4"	2-3/4"	4-1/8"	312-0320
1-1/2"-4	5-7/8"	12-5/8"	3"	4-1/2"	312-0322

SINGLE PASS COMBINATION DRILL & TAPS

High Speed Steel,
Ground Thread,
German Pattern



Size	Drill Length	Thread Length	Overall Length	H.S.S Model No.
M3	5mm	6mm	36mm	312-8003
M4	6mm	8mm	39mm	312-8004
M5	7mm	9mm	41mm	312-8005
M6	8mm	11mm	44mm	312-8006
M8	11mm	14mm	51mm	312-8008
M10	15mm	17mm	59mm	312-8010

METRIC NUT TAPS

High Speed Steel, DIN357



Size	Overall Length	Thread Length	Model No.
M3x0.5	70	22	311-1503
M3.5x0.6	80	25	311-1502
M4x0.7	90	25	311-1504
M5x0.8	100	28	311-1505
M6x1	110	32	311-1506
M8x1.25	125	40	311-1508
M10x1.5	140	45	311-1510
M12x1.75	180	50	311-1512
M14x2	200	56	311-1513
M16x2	200	63	311-1514
M18x2.5	220	63	311-1515
M20x2.5	250	70	311-1517
M22x2.5	280	80	311-1518
M24x2	280	80	311-1519
M27x3	315	90	311-1521
M30x3.5	315	100	311-1522
M33x3.5	355	110	311-1523
M36x4	400	110	311-1524
M39x4	400	125	311-1525

SINGLE PASS COMBINATION DRILL & TAPS

High Speed Steel, Ground Thread



Size	Thread Limit	Drill Length	Drill Size	Overall Length	H.S.S Model No.	Tin Coated Model No.
3x.5mm	D-3	9/32"	.1015"	13/32"	1-15/16"	312-0162
3.5x.6mm	D-4	5/16"	.1180"	7/16"	2"	312-0164
4x.7mm	D-4	3/8"	.1340"	1/2"	2-1/8"	312-0166
4.5x.75mm	D-4	13/32"	.1520"	5/8"	2-3/8"	312-0168
5x.8mm	D-4	13/32"	.1700"	5/8"	2-3/8"	312-0170
6x1.00mm	D-5	17/32"	.2030"	25/32"	2-1/2"	312-0172
7x1.00mm	D-5	11/16"	.2420"	15/16"	2-27/32"	312-0174
8x1.25mm	D-5	11/16"	.2735"	15/16"	2-27/32"	312-0176
10x1.5mm	D-6	13/16"	.3440"	1-1/16"	3-3/8"	312-0178
12x1.75mm	D-6	1-1/8"	.4140"	1-3/8"	4-1/16"	312-0180

Size	H Limit	Thread Length	Drill Length	Drill Size	Overall Length	H.S.S Model No.	Tin Coated Model No.
4-40NC	H-2	9/16"	1/4"	.0890"	1-7/8"	312-0102	312-0202
4-48NF	H-2	9/16"	1/4"	.0930"	1-7/8"	312-0104	312-0204
5-40NC	H-2	5/8"	9/32"	.1015"	1-15/16"	312-0106	312-0206
5-44NF	H-2	5/8"	9/32"	.1040"	1-15/16"	312-0108	312-0208
6-32NC	H-3	11/16"	5/16"	.1095"	2"	312-0110	312-0210
6-40NF	H-2	11/16"	5/16"	.1150"	2"	312-0112	312-0212
8-32NC	H-3	3/4"	3/8"	.1360"	2-1/8"	312-0114	312-0214
8-36NF	H-3	3/4"	3/8"	.1385"	2-1/8"	312-0116	312-0216
10-24NC	H-3	7/8"	13/32"	.1520"	2-3/8"	312-0118	312-0218
10-32NF	H-3	7/8"	13/32"	.1610"	2-3/8"	312-0120	312-0220
12-24NC	H-3	7/8"	15/32"	.1770"	2-3/8"	312-0122	312-0222
12-28NF	H-3	7/8"	15/32"	.1835"	2-3/8"	312-0124	312-0224
1/4"-20NC	H-3	15/16"	17/32"	.2010"	2-1/2"	312-0126	312-0226
1/4"-28NF	H-3	15/16"	17/32"	.2175"	2-1/2"	312-0128	312-0228
5/16"-18NC	H-3	1-1/8"	11/16"	.2570"	3"	312-0130	312-0230
5/16"-24NF	H-3	1-1/8"	11/16"	.2720"	3"	312-0132	312-0232
3/8"-16NC	H-3	1-1/4"	13/16"	.3125"	3-1/2"	312-0134	312-0234
3/8"-24NF	H-3	1-1/4"	13/16"	.3345"	3-1/2"	312-0136	312-0236
7/16"-14NC	H-3	1-7/16"	1"	.3680"	3-7/8"	312-0138	312-0238
7/16"-20NF	H-3	1-7/16"	1"	.3890"	3-7/8"	312-0140	312-0240
1/2"-13NC	H-3	1-21/32"	1-1/8"	.4250"	4-1/4"	312-0142	312-0242
1/2"-20NF	H-3	1-21/32"	1-1/8"	.4510"	4-1/4"	312-0144	312-0244

PIPE TAPS

High Speed Steel

Ground Thread



Size	Thread per Inch	No. Of Flute	Thread Length	Overall Length	NPT Model No.	NPTF Model No.	Tin Coated NPT Model No.	Straight NPS Model No.	Straight NPSF Model No.	Tin Coated NPS Model No.
1/16"	27	4	11/16"	2-1/8"	311-6005	311-6205	311-6505	311-6305	311-6960	311-6605
1/8"	27	4	3/4"	2-1/8"	311-6011	311-6210	311-6510	311-6310	311-6962	311-6610
1/4"	18	4	1-1/16"	2-1/8"	311-6015	311-6215	311-6515	311-6315	311-6964	311-6615
3/8"	18	4	1-1/16"	2-7/16"	311-6020	311-6220	311-6520	311-6320	311-6966	311-6620
1/2"	14	4	1-3/8"	2-9/16"	311-6025	311-6225	311-6525	311-6325	311-6968	311-6625
3/4"	14	5	1-3/8"	3-1/8"	311-6030	311-6230	311-6530	311-6330	311-6970	311-6630
1"	11-1/2	5	1-3/4"	3-1/4"	311-6035	311-6235	311-6535	311-6335	311-6972	311-6635
1-1/4"	11-1/2	5	1-3/4"	3-1/4"	311-6040	311-6240	311-6540	311-6340	311-6974	311-6640
1-1/2"	11-1/2	7	1-3/4"	4"	311-6045	311-6245	311-6545	311-6345	311-6976	311-6645
2"	11-1/2	7	1-3/4"	4-1/4"	311-6050	311-6250	311-6550	311-6350	311-6978	311-6650
2-1/2"	8	8	2-9/16"	4-1/2"	311-6055	311-6255	311-6555	311-6355	311-6980	311-6655
3"	8	8	2-5/8"	5-1/2"	311-6060	311-6260	311-6560	311-6360	311-6982	311-6660
3-1/2"	8	8	2-11/16"	6"	311-6065	311-6265	311-6565	311-6365	311-6984	311-6665
4"	8	8	2-3/4"	6-1/2"	311-6070	311-6270	311-6570	311-6370	311-6986	311-6670

TAPER PIPE TAPS-INTERRUPTED THREAD

High Speed Steel

Ground Thread



Size	Thread per Inch	No. Of Flute	Thread Length	Overall Length	NPT Model No.	NPTF Model No.
1/16"	27	5	3/4"	2-1/8"	311-6105	311-6272
1/8"	27	5	3/4"	2-1/8"	311-6111	311-6274
1/4"	18	5	1-1/16"	2-7/16"	311-6115	311-6276
3/8"	18	5	1-1/16"	2-9/16"	311-6120	311-6278
1/2"	14	5	1-3/8"	3-1/8"	311-6125	311-6280
3/4"	14	5	1-3/8"	3-1/4"	311-6130	311-6282
1"	11-1/2	5	1-3/4"	3-1/4"	311-6135	311-6284
1-1/4"	11-1/2	5	1-3/4"	4"	311-6140	311-6286
1-1/2"	11-1/2	7	1-3/4"	4-1/4"	311-6145	311-6288
2"	11-1/2	7	1-3/4"	4-1/2"	311-6150	311-6290

TAPER PIPE TAPS BRITISH STANDARD

High Speed Steel

Ground Thread

55° Thread Angle



Size	Thread per Inch	Straight Pipe BSPF Model No.	Taper Pipe BSPT Model No.
1/8"	28	311-6375	311-6575
1/4"	19	311-6377	311-6577
3/8"	19	311-6379	311-6579
1/2"	14	311-6381	311-6581
5/8"	14	311-6383	311-6583
3/4"	14	311-6385	311-6585
7/8"	14	311-6387	311-6587
1"	11	311-6389	311-6589
1-1/4"	11	311-6391	311-6591
1-1/2"	11	311-6393	311-6593
1-3/4"	11	311-6395	311-6595
2"	11	311-6397	311-6597

TAPER PIPE TAPS (NPT)

Carbon Steel



Size	Thread per Inch	No. of Flutes	Model No.
1/16"	27	4	311-6675
1/8"	27	4	311-6677
1/4"	18	4	311-6679
3/8"	18	4	311-6681
1/2"	14	4	311-6683
3/4"	14	5	311-6685
1"	11-1/2	5	311-6687
1-1/4"	11-1/2	5	311-6689
1-1/2"	11-1/2	7	311-6691
2"	11-1/2	7	311-6693
2-1/2"	8	8	311-6695
3"	8	8	311-6697
3-1/2"	8	8	311-6698
4"	8	8	311-6699

LONG TAPER PIPE TAPS(NPT)

High Speed Steel,Ground Thread



Size	Thread Per Inch	Thread Length	Model No.			
			Length 4"	Length 6"	Length 8"	Length 12"
1/8	27	3/4	311-6705	311-6750	311-6805	311-6850
1/4	18	1-1/16	311-6710	311-6755	311-6810	311-6855
3/8	18	1-1/16	311-6715	311-6760	311-6815	311-6860
1/2	14	1-3/8	311-6720	311-6765	311-6820	311-6865
3/4	14	1-3/8	311-6725	311-6770	311-6825	311-6870
1	11-1/2	1-3/4	311-6730	311-6775	311-6830	311-6875

THREAD FORMING TAPS

High Speed Steel,Ground Thread

Size	Thread Per Inch	Thread Length	Overall Length	Model No.
4	40	9/16	1-7/8	311-8400
4	48	9/16	1-7/8	311-8402
5	40	5/8	1-15/16	311-8404
5	48	5/8	1-15/16	311-8406
6	32	11/16	2	311-8408
6	40	11/16	2	311-8410
8	32	3/4	2-1/8	311-8412
8	36	3/4	2-1/8	311-8414
10	24	7/8	2-3/8	311-8416
10	32	7/8	2-3/8	311-8418
12	24	15/16	2-3/8	311-8420
12	28	15/16	2-3/8	311-8422
1/4	20	1	2-1/2	311-8424
1/4	28	1	2-1/2	311-8426
5/16	18	1-1/8	2-23/32	311-8428
5/16	24	1-1/8	2-23/32	311-8430
3/8	16	1-1/4	2-15/16	311-8432
3/8	24	1-1/4	2-15/16	311-8434



Size	Thread Per Inch	Thread Length	Overall Length	Model No.
7/16	14	1-7/16	3-5/32	311-8436
7/16	20	1-7/16	3-5/32	311-8438
1/2	13	1-21/32	3-3/8	311-8440
1/2	20	1-21/32	3-3/8	311-8442
9/16	12	1-21/32	3-19/32	311-8444
9/16	18	1-21/32	3-19/32	311-8446
5/8	11	1-13/16	3-13/16	311-8448
5/8	18	1-13/16	3-13/16	311-8450
3/4	10	2	4-1/4	311-8452
3/4	16	2	4-1/4	311-8454

STRAIGHT FLUTE BSW TAPS

Plug Style

High Speed Steel,Ground Thread



Size	Thread Per Inch	No. of Flute	Model No.
3/16	24	3	440-8201
1/4	20	3	440-8203
5/16	18	4	440-8205
3/8	16	4	440-8207
7/16	14	4	440-8209
1/2	12	4	440-8211
9/16	12	4	440-8213
5/8	11	4	440-8215
3/4	10	4	440-8217
7/8	9	4	440-8219
1"	8	4	440-8221

STRAIGHT FLUTE BSC TAPS

Plug Style

High Speed Steel,Ground Thread

Size	Thread Per Inch	No. of Flute	Model No.
1/4	26	3	440-8101
5/16	26	4	440-8103
3/8	26	4	440-8105
7/16	26	4	440-8107
1/2	26	4	440-8109

STRAIGHT FLUTE BSF TAPS

Plug Style

High Speed Steel,Ground Thread

Size	Thread Per Inch	No. of Flute	Model No.
3/16	32	3	440-8601
1/4	26	3	440-8603
5/16	22	4	440-8605
3/8	20	4	440-8607
7/16	18	4	440-8609
1/2	16	4	440-8611

S.T.I(SCREW THREAD INSERT) TAPS

High Speed Steel,Ground Thread

Straight Flute



Nominal Thread Size	Plug Style Model No.	Bottoming Style Model No.
2-56	440-9201	440-9301
3-48	440-9202	440-9302
3-56	440-9203	440-9303
4-40	440-9204	440-9304
4-48	440-9205	440-9305
5-40	440-9206	440-9306
6-32	440-9207	440-9307
6-40	440-9208	440-9308
8-32	440-9209	440-9309
8-36	440-9210	440-9310
10-24	440-9211	440-9311
10-32	440-9212	440-9312
12-24	440-9213	440-9313
12-28	440-9214	440-9314
1/4-20	440-9215	440-9315
1/4-28	440-9216	440-9316
5/16-18	440-9217	440-9317
5/16-24	440-9218	440-9318
3/8-16	440-9219	440-9319
3/8-24	440-9220	440-9320
7/16-14	440-9221	440-9321

Nominal Thread Size	Plug Style Model No.	Bottoming Style Model No.
7/16-20	440-9222	440-9322
1/2-13	440-9223	440-9323
1/2-20	440-9224	440-9324
9/16-12	440-9225	440-9325
9/16-18	440-9226	440-9326
5/8-11	440-9227	440-9327
5/8-18	440-9228	440-9328
3/4-10	440-9229	440-9329
3/4-16	440-9230	440-9330
7/8-9	440-9231	440-9331
7/8-14	440-9232	440-9332
1-8	440-9233	440-9333
1-12	440-9234	440-9334
1-14	440-9235	440-9335
1-1/8-7	440-9236	440-9336
1-1/8-12	440-9237	440-9337
1-1/4-7	440-9238	440-9338
1-1/4-12	440-9239	440-9339
1-3/8-6	440-9240	440-9340
1-3/8-12	440-9241	440-9341
1-1/2-6	440-9242	440-9342
1-1/2-12	440-9243	440-9343

Spiral Point



Nominal Thread Size	Plug Style Model No.
2-56	440-9401
3-48	440-9402
4-40	440-9403
4-48	440-9404
5-40	440-9405
6-32	440-9406
6-40	440-9407
8-32	440-9408
8-36	440-9409
10-24	440-9410
10-32	440-9411
12-24	440-9412
1/4-20	440-9413
1/4-28	440-9414
5/16-18	440-9415
5/16-24	440-9416
3/8-16	440-9417
3/8-24	440-9418
7/16-14	440-9419
7/16-20	440-9420
1/2-13	440-9421
1/2-20	440-9422

Spiral Flute



Nominal Thread Size	Bottoming Style Model No.
2-56	440-9501
3-48	440-9502
4-40	440-9503
4-48	440-9504
5-40	440-9505
6-32	440-9506
6-40	440-9507
8-32	440-9508
8-36	440-9509
10-24	440-9510
10-32	440-9511
12-24	440-9512
1/4-20	440-9513
1/4-28	440-9514
5/16-18	440-9515
5/16-24	440-9516
3/8-16	440-9517
3/8-24	440-9518
7/16-14	440-9519
7/16-20	440-9520
1/2-13	440-9521
1/2-20	440-9522

S.T.I(SCREW THREAD INSERT) TAPS-METRIC SIZE

High Speed Steel,Ground Thread, American Standard



Straight Flute

Nominal Thread Size	Plug Style Model No.	Bottoming Style Model No.
M2.5x.45	440-9601	440-9701
M3x.5	440-9602	440-9702
M4x.7	440-9603	440-9703
M5x.8	440-9604	440-9704
M6x1.0	440-9605	440-9705
M7x1.0	440-9606	440-9706
M8x1.0	440-9607	440-9707
M8x1.25	440-9608	440-9708
M9x1.25	440-9609	440-9709
M10x1.0	440-9610	440-9710
M10x1.25	440-9611	440-9711
M10x1.50	440-9612	440-9712
M11x1.0	440-9613	440-9713
M11x1.25	440-9614	440-9714
M11x1.50	440-9615	440-9715
M12x1.25	440-9616	440-9716
M12x1.50	440-9617	440-9717
M12x1.75	440-9618	440-9718
M14x1.50	440-9619	440-9719
M14x2.0	440-9620	440-9720
M16x1.50	440-9621	440-9721
M16x2.0	440-9622	440-9722
M18x1.50	440-9623	440-9723
M18x2.50	440-9624	440-9724
M20x1.50	440-9625	440-9725
M20x2.50	440-9626	440-9726
M24x3.0	440-9627	440-9727



Spiral Point

Nominal Thread Size	Plug Style Model No.
M2.5x.45	440-9801
M3x.5	440-9802
M4x.7	440-9803
M5x.8	440-9804
M6x1.0	440-9805
M8x1.0	440-9806
M8x1.25	440-9807
M10x1.0	440-9808
M10x1.25	440-9809
M10x1.50	440-9810
M12x1.25	440-9811
M12x1.50	440-9812
M12x1.75	440-9813



Spiral Flute

Nominal Thread Size	Plug Style Model No.
M2.5x.45	440-9901
M3x.5	440-9902
M4x.7	440-9903
M5x.8	440-9904
M6x1.0	440-9905
M8x1.0	440-9906
M8x1.25	440-9907
M10x1.0	440-9908
M10x1.25	440-9909
M10x1.50	440-9910
M12x1.25	440-9911
M12x1.50	440-9912
M12x1.75	440-9913

48 J & FAST SPIRAL FLUTED TAPS

High Speed Steel, Ground Thread



Size	Thread Per Inch	No. Of Flute	H Limit	Model No. Plug	Model No. Bott.
3	48	2	H2	311-8500	311-8501
3	56	2	H2	311-8502	311-8503
4	40	2	H2	311-8504	311-8505
4	44	2	H2	311-8506	311-8507
5	32	2	H2	311-8508	311-8509
5	40	2	H2	311-8510	311-8511
6	32	2	H3	311-8512	311-8513
6	36	2	H3	311-8514	311-8515
8	24	3	H3	311-8516	311-8517
8	32	3	H3	311-8518	311-8519
10	24	3	H3	311-8520	311-8521
10	28	3	H3	311-8522	311-8523
12	20	3	H3	311-8524	311-8525
12	28	3	H3	311-8526	311-8527
1/4	18	3	H3	311-8528	311-8529
1/4	24	3	H3	311-8530	311-8531
5/16	16	3	H3	311-8532	311-8533
5/16	24	3	H3	311-8534	311-8535
3/8	16	3	H3	311-8536	311-8537

Size	Thread Per Inch	No. Of Flute	H Limit	Model No. Plug	Model No. Bott.
3/8	24	3	H3	311-8538	311-8539
7/16	14	3	H3	311-8540	311-8541
7/16	20	3	H3	311-8542	311-8543
1/2	13	3	H3	311-8544	311-8545
1/2	20	3,4	H3	311-8546	311-8547
9/16	12	3,4	H3	311-8548	311-8549
9/16	18	4	H3	311-8550	311-8551
5/8	11	4	H3	311-8552	311-8553
5/8	18	4	H3	311-8554	311-8555
11/16	11	4	H3	311-8556	311-8557
11/16	16	4	H3	311-8558	311-8559
3/4	10	4	H3	311-8560	311-8561
3/4	16	4	H3	311-8562	311-8563
7/8	9	4	H4	311-8564	311-8565
7/8	14	4	H4	311-8566	311-8567

Size	Thread Per Inch	No. Of Flute	H Limit	Model No. Plug	Model No. Bott.
1	8	4	H4	311-8568	311-8569
1	12	4	H4	311-8570	311-8571
1	14	4	H4	311-8572	311-8573
1-1/8	7	4	H4	311-8574	311-8575
1-1/8	12	4	H4	311-8576	311-8577
1-1/4	7	4	H4	311-8578	311-8579
1-1/4	12	4	H4	311-8580	311-8581
1-3/8	6	4	H4	311-8582	311-8583
1-3/8	12	4	H4	311-8584	311-8585
1-1/2	6	4	H4	311-8586	311-8587
1-1/2	12	4	H4	311-8588	311-8589

METRIC HAND TAPS

High Speed Steel, Ground Thread



Size	Taper Model No.	Plug Model No.	Bott. Model No.	Set Model No.
1.4x.30	440-4001	440-4002	440-4003	440-4004
1.5x.35	440-4011	440-4012	440-4013	440-4014
1.6x.35	440-4021	440-4022	440-4023	440-4024
1.7x.35	440-4031	440-4032	440-4033	440-4034
1.8x.35	440-4041	440-4042	440-4043	440-4044
2.0x.25	440-4051	440-4052	440-4053	440-4054
2.0x.35	440-4061	440-4062	440-4063	440-4064
2.0x.40	440-4071	440-4072	440-4073	440-4074
2.0x.45	440-4081	440-4082	440-4083	440-4084
2.2x.45	440-4091	440-4092	440-4093	440-4094
2.3x.40	440-4101	440-4102	440-4103	440-4104
2.5x.45	440-4111	440-4112	440-4113	440-4114
2.6x.35	440-4121	440-4122	440-4123	440-4124
2.6x.45	440-4131	440-4132	440-4133	440-4134
3.0x.35	440-4141	440-4142	440-4143	440-4144
3.0x.50	440-4151	440-4152	440-4153	440-4154
3.0x.60	440-4161	440-4162	440-4163	440-4164
3.5x.35	440-4171	440-4172	440-4173	440-4174
3.5x.60	440-4181	440-5382	440-4183	440-5384
4.0x.35	440-5381	440-4182	440-5383	440-4184
4.0x.50	440-4191	440-4192	440-4193	440-4194
4.0x.70	440-4201	440-4202	440-4203	440-4204
4.0x.75	440-4211	440-4212	440-4213	440-4214
4.5x.50	440-4221	440-4222	440-4223	440-4224
4.5x.75	440-4231	440-4232	440-4233	440-4234
5.0x.50	440-4241	440-4242	440-4243	440-4244
5.0x.75	440-4251	440-4252	440-4253	440-4254
5.0x.80	440-4261	440-4262	440-4263	440-4264
5.0x.90	440-4271	440-4272	440-4273	440-4274
5.0x.1.0	440-5391	440-5392	440-5393	440-5394
5.5x.90	440-4281	440-4282	440-4283	440-4284
6.0x.50	440-4291	440-4292	440-4293	440-4294
6.0x.75	440-4301	440-4302	440-4303	440-4304
6.0x1.00	440-4311	440-4312	440-4313	440-4314
6.3x1.00	440-4321	440-4322	440-4323	440-4324
7.0x.75	440-4331	440-4332	440-4333	440-4334
7.0x1.00	440-4341	440-4342	440-4343	440-4344
8.0x.50	440-4351	440-4352	440-4353	440-4354
8.0x.75	440-4361	440-4362	440-4363	440-4364
8.0x1.00	440-4371	440-4372	440-4373	440-4374
8.0x1.25	440-4381	440-4382	440-4383	440-4384
8.0x1.50	440-4391	440-4392	440-4393	440-4394
9.0x.50	440-4401	440-4402	440-4403	440-4404
9.0x.75	440-4411	440-4412	440-4413	440-4414
9.0x1.00	440-4421	440-4422	440-4423	440-4424
9.0x1.25	440-4431	440-4432	440-4433	440-4434
10.0x.50	440-4441	440-4442	440-4443	440-4444
10.0x.75	440-4451	440-4452	440-4453	440-4454
10.0x1.00	440-4461	440-4462	440-4463	440-4464
10.0x1.25	440-4471	440-4472	440-4473	440-4474
10.0x1.50	440-4481	440-4482	440-4483	440-4484
11.0x.50	440-4491	440-4492	440-4493	440-4494
11.0x.75	440-4501	440-4502	440-4503	440-4504
11.0x1.00	440-4511	440-4512	440-4513	440-4514
11.0x1.25	440-5401	440-5402	440-5403	440-5404
11.0x1.50	440-4521	440-4522	440-4523	440-4524
12.0x.75	440-4531	440-4532	440-4533	440-4534
12.0x1.00	440-4541	440-4542	440-4543	440-4544
12.0x1.25	440-4551	440-4552	440-4553	440-4554
12.0x1.50	440-4561	440-4562	440-4563	440-4564
12.0x1.75	440-4571	440-4572	440-4573	440-4574
13.0x1.00	440-4581	440-4582	440-4583	440-4584
13.0x1.50	440-4591	440-4592	440-4593	440-4594
14.0x.75	440-4601	440-4602	440-4603	440-4604
14.0x1.00	440-4611	440-4612	440-4613	440-4614
14.0x1.25	440-4621	440-4622	440-4623	440-4624
14.0x1.50	440-4631	440-4632	440-4633	440-4634
14.0x2.00	440-4641	440-4642	440-4643	440-4644
15.0x1.00	440-4651	440-4652	440-4653	440-4654

Size	Taper Model No.	Plug Model No.	Bott. Model No.	Set Model No.
15.0x1.50	440-4661	440-4662	440-4663	440-4664
15.0x2.00	440-4671	440-4672	440-4673	440-4674
16.0x.75	440-4681	440-4682	440-4683	440-4684
16.0x1.00	440-4691	440-4692	440-4693	440-4694
16.0x1.25	440-4701	440-4702	440-4703	440-4704
16.0x1.50	440-4711	440-4712	440-4713	440-4714
16.0x1.75	440-5411	440-5412	440-5413	440-5414
16.0x2.00	440-4721	440-4722	440-4723	440-4724
17.0x1.00	440-4731	440-4732	440-4733	440-4734
17.0x1.25	440-4741	440-4742	440-4743	440-4744
17.0x1.50	440-4751	440-4752	440-4753	440-4754
18.0x1.00	440-4761	440-4762	440-4763	440-4764
18.0x1.50	440-4771	440-4772	440-4773	440-4774
18.0x2.00	440-4781	440-4782	440-4783	440-4784
18.0x2.50	440-4791	440-4792	440-4793	440-4794
19.0x1.00	440-4801	440-4802	440-4803	440-4804
19.0x1.50	440-4811	440-4812	440-4813	440-4814
19.0x2.00	440-4821	440-4822	440-4823	440-4824
20.0x1.00	440-4831	440-4832	440-4833	440-4834
20.0x1.25	440-4841	440-4842	440-4843	440-4844
20.0x1.50	440-4851	440-4852	440-4853	440-4854
20.0x2.00	440-4861	440-4862	440-4863	440-4864
20.0x2.50	440-4871	440-4872	440-4873	440-4874
21.0x1.00	440-4881	440-4882	440-4883	440-4884
21.0x1.50	440-4891	440-4892	440-4893	440-4894
21.0x2.00	440-4901	440-4902	440-4903	440-4904
22.0x1.00	440-4911	440-4912	440-4913	440-4914
22.0x1.50	440-4921	440-4922	440-4923	440-4924
22.0x2.00	440-4931	440-4932	440-4933	440-4934
22.0x2.50	440-4941	440-4942	440-4943	440-4944
24.0x1.50	440-4951	440-4952	440-4953	440-4954
24.0x1.00	440-4961	440-4962	440-4963	440-4964
24.0x2.00	440-4971	440-4972	440-4973	440-4974
24.0x2.50	440-4981	440-4982	440-4983	440-4984
24.0x3.00	440-4991	440-4992	440-4993	440-4994
25.0x1.50	440-5001	440-5002	440-5003	440-5004
25.0x1.00	440-5011	440-5012	440-5013	440-5014
25.0x2.00	440-5021	440-5022	440-5023	440-5024
25.0x3.00	440-5031	440-5032	440-5033	440-5034
26.0x1.50	440-5041	440-5042	440-5043	440-5044
26.0x2.00	440-5051	440-5052	440-5053	440-5054
27.0x1.00	440-5061	440-5062	440-5063	440-5064
27.0x1.50	440-5071	440-5072	440-5073	440-5074
27.0x2.00	440-5081	440-5082	440-5083	440-5084
27.0x3.00	440-5091	440-5092	440-5093	440-5094
28.0x1.50	440-5101	440-5102	440-5103	440-5104
30.0x1.00	440-5111	440-5112	440-5113	440-5114
30.0x1.50	440-5121	440-5122	440-5123	440-5124
30.0x2.00	440-5131	440-5132	440-5133	440-5134
30.0x3.50	440-5141	440-5142	440-5143	440-5144
32.0x1.50	440-5151	440-5152	440-5153	440-5154
32.0x2.00	440-5161	440-5162	440-5163	440-5164
33.0x2.00	440-5171	440-5172	440-5173	440-5174
33.0x3.50	440-5181	440-5182	440-5183	440-5184
35.0x1.50	440-5191	440-5192	440-5193	440-5194
36.0x1.50	440-5201	440-5202	440-5203	440-5204
36.0x2.0	440-5211	440-5212	440-5213	440-5214
36.0x3.00	440-5221	440-5222	440-5223	440-5224
36.0x4.00	440-5231	440-5232	440-5233	440-5234
39.0x1.50	440-5241	440-5242	440-5243	440-5244
39.0x3.00	440-5251	440-5252	440-5253	440-5254
39.0x4.00	440-5261	440-5262	440-5263	440-5264
40.0x1.50	440-5271	440-5272	440-5273	440-5274
42.0x1.50	440-5281	440-5282	440-5283	440-5284
42.0x3.00	440-5291	440-5292	440-5293	440-5294
42.0x4.50	440-5301	440-5302	440-5303	440-5304
45.0x1.50	440-5311	440-5312	440-5313	440-5314
45.0x3.00	440-5321	440-5322	440-5323	440-5324
45.0x4.50	440-5331	440-5332	440-5333	440-5334
48.0x1.50	440-5341	440-5342	440-5343	440-5344
48.0x5.00	440-5351	440-5352	440-5353	440-5354
52.0x1.50	440-5361	440-5362	440-5363	440-5364
52.0x5.00	440-5371	440-5372	440-5373	440-5374

METRIC HAND TAPS

3 Piece, High Speed Steel, Din 352

Size	Overall Length	Thread Length	Model No.
M1x0.5	32	5.5	311-1201
M1.1x0.25	32	5.5	311-1202
M1.2x0.25	32	5.5	311-1209
M1.4x0.3	32	7	311-1211
M1.6x0.35	32	8	311-1213
M1.7x0.35	32	8	311-1215
M1.8x0.35	32	8	311-1217
M2x0.4	36	8	311-1223
M2.2x0.45	36	9	311-1225
M2.3x0.4	36	9	311-1227
M2.5x0.45	40	9	311-1228
M2.6x0.45	40	9	311-1229
M3x0.5	40	11	311-1203
M.35x0.6	45	13	311-1230
M4x0.7	45	13	311-1204
M4.5x0.75	50	16	311-1231
M5x0.8	50	16	311-1205
M6x1	50	19	311-1206
M7x1	50	19	311-1207
M8x1.25	56	22	311-1208
M9x1.25	63	22	311-1232
M10x1.5	70	24	311-1210
M11x1.5	70	24	311-1233
M12x1.75	75	29	311-1212
M14x2	80	30	311-1214



Size	Overall Length	Thread Length	Model No.
M16x2	80	32	311-1216
M18x2.5	95	40	311-1218
M20x2.5	95	40	311-1220
M22x2.5	100	40	311-1222
M24x3	110	50	311-1224
M27x3	110	50	311-1234
M30x3.5	125	56	311-1235
M33x3.5	125	56	311-1236
M36x4	150	63	311-1237
M39x4	150	63	311-1238
M42x4.5	150	63	311-1239
M45x4.5	160	70	311-1240
M48x5	180	75	311-1241
M52x5	180	75	311-1242
M56x5.5	200	85	311-1243
M60x5.5	200	85	311-1244
M64x6	220	90	311-1245
M68x6	220	90	311-1246

TAP SETS

3 Piece, High Speed Steel, Right Hand, Din 351



Size	Overall Length	Thread Length	Model No.
No.1-64UNC	32	10	311-3201
No.2-56UNC	36	11	311-3202
No.3-48UNC	36	11	311-3203
No.4-40UNC	40	12	311-3204
No.5-40UNC	40	12	311-3205
No.6-32UNC	45	14	311-3206
No.8-32UNC	45	14	311-3207
No.10-24UNC	48	16	311-3208
No.12-24UNC	50	18	311-3209
1/4UNC	56	22	311-3210
5/16-18UNC	63	25	311-3211
3/8-16UNC	70	28	311-3212
7/16-14UNC	75	30	311-3213

Size	Overall Length	Thread Length	Model No.
1/2-13UNC	80	32	311-3214
9/16-12UNC	80	32	311-3215
5/8-11UNC	90	36	311-3216
3/4-10UNC	105	40	311-3217
7/8-9UNC	110	45	311-3218
1-8UNC	110	50	311-3219
1-1/8-7UNC	132	56	311-3220
1-1/4-7UNC	132	56	311-3221
1-3/8-6UNC	150	63	311-3222
1-1/2-6UNC	150	63	311-3223
1-3/4-5UNC	160	70	311-3224
2-4-1/2UNC	190	80	311-3225

TAP SETS

3 Piece, High Speed Steel, Right Hand, Din 351



Size	Overall Length	Thread Length	Model No.
1/16-60BSW	32	10	311-3004
3/32-48BSW	36	11	311-3006
1/8-40BSW	40	12	311-3008
5/32-32BSW	45	14	311-3010
3/16-24BSW	50	18	311-3012
7/32-24BSW	50	18	311-3014
1/4-20BSW	56	22	311-3016
5/16-18BSW	63	25	311-3020
3/8-16BSW	70	28	311-3024
7/16-14BSW	75	30	311-3028
1/2-12BSW	80	32	311-3032
9/16-12BSW	80	32	311-3036

Size	Overall Length	Thread Length	Model No.
5/8-11BSW	80	32	311-3040
3/4-10BSW	80	32	311-3048
7/8-9BSW	90	36	311-3056
1-8BSW	105	40	311-3100
1-1/8-7BSW	110	45	311-3108
1-1/4-7BSW	110	50	311-3116
1-3/8-6BSW	132	56	311-3124
1-1/2-6BSW	132	56	311-3132
1-5/8-5BSW	150	63	311-3140
1-3/4-5BSW	150	63	311-3148
1-7/8-4-1/2BSW	160	70	311-3156
2-4-1/2BSW	190	80	311-3200

METRIC HAND TAPS

2 Piece, High Speed Steel,
MF DIN 2181



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
M3x0.35	40	9	311-1302	M16x1.25	70	22	311-1327	M32x1.5	90	22	311-1358
M4x0.35	45	10	311-1304	M16x1.5	70	22	311-1334	M33x1.5	100	25	311-1359
M4x0.5	45	10	311-1306	M18x1	80	22	311-1329	M33x2	100	25	311-1360
M5x0.5	50	12	311-1308	M18x1.25	80	22	311-1331	M34x1.5	100	25	311-1361
M6x0.5	50	14	311-1309	M18x1.5	80	22	311-1336	M35x1.5	100	25	311-1362
M6x0.75	50	14	311-1310	M18x2	80	22	311-1333	M36x1.5	100	25	311-1363
M7x0.75	50	14	311-1311	M20x1	80	22	311-1335	M36x2	125	40	311-1364
M8x0.5	50	19	311-1312	M20x1.25	80	22	311-1337	M36x3	125	40	311-1365
M8x0.75	50	19	311-1313	M20x1.5	80	22	311-1338	M38x1.5	100	25	311-1366
M8x1	56	22	311-1314	M20x2	80	22	311-1339	M39x2	125	40	311-1367
M9x1	63	22	311-1315	M22x1	80	22	311-1344	M39x3	125	40	311-1368
M10x0.75	63	20	311-1343	M22x1.5	80	22	311-1340	M40x1.5	110	25	311-1369
M10x1	63	24	311-1316	M22x2	80	22	311-1345	M40x2	125	40	311-1370
M10x1.25	70	20	311-1318	M24x1	90	22	311-1346	M42x1.5	110	25	311-1371
M11x1	63	22	311-1317	M24x1.5	90	22	311-1342	M42x2	125	40	311-1372
M12x1	70	22	311-1320	M24x2	90	22	311-1347	M43x3	125	40	311-1373
M12x1.25	70	22	311-1322	M25x1.5	90	22	311-1348	M45x1.5	110	25	311-1374
M12x1.5	70	22	311-1324	M26x1.5	90	22	311-1349	M45x2	125	40	311-1375
M13x1	70	22	311-1319	M26x2	90	22	311-1350	M45x3	125	40	311-1376
M13x1.5	70	22	311-1321	M27x1.5	90	22	311-1351	M48x1.5	140	40	311-1377
M14x1	70	22	311-1326	M27x2	90	22	311-1352	M48x2	140	40	311-1378
M14x1.25	70	22	311-1328	M28x1.5	90	22	311-1353	M48x3	140	40	311-1379
M14x1.5	70	22	311-1330	M28x2	90	22	311-1354	M50x1.5	140	40	311-1380
M15x1	70	22	311-1323	M30x1	90	22	311-1355	M52x1.5	140	40	311-1381
M15x1.5	70	22	311-1325	M30x1.5	90	22	311-1356	M52x2	140	40	311-1382
M16x1	70	22	311-1332	M30x2	90	22	311-1357	M52x3	140	40	311-1383

STRAIGHT PIPE TAPS

2 Piece, High Speed Steel
DIN 5157



Size	Overall Length	Thread Length	Model No.
G1/16-28	56	22	311-1000
G1/8-28	63	20	311-1008
G1/4-19	70	22	311-1016
G3/8-19	70	22	311-1024
G1/2-14	80	22	311-1032
G5/8-14	80	22	311-1040
G3/4-14	90	22	311-1048
G7/8-14	90	22	311-1056
G1-11	100	25	311-1064
G1-1/8-11	125	40	311-1065
G1-1/4-11	125	40	311-1066
G1-1/2-11	140	40	311-1067
G1-3/4-11	140	40	311-1068
G2-11	160	40	311-1069
G2-1/4-11	160	40	311-1070
G2-1/2-11	160	40	311-1071
G2-3/4-11	160	40	311-1072
G3-11	160	40	311-1073
G3-1/2-11	180	45	311-1074
G4-11	180	45	311-1075

METRIC HAND TAPS

2 Piece, High Speed Steel, DIN 351



Size	Overall Length	Thread Length	Model No.
No.0-80UNF	28	8	311-3300
No.1-72UNF	32	10	311-3301
No.2-64UNF	32	10	311-3302
No.3-56UNF	32	10	311-3303
No.4-48UNF	36	11	311-3304
No.5-44UNF	40	12	311-3305
No.6-40UNF	40	12	311-3306
No.8-36UNF	40	12	311-3307
No.10-32UNF	45	14	311-3308
No.12-28UNF	50	16	311-3309
1/4-28UNF	56	18	311-3310
5/16-24UNF	56	18	311-3311
3/8-24UNF	63	18	311-3312
7/16-20UNF	63	18	311-3313
1/2-20UNF	63	20	311-3314
9/16-18UNF	70	20	311-3315
5/8-18UNF	70	20	311-3316
3/4-16UNF	80	22	311-3317
7/8-14UNF	80	22	311-3318
1-14UNF	90	22	311-3319
1-12UNF	90	22	311-3320
1-1/8-12UNF	100	28	311-3321
1-1/4-12UNF	100	28	311-3322
1-3/8-12UNF	110	32	311-3323
1-1/2-12UNF	110	32	311-3324

SPIRAL POINT TAPS

High Speed Steel, DIN 371



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
M2x0.4	45	8	311-0800	W7/32-24	80	16	311-0817	1/4-20UNC	80	17	311-0834
M2.2x0.45	45	9	311-0801	W1/4-20	80	17	311-0818	5/16-18UNC	90	20	311-0835
M2.5x0.45	50	9	311-0802	W5/16-18	90	20	311-0819	3/8-16UNC	100	22	311-0836
M3x0.5	56	11	311-0803	W3/8-16	100	22	311-0820	No.0-80UNF	40	8	311-0837
M3.5x0.6	56	13	311-0804	BSF3/16-32	70	15	311-0821	No.1-72UNF	40	8	311-0838
M4x0.7	63	13	311-0805	BSF1/4-26	80	17	311-0822	No.2-64UNF	45	9	311-0839
M5x0.8	70	16	311-0806	BSF5/16-22	90	20	311-0823	No.3-56UNF	50	9	311-0840
M6x1	80	19	311-0807	BSF3/8-20	100	22	311-0824	No.4-48UNF	56	11	311-0841
M7x1	80	19	311-0808	No.1-64UNC	40	8	311-0825	No.5-44UNF	56	11	311-0842
M8x1.25	90	22	311-0809	No.2-56UNC	45	9	311-0826	No.6-40UNF	56	12	311-0843
M9x1.25	90	22	311-0810	No.3-48UNC	50	9	311-0827	No.8-36UNF	63	13	311-0844
M10x1.25	100	24	311-0811	No.4-40UNC	56	11	311-0828	No.10-32UNF	70	15	311-0845
W1/16-60	40	8	311-0812	No.5-40UNC	56	11	311-0829	No.12-28UNF	80	16	311-0846
W3/32-48	50	9	311-0813	No.6-32UNC	56	12	311-0830	1/4-28UNF	80	17	311-0847
W1/8-40	56	11	311-0814	No.8-32UNC	63	13	311-0831	5/16-24UNF	90	20	311-0848
W5/32-32	63	13	311-0815	No.10-24UNC	70	15	311-0832	3/8-24UNF	100	22	311-0849
W3/16-24	70	15	311-0816	No.12-24UNC	80	15	311-0833				

MACHINE TAPS

High Speed Steel, DIN 371



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
M1.4x0.3	40	7	311-2900	W3/32-48	50	9	311-2919	No.10-24UNC	70	15	311-2938
M1.6x0.35	40	8	311-2901	W1/8-40	56	11	311-2920	No.12-24UNC	80	15	311-2939
M1.7x0.35	40	8	311-2902	W5/32-32	63	13	311-2921	1/4-20UNC	80	17	311-2940
M1.8x0.35	40	8	311-2903	W3/16-24	70	15	311-2922	5/16-18UNC	90	20	311-2941
M2x0.4	45	8	311-2904	W7/32-24	80	16	311-2923	3/8-16UNC	100	22	311-2942
M2.2x0.45	45	9	311-2905	W1/4-20	80	17	311-2924	No.0-80UNF	40	8	311-2943
M2.3x0.4	45	9	311-2906	W5/16-18	90	20	311-2925	No.1-72UNF	40	8	311-2944
M2.5x0.45	50	9	311-2907	W3/8-16	100	22	311-2926	No.2-64UNF	45	9	311-2945
M2.6x0.45	50	9	311-2908	BSF3/16-32	70	15	311-2927	No.3-56UNF	50	9	311-2946
M3x0.5	56	11	311-2909	BSF1/4-26	80	17	311-2928	No.4-48UNF	56	11	311-2947
M3.5x0.6	56	13	311-2910	BSF5/16-22	90	20	311-2929	No.5-44UNF	56	11	311-2948
M4x0.7	63	13	311-2911	BSF3/8-20	100	22	311-2930	No.6-40UNF	56	12	311-2949
M5x0.8	70	16	311-2912	No.1-64UNC	40	8	311-2931	No.8-36UNF	63	13	311-2950
M6x1	80	19	311-2913	No.2-56UNC	45	9	311-2932	No.10-32UNF	70	15	311-2951
M7x1	80	19	311-2914	No.3-48UNC	50	9	311-2933	No.12-28UNF	80	16	311-2952
M8x1.25	90	22	311-2915	No.4-40UNC	56	11	311-2934	1/4-28UNF	80	17	311-2953
M9x1.25	90	22	311-2916	No.5-40UNC	56	11	311-2935	5/16-24UNF	90	20	311-2954
M10x1.25	100	24	311-2917	No.6-32UNC	56	12	311-2936	3/8-24UNF	100	22	311-2955
W1/16-60	40	8	311-2918	No.8-32UNC	63	13	311-2937				

SPIRAL FLUTED TAPS

High Speed Steel, DIN 371



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
M2x0.4	45	8	311-0900	W7/32-24	80	16	311-0917	1/4-20UNC	80	17	311-0934
M2.2x0.45	45	9	311-0901	W1/4-20	80	17	311-0918	5/16-18UNC	90	20	311-0935
M2.5x0.45	50	9	311-0902	W5/16-18	90	20	311-0919	3/8-16UNC	100	22	311-0936
M3x0.5	56	11	311-0903	W3/8-16	100	22	311-0920	No.0-80UNF	40	8	311-0937
M3.5x0.6	56	13	311-0904	BSF3/16-32	70	15	311-0921	No.1-72UNF	40	8	311-0938
M4x0.7	63	13	311-0905	BSF1/4-26	80	17	311-0922	No.2-64UNF	45	9	311-0939
M5x0.8	70	16	311-0906	BSF5/16-22	90	20	311-0923	No.3-56UNF	50	9	311-0940
M6x1	80	19	311-0907	BSF3/8-20	100	22	311-0924	No.4-48UNF	56	11	311-0941
M7x1	80	19	311-0908	No.1-64UNC	40	8	311-0925	No.5-44UNF	56	11	311-0942
M8x1.25	90	22	311-0909	No.2-56UNC	45	9	311-0926	No.6-40UNF	56	12	311-0943
M9x1.25	90	22	311-0910	No.3-48UNC	50	9	311-0927	No.8-36UNF	63	13	311-0944
M10x1.25	100	24	311-0911	No.4-40UNC	56	11	311-0928	No.10-32UNF	70	15	311-0945
W1/16-60	40	8	311-0912	No.5-40UNC	56	11	311-0929	No.12-28UNF	80	16	311-0946
W3/32-48	50	9	311-0913	No.6-32UNC	56	12	311-0930	1/4-28UNF	80	17	311-0947
W1/8-40	56	11	311-0914	No.8-32UNC	63	13	311-0931	5/16-24UNF	90	20	311-0948
W5/32-32	63	13	311-0915	No.10-24UNC	70	15	311-0932	3/8-24UNF	100	22	311-0949
W3/16-24	70	15	311-0916	No.12-24UNC	80	15	311-0933				

GROUND THREAD MACHINE TAPS

High Speed Steel, DIN 376



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
1/4UNC	80	17	311-7300	1-3/8-12UNF	170	30	311-7326	M4x0.7	63	13	311-7352
5/16UNC	90	20	311-7301	1-1/2-12UNF	170	30	311-7327	M5x0.8	70	16	311-7353
3/8-16UNC	100	22	311-7302	W3/8-16	100	22	311-7328	M6x1	80	19	311-7354
7/16-14UNC	100	22	311-7303	W7/16-14	100	22	311-7329	M7x1	80	19	311-7355
1/2-13UNC	110	24	311-7304	W1/2-12	110	24	311-7330	M8x1.25	90	22	311-7356
9/16-12UNC	110	26	311-7305	W9/16-12	110	26	311-7331	M9x1.25	90	22	311-7357
5/8-11UNC	110	27	311-7306	W5/8-11	110	27	311-7332	M10x1.5	100	24	311-7358
3/4-10UNC	125	30	311-7307	W3/4-10	125	30	311-7333	M11x1.5	100	24	311-7359
7/8-9UNC	140	32	311-7308	W7/8-9	140	32	311-7334	M12x1.75	110	29	311-7360
1-8UNC	160	36	311-7309	W1-8	160	36	311-7335	M14x2	110	30	311-7361
1-1/8-7UNC	180	40	311-7310	W1-1/8-7	180	40	311-7336	M16x2	110	32	311-7362
1-1/4-7UNC	180	40	311-7311	W1-1/4-7	180	40	311-7337	M18x2.5	125	34	311-7363
1-3/8-6UNC	200	50	311-7312	W1-3/8-6	200	50	311-7338	M20x2.5	140	34	311-7364
1-1/2-6UNC	200	50	311-7313	W1-1/2-6	200	50	311-7339	M22x2.5	140	34	311-7365
1/4-28UNF	80	17	311-7314	W1-3/4-5	220	58	311-7340	M24x3	160	38	311-7366
5/16-24UNF	90	20	311-7315	W2-4-1/2	250	65	311-7341	M27x3	160	38	311-7367
3/8-24UNF	90	16	311-7316	BSF1/4-26	80	17	311-7342	M30x3.5	180	45	311-7368
7/16-20UNF	100	22	311-7317	BSF5/16-22	90	20	311-7343	M33x3.5	180	50	311-7369
1/2-20UNF	100	22	311-7318	BSF3/8-20	100	22	311-7344	M36x4	200	56	311-7370
9/16-18UNF	100	22	311-7319	BSF7/16-18	100	22	311-7345	M39x4	200	60	311-7371
5/8-18UNF	100	22	311-7320	BSF1/2-16	110	24	311-7346	M42x4.5	200	60	311-7372
3/4-16UNF	110	25	311-7321	BSF5/8-14	110	27	311-7347	M45x4.5	220	65	311-7373
7/8-14UNF	125	25	311-7322	BSF3/4-12	125	30	311-7348	M48x5	250	70	311-7374
1-12UNF	140	28	311-7323	BSF7/8-11	140	32	311-7349	M52x5	250	70	311-7375
1-1/8-12UNF	150	28	311-7324	BSF1-10	160	36	311-7350				
1-1/4-12UNF	150	28	311-7325	M3x0.5	56	11	311-7351				

SPIRAL FLUTED TAPS

High Speed Steel, DIN 376



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
1/4UNC	80	17	311-7400	1-3/8-12UNF	170	30	311-7426	M4x0.7	63	13	311-7452
5/16UNC	90	20	311-7401	1-1/2-12UNF	170	30	311-7427	M5x0.8	70	16	311-7453
3/8-16UNC	100	22	311-7402	W3/8-16	100	22	311-7428	M6x1	80	19	311-7454
7/16-14UNC	100	22	311-7403	W7/16-14	100	22	311-7429	M7x1	80	19	311-7455
1/2-13UNC	110	24	311-7404	W1/2-12	110	24	311-7430	M8x1.25	90	22	311-7456
9/16-12UNC	110	26	311-7405	W9/16-12	110	26	311-7431	M9x1.25	90	22	311-7457
5/8-11UNC	110	27	311-7406	W5/8-11	110	27	311-7432	M10x1.5	100	24	311-7458
3/4-10UNC	125	30	311-7407	W3/4-10	125	30	311-7433	M11x1.5	100	24	311-7459
7/8-9UNC	140	32	311-7408	W7/8-11	140	32	311-7434	M12x1.75	110	29	311-7460
1-8UNC	160	36	311-7409	W1-8	160	36	311-7435	M14x2	110	30	311-7461
1-1/8-7UNC	180	40	311-7410	W1-1/8-7	180	40	311-7436	M16x2	110	32	311-7462
1-1/4-7UNC	180	40	311-7411	W1-1/4-7	180	40	311-7437	M18x2.5	125	34	311-7463
1-3/8-6UNC	200	50	311-7412	W1-3/8-6	200	50	311-7438	M20x2.5	140	34	311-7464
1-1/2-6UNC	200	50	311-7413	W1-1/2-6	200	50	311-7439	M22x2.5	140	34	311-7465
1/4-28UNF	80	17	311-7414	W1-3/4-5	220	58	311-7440	M24x3	160	38	311-7466
5/16-24UNF	90	20	311-7415	W2-4-1/2	250	65	311-7441	M27x3	160	38	311-7467
3/8-24UNF	90	16	311-7416	BSF1/4-26	80	17	311-7442	M30x3.5	180	45	311-7468
7/16-20UNF	100	22	311-7417	BSF5/16-22	90	20	311-7443	M33x3.5	180	50	311-7469
1/2-20UNF	100	22	311-7418	BSF3/8-20	100	22	311-7444	M36x4	200	56	311-7470
9/16-18UNF	100	22	311-7419	BSF7/16-18	100	22	311-7445	M39x4	200	60	311-7471
5/8-18UNF	100	22	311-7420	BSF1/2-16	110	24	311-7446	M42x4.5	200	60	311-7472
3/4-16UNF	110	25	311-7421	BSF5/8-14	110	27	311-7447	M45x4.5	220	65	311-7473
7/8-14UNF	125	25	311-7422	BSF3/4-12	125	30	311-7448	M48x5	250	70	311-7474
1-12UNF	140	28	311-7423	BSF7/8-11	140	32	311-7449	M52x5	250	70	311-7475
1-1/8-12UNF	150	28	311-7424	BSF1-10	160	36	311-7450				
1-1/4-12UNF	150	28	311-7425	M3x0.5	56	11	311-7451				

SPIRAL POINT TAPS

High Speed Steel, DIN 376



Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.	Size	Overall Length	Thread Length	Model No.
1/4UNC	80	17	311-7500	1-3/8-12UNF	170	30	311-7526	M4x0.7	63	13	311-7552
5/16UNC	90	20	311-7501	1-1/2-12UNF	170	30	311-7527	M5x0.8	70	16	311-7553
3/8-16UNC	100	22	311-7502	W3/8-16	100	22	311-7528	M6x1	80	19	311-7554
7/16-14UNC	100	22	311-7503	W7/16-14	100	22	311-7529	M7x1	80	19	311-7555
1/2-13UNC	110	24	311-7504	W1/2-12	110	24	311-7530	M8x1.25	90	22	311-7556
9/16-12UNC	110	26	311-7505	W9/16-12	110	26	311-7531	M9x1.25	90	22	311-7557
5/8-11UNC	110	27	311-7506	W5/8-11	110	27	311-7532	M10x1.5	100	24	311-7558
3/4-10UNC	125	30	311-7507	W3/4-10	125	30	311-7533	M11x1.5	100	24	311-7559
7/8-9UNC	140	32	311-7508	W7/8-11	140	32	311-7534	M12x1.75	110	29	311-7560
1-8UNC	160	36	311-7509	W1-8	160	36	311-7535	M14x2	110	30	311-7561
1-1/8-7UNC	180	40	311-7510	W1-1/8-7	180	40	311-7536	M16x2	110	32	311-7562
1-1/4-7UNC	180	40	311-7511	W1-1/4-7	180	40	311-7537	M18x2.5	125	34	311-7563
1-3/8-6UNC	200	50	311-7512	W1-3/8-6	200	50	311-7538	M20x2.5	140	34	311-7564
1-1/2-6UNC	200	50	311-7513	W1-1/2-6	200	50	311-7539	M22x2.5	140	34	311-7565
1/4-28UNF	80	17	311-7514	W1-3/4-5	220	58	311-7540	M24x3	160	38	311-7566
5/16-24UNF	90	20	311-7515	W2-4-1/2	250	65	311-7541	M27x3	160	38	311-7567
3/8-24UNF	90	16	311-7516	BSF1/4-26	80	17	311-7542	M30x3.5	180	45	311-7568
7/16-20UNF	100	22	311-7517	BSF5/16-22	90	20	311-7543	M33x3.5	180	50	311-7569
1/2-20UNF	100	22	311-7518	BSF3/8-20	100	22	311-7544	M36x4	200	56	311-7570
9/16-18UNF	100	22	311-7519	BSF7/16-18	100	22	311-7545	M39x4	200	60	311-7571
5/8-18UNF	100	22	311-7520	BSF1/2-16	110	24	311-7546	M42x4.5	200	60	311-7572
3/4-16UNF	110	25	311-7521	BSF5/8-14	110	27	311-7547	M45x4.5	220	65	311-7573
7/8-14UNF	125	25	311-7522	BSF3/4-12	125	30	311-7548	M48x5	250	70	311-7574
1-12UNF	140	28	311-7523	BSF7/8-11	140	32	311-7549	M52x5	250	70	311-7575
1-1/8-12UNF	150	28	311-7524	BSF1-10	160	36	311-7550				
1-1/4-12UNF	150	28	311-7525	M3x0.5	56	11	311-7551				

HAND TAPS

Carbon Steel-Cut Thread, DIN 351



Size	Overall Length	Thread Length	Model No.
No.3-48UNC	36	11	311-0301
No.4-40UNC	40	12	311-0302
No.5-40UNC	40	12	311-0303
No.6-32UNC	45	14	311-0305
No.8-32UNC	45	14	311-0306
No.10-24UNC	48	16	311-0307
No.12-24UNC	50	18	311-0308
1/4-20UNC	56	22	311-0309
5/16-18UNC	63	25	311-0310
3/8-16UNC	70	28	311-0311
7/16-14UNC	75	30	311-0312
1/2-13UNC	80	32	311-0313
9/16-12UNC	80	32	311-0314
5/8-11UNC	90	36	311-0315
3/4-10UNC	105	40	311-0316
7/8-9UNC	110	45	311-0317
1-8UNC	110	50	311-0318
1-1/8-7UNC	132	56	311-0319
1-1/4-7UNC	132	56	311-0320
1-3/8-6UNC	150	63	311-0321
1-1/2-6UNC	150	63	311-0322
No.3-56UNF	32	10	311-0323
No.4-48UNF	36	11	311-0324
No.5-44UNF	40	12	311-0325
No.6-40UNF	40	12	311-0326
No.8-36UNF	40	12	311-0327
No.10-32UNF	45	14	311-0328
No.12-28UNF	50	16	311-0329
1/4-28UNF	56	18	311-0330
5/16-24UNF	56	18	311-0331
3/8-24UNF	63	18	311-0332
7/16-20UNF	63	18	311-0333

Size	Overall Length	Thread Length	Model No.
1/2-20UNF	63	20	311-0334
9/16-18UNF	70	20	311-0335
5/8-18UNF	70	20	311-0336
3/4-16UNF	80	22	311-0337
7/8-14UNF	80	22	311-0338
1-12UNF	90	22	311-0339
1-1/8-12UNF	100	28	311-0340
1-1/4-12UNF	100	28	311-0341
1-3/8-12UNF	110	32	311-0342
1-1/2-12UNF	110	32	311-0343
1/8BSW	40	12	311-0344
5/32-32BSW	45	14	311-0345
3/16-24BSW	50	18	311-0346
7/32-24BSW	50	18	311-0347
1/4-20BSW	56	22	311-0348
5/16-18BSW	63	25	311-0349
3/8-16BSW	70	28	311-0350
7/16-14BSW	75	30	311-0351
1/2-12BSW	80	32	311-0352
9/16-12BSW	80	32	311-0353
5/8-11BSW	90	36	311-0354
3/4-10BSW	105	40	311-0355
7/8-8BSW	110	45	311-0356
1-8BSW	110	50	311-0357
1-1/8-7BSW	132	56	311-0358
1-1/4-7BSW	132	56	311-0359
1-3/8-6BSW	150	63	311-0360
1-1/2-6BSW	150	63	311-0361
1-5/8-5BSW	160	70	311-0362
1-3/4-5BSW	160	70	311-0363
1-7/8-4-1/2BSW	190	80	311-0364
2-4-1/2BSW	190	80	311-0365

STRAIGHT FLUTED MACHINE TAPS

High Speed Steel, DIN 374



Size	Overall Length	Thread Length	Model No.
M3x0.35	56	10	311-7200
M3.5x0.35	56	10	311-7201
M4x0.35	63	10	311-7202
M4x0.5	63	10	311-7203
M5x0.5	70	12	311-7204
M6x0.5	80	14	311-7205
M6x0.75	80	14	311-7206
M7x0.75	80	14	311-7207
M8x0.5	80	19	311-7208
M8x1	80	19	311-7209
M9x1	90	22	311-7210
M10x0.5	90	22	311-7211
M10x0.75	90	20	311-7212
M10x1	90	20	311-7213
M10x1.25	90	20	311-7214
M11x1	100	24	311-7215
M11x1.25	90	20	311-7216
M12x0.75	90	20	311-7217
M12x1	100	22	311-7218
M12x1.25	100	22	311-7219
M12x1.5	100	22	311-7220
M13x1	100	22	311-7221
M13x1.5	100	22	311-7222
M14x0.75	100	22	311-7223
M14x1	100	22	311-7224
M14x1.25	100	22	311-7225
M14x1.5	100	22	311-7226
M16x1	100	22	311-7227
M16x1.25	100	22	311-7228
M16x1.5	100	22	311-7229
M18x1	100	22	311-7230
M18x1.25	110	25	311-7231
M18x1.5	110	25	311-7232
M18x2	125	34	311-7233
M20x1	125	25	311-7234
M20x1.5	125	25	311-7235
M20x2	140	34	311-7236
M22x1	125	25	311-7237
M22x1.5	125	25	311-7238
M22x2	140	34	311-7239
M24x1	140	28	311-7240
M24x1.5	140	28	311-7241
M24x2	140	28	311-7242
M26x1.5	140	28	311-7243
M27x2	140	28	311-7244
M28x1.5	140	28	311-7245
M30x1.5	150	28	311-7246
M30x2	150	28	311-7247
M32x1.5	150	28	311-7248
M35x1.5	170	30	311-7249
M36x1.5	170	30	311-7250
M38x1.5	170	30	311-7251
M40x1.5	170	30	311-7252
M42x1.5	170	30	311-7253
M45x1.5	180	32	311-7254
M48x1.5	190	32	311-7255
M50x1.5	190	32	311-7556
M52x1.5	190	32	311-7257

SPIRAL POINT TAPS

High Speed Steel, DIN 374



Size	Overall Length	Thread Length	Model No.
M3x0.35	56	10	311-7000
M3.5x0.35	56	10	311-7001
M4x0.35	63	10	311-7002
M4x0.5	63	10	311-7003
M5x0.5	70	12	311-7004
M6x0.5	80	14	311-7005
M6x0.75	80	14	311-7006
M7x0.75	80	14	311-7007
M8x0.5	80	19	311-7008
M8x1	80	19	311-7009
M9x1	90	22	311-7010
M10x0.5	90	22	311-7011
M10x0.75	90	20	311-7012
M10x1	90	20	311-7013
M10x1.25	90	20	311-7014
M11x1	100	24	311-7015
M11x1.25	90	20	311-7016
M12x0.75	90	20	311-7017
M12x1	100	22	311-7018
M12x1.25	100	22	311-7019
M12x1.5	100	22	311-7020
M13x1	100	22	311-7021
M13x1.5	100	22	311-7022
M14x0.75	100	22	311-7023
M14x1	100	22	311-7024
M14x1.25	100	22	311-7025
M14x1.5	100	22	311-7026
M16x1	100	22	311-7027
M16x1.25	100	22	311-7028
M16x1.5	100	22	311-7029
M18x1	100	22	311-7030
M18x1.25	110	25	311-7031
M18x1.5	110	25	311-7032
M18x2	125	34	311-7033
M20x1	125	25	311-7034
M20x1.5	125	25	311-7035
M20x2	140	34	311-7036
M22x1	125	25	311-7037
M22x1.5	125	25	311-7038
M22x2	140	34	311-7039
M24x1	140	28	311-7040
M24x1.5	140	28	311-7041
M24x2	140	28	311-7042
M26x1.5	140	28	311-7043
M27x2	140	28	311-7044
M28x1.5	140	28	311-7045
M30x1.5	150	28	311-7046
M30x2	150	28	311-7047
M32x1.5	150	28	311-7048
M35x1.5	170	30	311-7049
M36x1.5	170	30	311-7050
M38x1.5	170	30	311-7051
M40x1.5	170	30	311-7052
M42x1.5	170	30	311-7053
M45x1.5	180	32	311-7054
M48x1.5	190	32	311-7055
M50x1.5	190	32	311-7056
M52x1.5	190	32	311-7057

SPIRAL FLUTED TAPS

High Speed Steel, DIN 374



Size	Overall Length	Thread Length	Model No.
M3x0.35	56	10	311-7100
M3.5x0.35	56	10	311-7101
M4x0.35	63	10	311-7102
M4x0.5	63	10	311-7103
M5x0.5	70	12	311-7104
M6x0.5	80	14	311-7105
M6x0.75	80	14	311-7106
M7x0.75	80	14	311-7107
M8x0.5	80	19	311-7108
M8x1	80	19	311-7109
M9x1	90	22	311-7110
M10x0.5	90	22	311-7111
M10x0.75	90	20	311-7112
M10x1	90	20	311-7113
M10x1.25	90	20	311-7114
M11x1	100	24	311-7115
M11x1.25	90	20	311-7116
M12x0.75	90	20	311-7117
M12x1	100	22	311-7118
M12x1.25	100	22	311-7119
M12x1.5	100	22	311-7120
M13x1	100	22	311-7121
M13x1.5	100	22	311-7122
M14x0.75	100	22	311-7123
M14x1	100	22	311-7124
M14x1.25	100	22	311-7125
M14x1.5	100	22	311-7126
M16x1	100	22	311-7127
M16x1.25	100	22	311-7128
M16x1.5	100	22	311-7129
M18x1	100	22	311-7130
M18x1.25	110	25	311-7131
M18x1.5	110	25	311-7132
M18x2	125	34	311-7133
M20x1	125	25	311-7134
M20x1.5	125	25	311-7135
M20x2	140	34	311-7136
M22x1	125	25	311-7137
M22x1.5	125	25	311-7138
M22x2	140	34	311-7139
M24x1	140	28	311-7140
M24x1.5	140	28	311-7141
M24x2	140	28	311-7142
M26x1.5	140	28	311-7143
M27x2	140	28	311-7144
M28x1.5	140	28	311-7145
M30x1.5	150	28	311-7146
M30x2	150	28	311-7147
M32x1.5	150	28	311-7148
M35x1.5	170	30	311-7149
M36x1.5	170	30	311-7150
M38x1.5	170	30	311-7151
M40x1.5	170	30	311-7152
M42x1.5	170	30	311-7153
M45x1.5	180	32	311-7154
M48x1.5	190	32	311-7155
M50x1.5	190	32	311-7156
M52x1.5	190	32	311-7157

STRAIGHT PIPE TAPS

High Speed Steel, DIN 5156



Size	Overall Length	Thread Length	Model No.
G1/16-28	90	22	311-0400
G1/8-28	90	20	311-0402
G1/4-19	100	22	311-0404
G3/8-19	100	22	311-0406
G1/2-14	125	25	311-0408
G5/8-14	125	25	311-0410
G3/4-14	140	28	311-0412
G7/8-14	150	28	311-0414
G1-11	160	30	311-0416
G1-1/8-11	170	30	311-0418
G1-1/4-11	170	30	311-0420
G1-1/2-11	190	32	311-0422
G1-3/4-11	190	32	311-0424
G2-11	220	40	311-0426

STRAIGHT PIPE TAPS

2 Piece, High Speed Steel, DIN 353



Size	Overall Length	Thread Length	Model No.
R1/8	63	18	311-0500
R1/4	63	20	311-0502
R3/8	70	20	311-0504
R1/2	80	22	311-0506
R5/8	90	25	311-0508
R3/4	100	28	311-0510
R7/8	100	28	311-0512
R1	110	32	311-0514
R1-1/8	110	32	311-0516
R1-1/4	125	32	311-0518
R1-3/8	125	32	311-0520
R1-1/2	140	32	311-0522
R1-3/4	160	36	311-0524
R2	160	36	311-0526
R2-1/4	160	36	311-0528
R2-1/2	160	36	311-0530
R2-3/4	160	40	311-0532
R3	160	40	311-0534
R3-1/4	180	45	311-0536
R3-1/2	180	45	311-0538
R3-3/4	180	45	311-0540
R4	180	45	311-0542

HAND TAP

Carbon Steel-Cut thread,DIN 352



Size	Overall Length	Thread Length	Model No.
M2x0.4	36	8	311-1102
M2.5x0.45	40	9	311-1109
M3x0.5	40	11	311-1103
M3x0.6	40	11	311-1111
M3.5x0.6	45	13	311-1113
M4x0.7	45	13	311-1104
M4x0.75	45	13	311-1115
M4.5x0.75	50	16	311-1117
M5x0.8	50	16	311-1105
M5x0.9	50	16	311-1119
M6x1	50	19	311-1106
M7x1	50	19	311-1107
M8x1.25	56	22	311-1108
M9x1.25	63	22	311-1121
M10x1.5	70	24	311-1110
M11x1.5	70	24	311-1123
M12x1.75	75	29	311-1112
M14x2	80	30	311-1114
M16x2	80	32	311-1116
M18x2.5	95	40	311-1118
M20x2.5	95	40	311-1120
M22x2.5	100	40	311-1122
M24x3	110	50	311-1124
M27x3	110	50	311-1125
M30x3	125	56	311-1129
M30x3.5	125	56	311-1130
M33x3.5	125	56	311-1127
M36x4	150	63	311-1128

STRAIGHT PIPE TAPS

2 Piece,High Speed Steel

DIN 5157



Size	Overall Length	Thread Length	Model No.
G1/16-28	56	22	311-1000
G1/8-28	63	20	311-1008
G1/4-19	70	22	311-1016
G3/8-19	70	22	311-1024
G1/2-14	80	22	311-1032
G5/8-14	80	22	311-1040
G3/4-14	90	22	311-1048
G7/8-14	90	22	311-1056
G1-11	100	25	311-1064
G1-1/8-11	125	40	311-1065
G1-1/4-11	125	40	311-1066
G1-1/2-11	140	40	311-1067
G1-3/4-11	140	40	311-1068
G2-11	160	40	311-1069
G2-1/4-11	160	40	311-1070
G2-1/2-11	160	40	311-1071
G2-3/4-11	160	40	311-1072
G3-11	160	40	311-1073
G3-1/2-11	180	45	311-1074
G4-11	180	45	311-1075

HAND TAP

Carbon Steel-Cut thread,DIN 2181



Size	Overall Length	Thread Length	Model No.
M3x0.35	40	9	311-2259
M4x0.35	45	10	311-2260
M4x0.5	45	10	311-2261
M5x0.5	50	12	311-2262
M6x0.5	50	14	311-2263
M6x0.75	50	14	311-2264
M7x0.75	50	14	311-2265
M8x0.5	50	19	311-2266
M8 x0.75	50	19	311-2267
M8x1	56	22	311-2268
M9x1	63	22	311-2269
M10x0.75	63	20	311-2270
M10x1	63	20	311-2271
M10x1.25	70	24	311-2272
M11x1	63	20	311-2273
M12x1	70	22	311-2274
M12x1.25	70	22	311-2275
M12x1.5	70	22	311-2276
M13x1	70	22	311-2277
M13x1.5	70	22	311-2278
M14x1	70	22	311-2279
M14x1.25	70	22	311-2280
M14x1.5	70	22	311-2281
M15x1	70	22	311-2282
M15x1.5	70	22	311-2283
M16x1	70	22	311-2284
M16x1.25	70	22	311-2285
M16x1.5	70	22	311-2286
M18x1	80	22	311-2287
M18x1.25	80	22	311-2288
M18x1.5	80	22	311-2289
M18x2	80	22	311-2290
M20x1	80	22	311-2291
M20x1.25	80	22	311-2292
M20x1.5	80	22	311-2293
M20x2	80	22	311-2294
M22x1	80	22	311-2295
M22x1.5	80	22	311-2296
M22x2	80	22	311-2297
M24x1	90	22	311-2298
M24x1.5	90	22	311-2299
M24x2	90	22	311-2301
M25x1.5	90	22	311-2302
M26x1.5	90	22	311-2303
M26x2	90	22	311-2304
M27x1.5	90	22	311-2305
M27x2	90	22	311-2306
M28x1.5	90	22	311-2307
M28x2	90	22	311-2308
M30x1	90	22	311-2309
M30x1.5	90	22	311-2310
M30x2	90	22	311-2311
M32x1.5	90	22	311-2312
M33x2	100	25	311-2313
M34x1.5	100	25	311-2314
M35x1.5	100	25	311-2315
M36x1.5	100	25	311-2316
M36x2	125	40	311-2317
M36x3	125	40	311-2318

AMERICAN STANDARD ROUND SPLIT DIES

High Speed Steel/Screw adjustable



13/16" O.D.	
Size	Model No.
0-80	314-1000
1-56	314-1025
1-64	314-1002
1-72	314-1004
1-80	314-1027
2-56	314-1006
2-64	314-1008
2-72	314-1029
2-80	314-1031
3-48	314-1010
3-56	314-1012
3-72	314-1033
4-40	314-1014
4-48	314-1016
4-56	314-1035
4-72	314-1037
4-80	314-1039
5-32	314-1041
5-36	314-1043
5-40	314-1018
5-44	314-1020
5-48	314-1045
5-56	314-1047
6-30	314-1048
6-32	314-1022
6-36	314-1049
6-40	314-1024
6-56	314-1050
8-30	314-1051
8-32	314-1026
8-36	314-1028
8-40	314-1052
8-48	314-1053
8-56	314-1054
8-64	314-1055
10-24	314-1030
10-26	314-1056
10-28	314-1057
10-30	314-1058
10-32	314-1032
10-36	314-1059
10-60	314-1060
10-72	314-1061
12-24	314-1034
12-28	314-1036
12-30	314-1062
12-48	314-1063
12-56	314-1064
14-20	314-1065
14-24	314-1038
1/4-20	314-1040
1/4-28	314-1042
5/16-18	314-1044
5/16-24	314-1046

1" O.D.	
Size	Model No.
4-40	314-1114
4-48	314-1116
5-40	314-1118
5-44	314-1120
6-32	314-1122
6-40	314-1124
8-32	314-1126
8-36	314-1128
10-24	314-1130
10-32	314-1132
12-24	314-1134
12-28	314-1136
1/4-16	314-1195
1/4-18	314-1196

1" O.D.	
Size	Model No.
1/4-20	314-1140
1/4-22	314-1197
1/4-24	314-1157
1/4-26	314-1160
1/4-27	314-1161
1/4-28	314-1142
1/4-30	314-1198
1/4-32	314-1162
1/4-36	314-1163
1/4-40	314-1164
1/4-48	314-1165
1/4-56	314-1166
1/4-64	314-1167
1/4-72	314-1168
5/16-16	314-1169
5/16-18	314-1144
5/16-20	314-1199
5/16-24	314-1146
5/16-27	314-1170
5/16-28	314-1171
5/16-30	314-1172
5/16-32	314-1173
5/16-36	314-1174
5/16-40	314-1175
5/16-48	314-1176
5/16-56	314-1177
3/8-14	314-1178
3/8-16	314-1148
3/8-18	314-1149
3/8-20	314-1179
3/8-24	314-1150
3/8-27	314-1151
3/8-28	314-1180
3/8-30	314-1181
3/8-32	314-1182
3/8-36	314-1183
3/8-40	314-1184
3/8-48	314-1185
3/8-56	314-1186
7/16-12	314-1187
7/16-14	314-1152
7/16-20	314-1154
7/16-24	314-1155
7/16-27	314-1153
7/16-28	314-1188
7/16-30	314-1189
7/16-32	314-1190
7/16-36	314-1191
7/16-40	314-1192
7/16-48	314-1193
7/16-56	314-1194
1/2-13	314-1156
1/2-20	314-1158
1/4-20	314-1240
1/4-24	314-1200
1/4-27	314-1201
1/4-28	314-1242
1/4-32	314-1202

1-1/2" O.D.	
Size	Model No.
5/16-18	314-1244
5/16-20	314-1203
5/16-24	314-1246
5/16-32	314-1204
3/8-16	314-1248
3/8-24	314-1250
3/8-32	314-1205
7/16-14	314-1252
7/16-20	314-1254
15/32-32	314-1256
1/2-12	314-1257
1/2-13	314-1258
1/2-16	314-1259
1/2-18	314-1206
1/2-20	314-1260
1/2-24	314-1207
1/2-26	314-1208
1/2-27	314-1209
1/2-28	314-1210
1/2-30	314-1211
1/2-32	314-1212
1/2-36	314-1213
1/2-40	314-1214
1/2-48	314-1215
1/2-56	314-1216
9/16-12	314-1262
9/16-14	314-1217
9/16-16	314-1218
9/16-18	314-1264
9/16-20	314-1219
9/16-24	314-1220
9/16-27	314-1221
9/16-28	314-1222
9/16-32	314-1223
9/16-36	314-1224
9/16-40	314-1225
9/16-48	314-1226
5/8-10	314-1227
5/8-11	314-1266
5/8-12	314-1267
5/8-14	314-1228
5/8-16	314-1229
5/8-18	314-1268
5/8-20	314-1269
5/8-24	314-1230
5/8-27	314-1231
5/8-28	314-1232
5/8-32	314-1233
5/8-36	314-1234
5/8-40	314-1235
5/8-48	314-1236
5/8-56	314-1237
5/8-64	314-1238
11/16-11	314-1239
11/16-12	314-1273
11/16-14	314-1274
11/16-16	314-1275
11/16-20	314-1276
11/16-24	314-1277
11/16-27	314-1278
11/16-28	314-1279
11/16-32	314-1280
11/16-36	314-1281
11/16-40	314-1282

1-1/2" O.D.	
Size	Model No.
3/4-10	314-1270
3/4-12	314-1283
3/4-14	314-1284
3/4-16	314-1272
3/4-18	314-1285
3/4-20	314-1286
3/4-24	314-1287
3/4-27	314-1288
3/4-28	314-1289
3/4-30	314-1290
3/4-32	314-1291
3/4-36	314-1292
3/4-40	314-1293
3/4-48	314-1294
3/4-56	314-1295

2" O.D.	
Size	Model No.
1/4-20	314-1340
1/4-28	314-1342
5/16-18	314-1344
5/16-24	314-1346
3/8-16	314-1348
3/8-24	314-1350
7/16-14	314-1352
7/16-20	314-1354
1/2-13	314-1356
1/2-20	314-1358
9/16-12	314-1360
9/16-18	314-1362
5/8-11	314-1364
5/8-18	314-1366
3/4-10	314-1368
3/4-16	314-1370
13/16-10	314-1300
13/16-12	314-1301
13/16-14	314-1302
13/16-24	314-1303
13/16-28	314-1304
7/8-9	314-1372
7/8-10	314-1305
7/8-12	314-1306
7/8-14	314-1307
7/8-16	314-1308
7/8-18	314-1309
7/8-20	314-1373
7/8-24	314-1310
7/8-27	314-1311
7/8-32	314-1312
7/8-36	314-1313
7/8-40	314-1314
7/8-48	314-1315
15/16-9	314-1316
15/16-10	314-1317
15/16-12	314-1318
15/16-18	314-1319
15/16-20	314-1320
15/16-24	314-1321
15/16-27	314-1322
15/16-32	314-1323
1-8	314-1378
1-10	314-1324
1-12	314-1380
1-14	314-1325
1-16	314-1326
1-18	314-1327
1-20	314-1381

2" O.D.	
Size	Model No.
1-24	314-1328
1-27	314-1329
1-28	314-1330
1-32	314-1383
1-36	314-1331
1-40	314-1332
1-48	314-1333
1-56	314-1334

2-1/2" O.D.	
Size	Model No.
1-1/8-7	314-1480
1-1/8-8	314-1481
1-1/8-12	314-1482
1-1/4-7	314-1484
1-1/4-8	314-1485
1-1/4-12	314-1486
1-3/8-6	314-1488
1-3/8-8	314-1489
1-3/8-12	314-1490
1-1/2-6	314-1492
1-1/2-8	314-1493
1-1/2-12	314-1494

3" O.D.	
Size	Model No.
1-8	314-1500
1-12	314-1502
1-14	314-1504
1-1/8-7	314-1506
1-1/8-12	314-1508
1-1/4-7	314-1510
1-1/4-12	314-1512
1-3/8-6	314-1514
1-3/8-12	314-1516
1-1/2-6	314-1518
1-1/2-12	314-1520
1-5/8-5-1/2	314-1522
1-5/8-12	314-1524
1-3/4-5	314-1526
1-3/4-12	314-1528
1-7/8-5	314-1530
1-7/8-12	314-1532
2-4-1/2	314-1534
2-12	314-1536

4" O.D.	
Size	Model No.
2-1/18-18	314-1540
2-1/4-4-1/2	314-1541
2-1/4-12	314-1542
2-1/4-16	314-1543
2-1/2-4	314-1544
2-1/2-8	314-1545
2-1/2-12	314-1546

5" O.D.	
Size	Model No.
2-5/8-12	314-1550
2-5/8-16	314-1551
2-3/4-8	314-1552
2-3/4-12	314-1553
3-1/4-12	314-1554
3-1/2-12	314-1555

13/16" O.D.

Size	Model No.
0-80	314-4000
1-64	314-4002
1-72	314-4004
2-56	314-4006
2-64	314-4008
3-48	314-4010
3-56	314-4012
4-40	314-4014
4-48	314-4016
5-40	314-4018
5-44	314-4020
6-32	314-4022
6-40	314-4024
8-32	314-4026
8-36	314-4028
10-24	314-4030
10-32	314-4032
12-24	314-4034
12-28	314-4036
1/4-20	314-4040
1/4-28	314-4042

1" O.D.

Size	Model No.
5-44	314-4120
6-32	314-4122
6-40	314-4124
8-32	314-4126
8-36	314-4128
10-24	314-4130
10-32	314-4132
12-24	314-4134
12-28	314-4136
14-24	314-4138
1/4-20	314-4140
1/4-28	314-4142
5/16-18	314-4144
5/16-24	314-4146
3/8-16	314-4148
3/8-24	314-4150
7/16-14	314-4152
7/16-20	314-4154
1/2-13	314-4156
1/2-20	314-4158

1-1/2" O.D.

Size	Model No.
1/4-20	314-4240
1/4-28	314-4242
5/16-18	314-4244
5/16-24	314-4246
3/8-16	314-4248
3/8-24	314-4252
3/8-32	314-4254
7/16-14	314-4256
7/16-20	314-4258
1/2-13	314-4260
1/2-20	314-4262
9/16-12	314-4264
9/16-18	314-4266
5/8-11	314-4268
5/8-18	314-4270
3/4-10	314-4272
3/4-16	314-4274

2" O.D.

Size	Model No.
3/4-10	314-4370
3/4-16	314-4372
7/8-9	314-4374
7/8-14	314-4376
1-8	314-4378
1-12	314-4379
1-14	314-4380

2-1/2" O.D.

Size	Model No.
1-1/8-7	314-4480
1-1/8-12	314-4482
1-1/4-7	314-4484
1-1/4-12	314-4486
1-3/8-16	314-4488
1-3/8-12	314-4490
1-1/2-6	314-4492
1-1/2-12	314-4494
1-3/4-18	314-4496

AMERICAN STANDARD LEFT HAND ROUND SPLIT DIES

High Speed Steel/Screw Adjustable



Metric Size

1" O.D.

Size	Model No.
3.0	314-4540
4.0	314-4541
5.0	314-4542
6.0	314-4543
7.0	314-4544
8.0	314-4545
10.0	314-4546

1-1/2" O.D.

Size	Model No.
12.0	314-4620
14.0	314-4621
16.0	314-4622
16.0	314-4623
18.0	314-4624
18.0	314-4625

AMERICAN STANDARD PIPE SIZE ROUND SPLIT DIES

High Speed Steel
Screw Adjustable



Size	Threads Per Inch	N.P.T Model No.	N.P.S Model No.
1" O.D.			
1/16	27	314-1600	314-1601
1/8	27	314-1602	314-1603
1-1/2" O.D.			
1/8	27	314-1604	314-1605
1/4	18	314-1606	314-1607
3/8	18	314-1608	314-1609
2" O.D.			
1/2	14	314-1610	314-1611
3/4	14	314-1612	314-1613
2-1/2" O.D.			
1	11-1/2	314-1614	314-1615
3" O.D.			
1-1/4	11-1/2	314-1616	314-1617
3-1/2" O.D.			
1-1/2	11-1/2	314-1618	314-1619
4" O.D.			
1-1/2	1-1/2	314-1620	314-1621
2	2	314-1622	314-1623
5" O.D.			
2-1/2	2-1/2	314-1624	314-1625
3	3	314-1626	314-1627

CARBONSTEEL

AMERICAN STANDARD HEXAGON RETHREADING DIES

Use with any type of wrench for rethreading
bruised, rusty or worn threads.



Size	Thread Per Inch	Model No.
2	56	314-1700
2	64	314-1701
3	48	314-1702
3	56	314-1703
4	36	314-1704
4	40	314-1705
4	48	314-1706
5	40	314-1707
5	44	314-1708
6	32	314-1709
6	40	314-1710
8	32	314-1711
8	36	314-1712
10	24	314-1713
10	32	314-1714
12	24	314-1715
12	28	314-1716
1/4	20	314-1717
1/4	28	314-1718
5/16	18	314-1719
5/16	24	314-1720
3/8	16	314-1721
3/8	24	314-1722
7/16	14	314-1723
7/16	20	314-1724
1/2	13	314-1725
1/2	20	314-1726
9/16	12	314-1727
9/16	18	314-1728
5/8	11	314-1729
5/8	18	314-1730
11/16	11	314-1731
11/16	16	314-1732
3/4	10	314-1733
3/4	16	314-1734
7/8	9	314-1735

Size	Thread Per Inch	Model No.
7/8	14	314-1736
1	8	314-1737
1	12	314-1738
1	14	314-1739
1-1/8	7	314-1740
1-1/8	8	314-1741
1-1/8	12	314-1742
1-1/4	7	314-1743
1-1/4	8	314-1744
1-1/4	12	314-1745
1-3/8	6	314-1746
1-3/8	8	314-1747
1-3/8	12	314-1748
1-1/2	6	314-1749
1-1/2	8	314-1750
1-1/2	12	314-1751
1-5/8	5-1/2	314-1752
1-5/8	8	314-1753
1-5/8	12	314-1754
1-3/4	5	314-1755
1-3/4	8	314-1756
1-3/4	12	314-1757
1-3/4	20	314-1758
1-7/8	5	314-1759
1-7/8	8	314-1760
1-7/8	12	314-1761
2"	4-1/2	314-1762
2"	8"	314-1763
2"	12"	314-1764
2-1/8	8"	314-1765
2-1/8	12"	314-1766
2-1/4	4-1/2	314-1767
2-1/4	8	314-1768
2-1/4	12	314-1769
2-3/8	8	314-1770

Size	Thread Per Inch	Model No.
2-3/8	12	314-1771
2-1/2	4	314-1772
2-1/2	8	314-1773
2-1/2	12	314-1774
2-5/8	8	314-1775
2-5/8	12	314-1776
2-3/4	8	314-1777
2-3/4	12	314-1778
2-7/8	8	314-1779
2-7/8	12	314-1780
3	8	314-1781
3	12	314-1782
3	48	314-1783
3	56	314-1784
3-1/4	8	314-1785
3-1/4	12	314-1786
3-1/2	8	314-1787
3-1/2	12	314-1788
4	8	314-1789
4	12	314-1790

PIPE SIZE (NPT)

Size	Thread Per Inch	Model No.
1/8	27	314-1800
1/4	18	314-1802
3/8	18	314-1804
1/2	14	314-1806
3/4	14	314-1808
1	11-1/2	314-1810
1-1/4	11-1/2	314-1812
1-1/2	11-1/2	314-1814

Left Hand

metric Size

Thread			Thread			Thread		
Size	Per Inch	Model No.	Size	Per Inch	Model No.	Size	Per Inch	Model No.
1/4	20	314-9900	3.0	.50	314-9920	16.0	1.00	314-9939
1/4	28	314-9901	3.0	.60	314-9921	16.0	1.50	314-9940
5/16	18	314-9902	3.5	.60	314-9922	16.0	2.00	314-9941
5/16	24	314-9903	4.0	.70	314-9923	18.0	1.50	314-9942
3/8	16	314-9904	5.0	.80	314-9924	18.0	2.50	314-9943
3/8	24	314-9905	6.0	1.00	314-9925	20.0	2.50	314-9944
7/16	14	314-9906	7.0	1.00	314-9926	22.0	1.50	314-9945
7/16	20	314-9907	8.0	1.00	314-9927	24.0	1.50	314-9946
1/2	13	314-9908	8.0	1.25	314-9928			
1/2	20	314-9909	9.0	1.25	314-9929			
5/8	11	314-9910	10.0	1.00	314-9930			
5/8	18	314-9911	10.0	1.25	314-9931			
3/4	10	314-9912	10.0	1.50	314-9932			
3/4	16	314-9913	12.0	1.25	314-9933			
7/8	9	314-9914	12.0	1.50	314-9934			
7/8	14	314-9915	12.0	1.75	314-9935			
1	8	314-9916	14.0	1.25	314-9936			
1	12	314-9917	14.0	1.50	314-9937			
1	14	314-9918	14.0	2.00	314-9938			

BRITISH PIPE DIE

High Speed Steel/Screw Adjustable



Size	Thread Per Inch	Outside Dia.	BBFT Model No.	BSPT Model No.
1/8	28	1	314-9950	314-9960
1/8	28	1-1/2	314-9951	314-9961
1/4	19	1-1/2	314-9952	314-9962
3/8	19	1-1/2	314-9953	314-9963
1/2	14	1-1/2	314-9954	314-9964
1/4	19	2	314-9955	314-9965
3/8	19	2	314-9956	314-9966
1/2	14	2	314-9957	314-9967
3/4	14	2	314-9958	314-9968

HEXAGON DIE ADAPTOR

Convert round dies to hexagon dies when space limitations rule out use of diestocks



Round Die O.D.	Model No.
3/16	314-1820
1	314-1822
1-1/2	314-1824
2	314-1826
2-1/2	314-1828
3	314-1830

AMERICAN STANDARD METRIC ROUND SPLIT DIES

1"O.D.

1"O.D.

Dia. MM	Pitch MM	Model Number
1.0	.20	314-2300
1.0	.25	314-2301
1.2	.20	314-2302
1.2	.25	314-2303
1.4	.20	314-2304
1.4	.30	314-2305
1.5	.30	314-2306
1.5	.35	314-2307
1.6	.35	314-2308
1.7	.20	314-2309
1.7	.35	314-2310
1.8	.35	314-2311
2.0	.25	314-2312
2.0	.40	314-2313
2.0	.45	314-2314
2.0	.50	314-2315
2.2	.45	314-2316
2.3	.25	314-2317
2.3	.40	314-2318
2.5	.45	314-2319
2.6	.35	314-2320
2.6	.45	314-2321
3.0	.60	314-2322
3.0	.75	314-2323
3.5	.35	314-2324
3.5	.60	314-2325
4.0	.50	314-2326
4.0	.70	314-2327
4.0	.75	314-2328
4.5	.50	314-2329
4.5	.75	314-2330
5.0	.50	314-2331
5.0	.75	314-2332
5.0	.80	314-2333
5.0	.90	314-2334
5.5	.70	314-2335
5.5	.90	314-2336
6.0	.50	314-2337
6.0	.75	314-2338
6.0	1.00	314-2339
6.0	1.25	314-2340
7.0	.50	314-2341
7.0	.75	314-2342

Dia. MM	Pitch MM	Model Number
7.0	1.00	314-2343
7.0	1.25	314-2344
8.0	.75	314-2345
8.0	1.00	314-2346
8.0	1.25	314-2347
9.0	.75	314-2348
9.0	1.00	314-2349
9.0	1.25	314-2350
10.0	.75	314-2351
10.0	1.00	314-2352
10.0	1.25	314-2353
10.0	1.50	314-2354
11.0	.75	314-2355
11.0	1.00	314-2356
11.0	1.25	314-2357
11.0	1.50	314-2358
12.0	1.00	314-2359
12.0	1.25	314-2360
12.0	1.50	314-2361
12.0	1.75	314-2362

1-1/2"O.D.

Dia. MM	Pitch MM	Model Number
9.0	1.00	314-2400
9.0	1.25	314-2401
10.0	.75	314-2402
10.0	1.00	314-2403
10.0	1.25	314-2404
10.0	1.50	314-2405
11.0	1.00	314-2406
11.0	1.25	314-2407
11.0	1.50	314-2408
12.0	1.00	314-2409
12.0	1.25	314-2410
12.0	1.50	314-2411
12.0	1.75	314-2412
13.0	1.50	314-2413
14.0	1.00	314-2414
14.0	1.25	314-2415
14.0	1.50	314-2416
14.0	1.75	314-2417
14.0	2.00	314-2418

1-1/2"O.D.

Dia. MM	Pitch MM	Model Number
15.0	1.50	314-2419
16.0	1.00	314-2420
16.0	1.25	314-2421
16.0	1.50	314-2422
16.0	1.75	314-2423
16.0	2.00	314-2424
17.0	1.50	314-2425
18.0	1.00	314-2426
18.0	1.50	314-2427
18.0	2.00	314-2428
18.0	2.50	314-2429

2"O.D.

Dia. MM	Pitch MM	Model Number
20.0	1.25	314-2500
20.0	1.50	314-2501
20.0	2.00	314-2502
20.0	2.50	314-2503
22.0	1.00	314-2504
22.0	1.50	314-2505
22.0	2.00	314-2506
22.0	2.50	314-2507
24.0	1.50	314-2508
24.0	2.00	314-2509
24.0	3.00	314-2510

2-1/2"O.D.

Dia. MM	Pitch MM	Model Number
25.0	1.00	314-2600
25.0	1.50	314-2601
25.0	2.50	314-2602
26.0	1.50	314-2603
27.0	1.00	314-2604
27.0	1.50	314-2605
27.0	2.00	314-2606
27.0	3.00	314-2607
28.0	1.00	314-2608
28.0	1.50	314-2609
28.0	2.00	314-2610
30.0	1.50	314-2611
30.0	2.00	314-2612
30.0	3.50	314-2613



High Speed Steel/Screw Adjustable

MACHINE AND HAND ROUND THREAD DIES

High Speed Steel Or Alloy Tool Steel

DIN 223



Size	Outside	H.S.S Model No.	Gcr-15 Model No.
M1x0.2	16x5	314-9300	314-3600
M1x0.25	16x5	314-9301	314-3601
M1.1x0.2	16x5	314-9302	314-3602
M1.1x0.25	16x5	314-9303	314-3603
M1.2x0.2	16x5	314-9304	314-3604
M1.2x0.25	16x5	314-9305	314-3605
M1.4x0.2	16x5	314-9306	314-3606
M1.4x0.25	16x5	314-9307	314-3607
M1.4x0.3	16x5	314-9308	314-3608
M1.6x0.2	16x5	314-9309	314-3609
M1.6x0.25	16x5	314-9310	314-3610
M1.6x0.35	16x5	314-9311	314-3611
M1.7x0.2	16x5	314-9312	314-3612
M1.7x0.25	16x5	314-9313	314-3613
M1.7x0.35	16x5	314-9314	314-3614
M1.8x0.2	16x5	314-9315	314-3615
M1.8x0.25	16x5	314-9316	314-3616
M1.8x0.35	16x5	314-9317	314-3617
M2x0.2	16x5	314-9318	314-3618
M2x0.25	16x5	314-9319	314-3619
M2x0.35	16x5	314-9320	314-3620
M2x0.4	16x5	314-3001	314-3621
M2.2x0.25	16x5	314-9321	314-3622
M2.2x0.35	16x5	314-9322	314-3623
M2.2x0.45	16x5	314-9323	314-3624
M2.3x0.25	16x5	314-9324	314-3625
M2.3x0.35	16x5	314-9325	314-3626
M2.3x0.4	16x5	314-9326	314-3627
M2.5x0.25	16x5	314-9327	314-3628
M2.5x0.35	16x5	314-9328	314-3629
M2.5x0.45	16x5	314-9003	314-3630
M2.6x0.25	16x5	314-9329	314-3631
M2.6x0.35	16x5	314-9330	314-3632
M2.6x0.45	16x5	314-9331	314-3633
M3x0.25	20x5	314-9332	314-3634
M3x0.35	20x5	314-9201	314-3635
M3x0.5	20x5	314-9005	314-3636
M3.5x0.25	20x5	314-9333	314-3637
M3.5x0.35	20x5	314-9334	314-3638
M3.5x0.5	20x5	314-9335	314-3639
M3.5x0.6	20x5	314-9007	314-3640
M4x0.35	20x5	314-9203	314-3641
M4x0.5	20x5	314-9205	314-3642
M4x0.7	20x5	314-9009	314-3643
M4.5x0.35	20x5	314-9336	314-3644
M4.5x0.5	20x5	314-9337	314-3645
M4.5x0.75	20x7	314-9338	314-3646
M5x0.35	20x5	314-9339	314-3647
M5x0.5	20x5	314-9207	314-3648
M5x0.75	20x7	314-9340	314-3649
M5x0.8	20x7	314-9011	314-3650
M5.5x0.35	20x5	314-9341	314-3651
M5.5x0.5	20x5	314-9342	314-3652
M5.5x0.75	20x7	314-9343	314-3653
M5.5x0.9	20x7	314-9344	314-3654
M6x0.35	20x5	314-9345	314-3655
M6x0.5	20x5	314-9208	314-3656
M6x0.75	20x7	314-9209	314-3657
M6x1	20x7	314-9013	314-3658
M7x0.5	25x9	314-9346	314-3659
M7x0.75	25x9	314-9347	314-3660
M7x1	25x9	314-9015	314-3661
M8x0.5	25x9	314-9210	314-3662
M8x0.75	25x9	314-9211	314-3663
M8x1	25x9	314-9212	314-3664
M8x1.25	25x9	314-9017	314-3665
M9x0.5	25x9	314-9348	314-3666
M9x0.75	25x9	314-9349	314-3667
M9x1	25x9	314-9350	314-3668

Size	Outside	H.S.S Model No.	Gcr-15 Model No.
M9x1.25	25x9	314-9351	314-3669
M10x0.5	30x11	314-9352	314-3670
M10x0.75	30x11	314-9214	314-3671
M10x1	30x11	314-9213	314-3672
M10x1.25	30x11	314-9215	314-3673
M10x1.5	30x11	314-9019	314-3674
M11x0.5	30x11	314-9353	314-3675
M11x0.75	30x11	314-9354	314-3676
M11x1	30x11	314-9355	314-3677
M11x1.5	30x11	314-9356	314-3678
M12x0.5	38x10	314-9357	314-3679
M12x0.75	38x10	314-9358	314-3680
M12x1	38x10	314-9217	314-3681
M12x1.25	38x10	314-9219	314-3682
M12x1.5	38x10	314-9221	314-3683
M12x1.75	38x14	314-9021	314-3684
M13x0.5	38x10	314-9359	314-3685
M13x0.75	38x10	314-9360	314-3686
M13x1	38x10	314-9361	314-3687
M13x1.5	38x10	314-9362	314-3688
M14x0.5	38x10	314-9363	314-3689
M14x0.75	38x10	314-9364	314-3690
M14x1	38x10	314-9223	314-3691
M14x1.25	38x10	314-9225	314-3692
M14x1.5	38x10	314-9227	314-3693
M14x2	38x14	314-9023	314-3694
M15x0.5	38x10	314-9365	314-3695
M15x0.75	38x10	314-9366	314-3696
M15x1	38x10	314-9367	314-3697
M15x1.5	38x10	314-9368	314-3698
M16x0.5	45x14	314-9369	314-3699
M16x0.75	45x14	314-9370	314-3700
M16x1	45x14	314-9229	314-3701
M16x1.25	45x14	314-9371	314-3702
M16x1.5	45x14	314-9231	314-3703
M16x2	45x18	314-9025	314-3704
M17x0.5	45x14	314-9372	314-3705
M17x0.75	45x14	314-9373	314-3706
M17x1	45x14	314-9374	314-3707
M17x1.5	45x14	314-9375	314-3708
M18x0.5	45x14	314-9376	314-3709
M18x0.75	45x14	314-9377	314-3710
M18x1	45x14	314-9232	314-3711
M18x1.25	45x14	314-9378	314-3712
M18x1.5	45x14	314-9233	314-3713
M18x2	45x14	314-9379	314-3714
M18x2.5	45x18	314-9027	314-3715
M19x0.5	45x14	314-9380	314-3716
M19x0.75	45x14	314-9381	314-3717
M19x1	45x14	314-9382	314-3718
M19x1.5	45x14	314-9383	314-3719
M19x2	45x14	314-9384	314-3720
M20x0.5	45x14	314-9385	314-3721
M20x0.75	45x14	314-9386	314-3722
M20x1	45x14	314-9234	314-3723
M20x1.25	45x14	314-9387	314-3724
M20x1.5	45x14	314-9235	314-3725
M20x2	45x14	314-9388	314-3726
M20x2.5	45x18	314-9029	314-3727
M21x0.5	45x14	314-9389	314-3728
M21x0.75	45x14	314-9390	314-3729
M21x1	45x14	314-9391	314-3730
M21x1.5	45x14	314-9392	314-3731

MACHINE AND HAND ROUND THREAD DIES

High Speed Steel Or Alloy Tool Steel

DIN 223(Continued)



Size	Outside	H.S.S Model No.	Gcr-15 Model No.
M21x2	45x14	314-9393	314-3732
M22x0.5	55x16	314-9394	314-3733
M22x0.75	55x16	314-9395	314-3734
M22x1	55x16	314-9236	314-3735
M22x1.5	55x16	314-9237	314-3736
M22x2	55x16	314-9238	314-3737
M22x2.5	55x22	314-9031	314-3738
M23x0.5	55x16	314-9396	314-3739
M23x0.75	55x16	314-9397	314-3740
M23x1	55x16	314-9398	314-3741
M23x1.5	55x16	314-9399	314-3742
M23x2	55x16	314-9400	314-3743
M24x0.5	55x16	314-9401	314-3744
M24x0.75	55x16	314-9402	314-3745
M24x1	55x16	314-9403	314-3746
M24x1.5	55x16	314-9239	314-3747
M24x2	55x16	314-9241	314-3748
M24x3	55x22	314-9033	314-3749
M25x0.5	55x16	314-9404	314-3750
M25x0.75	55x16	314-9405	314-3751
M25x1	55x16	314-9406	314-3752
M25x1.5	55x16	314-9407	314-3753
M25x2	55x16	314-9408	314-3754
M26x0.5	55x16	314-9409	314-3755
M26x0.75	55x16	314-9410	314-3756
M26x1	55x16	314-9411	314-3757
M26x1.5	55x16	314-9412	314-3758
M26x2	55x16	314-9413	314-3759
M27x0.5	65x18	314-9414	314-3760
M27x0.75	65x18	314-9415	314-3761
M27x1	65x18	314-9416	314-3762
M27x1.5	65x18	314-9243	314-3763
M27x2	65x18	314-9245	314-3764
M27x3	65x25	314-9035	314-3765
M28x0.5	65x18	314-9417	314-3766
M28x0.75	65x18	314-9418	314-3767
M28x1	65x18	314-9419	314-3768
M28x1.5	65x18	314-9420	314-3769
M28x2	65x18	314-9421	314-3770
M30x0.5	65x18	314-9422	314-3771
M30x0.75	65x18	314-9423	314-3772
M30x1	65x18	314-9424	314-3773
M30x1.5	65x18	314-9247	314-3774
M30x2	65x18	314-9249	314-3775
M30x3	65x25	314-9425	314-3776
M30x3.5	65x25	314-9037	314-3777
M32x1	65x18	314-9426	314-3778
M32x1.5	65x18	314-9427	314-3779
M32x2	65x18	314-9428	314-3780
M33x1	65x18	314-9429	314-3781
M33x1.5	65x18	314-9430	314-3782
M33x2	65x18	314-9431	314-3783
M33x3.5	65x25	314-9039	314-3784
M34x1	65x18	314-9432	314-3785
M34x1.5	65x18	314-9433	314-3786
M34x2	65x18	314-9434	314-3787
M34x3	65x25	314-9435	314-3788
M35x1	65x18	314-9436	314-3789
M35x1.5	65x18	314-9437	314-3790
M35x2	65x18	314-9438	314-3791
M35x3	65x25	314-9439	314-3792
M36x1	65x18	314-9440	314-3793
M36x1.5	65x18	314-9441	314-3794
M36x2	65x18	314-9442	314-3795
M36x3	65x25	314-9443	314-3796
M36x4	65x25	314-9041	314-3797
M38x1	75x20	314-9444	314-3798
M38x1.5	75x20	314-9445	314-3799
M38x2	75x20	314-9446	314-3800

Size	Outside	H.S.S Model No.	Gcr-15 Model No.
M38x3	75x30	314-9447	314-3800
M39x1	75x20	314-9448	314-3801
M39x1.5	75x20	314-9449	314-3802
M39x2	75x20	314-9450	314-3803
M39x3	75x30	314-9451	314-3804
M39x4	75x30	314-9043	314-3805
M40x1	75x20	314-9452	314-3806
M40x1.5	75x20	314-9453	314-3807
M40x2	75x20	314-9454	314-3808
M40x3	75x30	314-9455	314-3809
M42x1	75x20	314-9456	314-3810
M42x1.5	75x20	314-9457	314-3811
M42x2	75x20	314-9458	314-3812
M42x3	75x30	314-9459	314-3813
M42x4.5	75x30	314-9045	314-3814
M45x1	90x22	314-9460	314-3815
M45x1.5	90x22	314-9461	314-3816
M45x2	90x22	314-9462	314-3817
M45x3	90x36	314-9463	314-3818
M45x4.5	90x36	314-9047	314-3819
M48x1	90x22	314-9464	314-3820
M48x1.5	90x22	314-9465	314-3821
M48x2	90x22	314-9466	314-3822
M48x3	90x36	314-9467	314-3823
M48x4	90x36	314-9468	314-3824
M48x5	90x36	314-9049	314-3825
M50x1	90x22	314-9469	314-3826
M50x1.5	90x22	314-9470	314-3827
M50x2	90x22	314-9471	314-3828
M50x3	90x36	314-9472	314-3829
M50x4	90x36	314-9473	314-3830
M52x1	90x22	314-9474	314-3831
M52x1.5	90x22	314-9475	314-3832
M52x2	90x22	314-9476	314-3833
M52x3	90x36	314-9477	314-3834
M52x4	90x36	314-9478	314-3835
M52x5	90x36	314-9051	314-3836
M55x2	105x22	314-9479	314-3837
M55x3	105x36	314-9480	314-3838
M55x4	105x36	314-9481	314-3839
M56x2	105x22	314-9482	314-3840
M56x3	105x36	314-9483	314-3841
M56x4	105x36	314-9484	314-3842
M56x5.5	105x36	314-9485	314-3843
M58x2	105x22	314-9486	314-3844
M58x3	105x36	314-9487	314-3845
M58x4	105x36	314-9488	314-3846
M60x2	105x22	314-9489	314-3847
M60x3	105x36	314-9490	314-3848
M60x4	105x36	314-9491	314-3849
M60x5.5	105x36	314-9492	314-3850
M62x2	105x22	314-9493	314-3851
M62x3	105x36	314-9494	314-3852
M62x4	105x36	314-9495	314-3853
M64x2	120x22	314-9496	314-3854
M64x3	120x36	314-9497	314-3855
M64x4	120x36	314-9498	314-3856
M64x6	120x36	314-9499	314-3857
M65x2	120x22	314-9500	314-3858
M65x3	120x36	314-9501	314-3859
M65x4	120x36	314-9502	314-3860
M68x2	120x22	314-9504	314-3861

MACHINE AND HAND ROUND THREAD DIES

High Speed Steel Or Alloy Tool Steel

DIN 223(Continued 2)

Size	Outside	H.S.S ModelNo.	Gcr-15 ModelNo.
M68x3	120x36	314-9505	314-3862
M68x4	120x36	314-9507	314-3863
M68x6	120x36	314-9508	314-3864
No.0-80NF	16x5	314-9563	314-3865
No.1-64NC	16x5	314-9565	314-3866
No.1-72NF	16x5	314-9566	314-3867
No.2-56NC	16x5	314-9567	314-3868
No.2-64NF	16x5	314-9568	314-3869
No.3-48NC	16x5	314-9569	314-3870
No.3-56NF	16x5	314-9570	314-3871
No.4-40NC	20x5	314-9571	314-3872
No.4-48NF	20x5	314-9572	314-3873
No.5-40NC	20x5	314-9573	314-3874
No.5-44NF	20x5	314-9574	314-3875
No.6-32NC	20x5	314-9575	314-3876
No.6-40NF	20x5	314-9576	314-3877
No.8-32NC	20x5	314-9577	314-3878
No.8-36NF	20x5	314-9578	314-3879
No.10-24NC	20x7	314-9579	314-3880
No.10-32NF	20x7	314-9580	314-3881
No.12-24NC	20x7	314-9581	314-3882
No.12-28NF	20x7	314-9582	314-3883
1/4-20NC	20x7	314-9583	314-3884
1/4-28NF	20x7	314-9584	314-3885
5/16-18NC	25x9	314-9585	314-3886
5/16-24NF	25x9	314-9586	314-3887
3/8-16NC	30x11	314-9587	314-3888
3/8-24NF	30x11	314-9588	314-3889
7/16-14NC	30x11	314-9589	314-3890



Size	Outside	H.S.S ModelNo.	Gcr-15 ModelNo.
7/16-20NF	30x11	314-9700	314-3892
1/2-13NC	38x14	314-9701	314-3893
1/2-20NF	38x10	314-9702	314-3894
9/16-12NC	38x14	314-9703	314-3895
9/16-18NF	38x10	314-9704	314-3896
5/8-11NC	45x18	314-9705	314-3897
5/8-18NF	45x14	314-9706	314-3898
3/4-10NC	45x18	314-9707	314-3899
3/4-16NF	45x14	314-9708	314-3900
7/8-9NC	55x22	314-9709	314-3901
7/8-14NF	55x16	314-9710	314-3902
1-8NC	55x22	314-9711	314-3903
1-12NF	55x16	314-9712	314-3904
1-14NS	55x16	314-9713	314-3905
1-1/8-7NC	65x25	314-9714	314-3906
1-1/8-12NF	65x18	314-9715	314-3907
1-1/4-7NC	65x25	314-9716	314-3908
1-1/4-12NF	65x18	314-9717	314-3909
1-3/8-6NC	65x25	314-9718	314-3910
1-3/8-12NF	65x18	314-9719	314-3911
1-1/2-6NC	75x30	314-9720	314-3912
1-1/2-12NF	75x20	314-9721	314-3913
1-3/4-5NC	90x36	314-9722	314-3914
2-4-1/2NC	90x36	314-9723	314-3915

MACHINE AND HAND ROUND THREAD DIES

High Speed Steel Or Alloy Tool Steel

DIN 223



Size	Outside	H.S.S ModelNo.	Gcr-15 ModelNo.
NPT1/16-27	25x9	314-2700	314-2701
NPT1/8-27	30x11	314-2702	314-2703
NPT1/4-18	38x14	314-2704	314-2705
NPT3/8-18	45x14	314-2706	314-2707
NPT1/2-14	45x18	314-2708	314-2709
NPT3/4-14	55x22	314-2710	314-2711
NPT1-11-1/2	65x25	314-2712	314-2713
NPT1-1/4-11-1/2	75x26	314-2714	314-2715
NPT1-1/2-11-1/2	90x27	314-2716	314-2717
NPT2-11-1/2	105x28	314-2718	314-2719

MACHINE AND HAND ROUND THREAD DIES

High Speed Steel Or

Alloy Tool Steel DIN 223



Size	Outside	H.S.S Model No.	Gcr-15 ModelNo.
1/16-60BSW	16x5	314-9724	314-3916
3/32-48BSW	16x5	314-9725	314-3917
1/8-40BSW	20x5	314-9726	314-3918
5/32-32BSW	20x5	314-9727	314-3919
3/16-24BSW	20x7	314-9728	314-3920
7/32-24BSW	20x7	314-9729	314-3921
1/4-20BSW	20x7	314-9730	314-3922
5/16-18BSW	25x9	314-9731	314-3923
3/8-16BSW	30x11	314-9732	314-3924
7/16-14BSW	30x11	314-9733	314-3925
1/2-12BSW	38x14	314-9734	314-3926
9/16-12BSW	38x14	314-9735	314-3927
5/8-11BSW	45x18	314-9736	314-3928
3/4-10BSW	45x18	314-9737	314-3929
7/8-9BSW	55x22	314-9738	314-3930
1-8BSW	55x22	314-9739	314-3931
1-1/8-7BSW	65x25	314-9740	314-3932
1-1/4-7BSW	65x25	314-9741	314-3933
1-3/8-6BSW	65x25	314-9742	314-3934
1-1/2-6BSW	75x30	314-9743	314-3935
1-5/8-5BSW	75x30	314-9744	314-3936
1-3/4-5BSW	90x36	314-9745	314-3937
1-7/8-4-1/4BSW	90x36	314-9746	314-3938
2-4-1/2BSW	90x36	314-9747	314-3939

Tapping Accessories

TAP GUIDE

Model No. 318-2201



- 1/2" Dia. Hardened Shank
- 3/16" Dia. Hardened tension Pin
- Adjustable tension spring
- Reversible tension pin for male and female hole centering
- With this tool you start every tap straight

TAPPING GUIDEMACHINE TYPE



Model No. 318-2203

- Provides sensitive feel for hank tapping small holes on milling machines, drilling presses, and lathes.
- Starts every hole straight and prevents tap breakage
- Shank dia. 3/8" handle dia. 1"
- 0 to No. 12 tap capacity

2PCS TAP GUIDE SET



Include 318-2201
and 318-2203

2pcs set
Model No. 318-2205

TAPPING FIXTURE

Tap holes up to 1/2" diameter

- Eliminate tap Breakage
- Perfect alignment for Tapping and Teaming
- Including: 1 Tapping Guide, 1 Tap Wrench, and a Set of Jaws

Replacement Jaws
Model No. 3180-0000



Model No. 318-0000

REVERSIBLE TAP HOLDER



- The torque is adjustable
- Reverse feature
- Easy to operate
- With 4 collets
- Can be used on drill presses and milling machines
- Supplied with wrenches

Taper range	Shank includes	Model No.
M2-M7/0.079"-0.280"	MT1&MT3	287-0100
M5-M12/0.197"-0.472"	MT3&MT 4	287-0102
M18-M20/0.709"-0.787"	MT3&MT 4	287-0104

SELF REVERSIBLE TAP HEADS



- The torque is adjustable
- High reverse ratio increases productivity
- Jacobs mount can be adapted to most spindles with the help of an arbor
- Thread mount are designed to adapt to tapping machines or fixed. threaded mount spindles

Capacity in steel	Taper mount	Model No.	Thread mount	Model No.
#0-1/4"(M1.4-M7)	JT6	287-0130	3/8"-24	287-0140
	JT33	287-0132	1/2"-20	287-0142
#6-1/2"(M3-M12)	JT6	287-0134	1/2"-20	287-0144
	JT33	287-0136	3/4"-16	287-0146
#10-3/4"(M3-M20)	JT3	287-0138	1/2"-20	287-0148

Tapping Accessories

HAND TAPPERS

E-Z TAPPER MINITAPPER



Model No. 318-0007



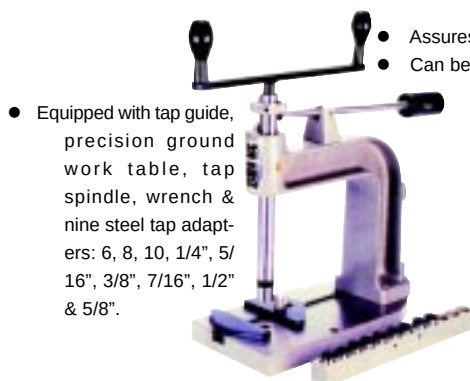
Model No. 318-0003

Perpendicular tapped holes.

Both units are furnished complete with tap guide, machined work table, tap spindle wrench, and steel tap adapters for use with spiral point taps.

	Model No. 318-0007	Model No. 318-0003
Large Tapper		
Table length	13"	8-1/2"
Table width	8"	6"
Height	14"	9"
Clearance height	7"	3-3/4"
Depth of throat	7-1/2"	4-1/2"
Approx. Weight	35 lbs	12 lbs
Tap Adapters	9 (#8-3/4") 7 (#0-5/16")	

HAND TAPPERS



- Equipped with tap guide, precision ground work table, tap spindle, wrench & nine steel tap adapters: 6, 8, 10, 1/4", 5/16", 3/8", 7/16", 1/2" & 5/8".

- Assures straight perpendicular tapped holes.
- Can be used vertical, horizontal or inverted.

Descriptions	Model No. 318-0001
Table length	12-1/2"
Table width	6-1/2"
Table area	6-1/2" x 10"
Height	13"
Clearance height	7"
Depth of throat	7-1/2"
Weight (Approx.)	37 lbs.

Model No. 318-0001

DIE HOLDERS



- Ideal for short or medium run threading at shafts
- Used safely on lathes, milling machines and tapping heads

Die Holders Set

Model No. 318-2333

Set include all three sizes

Body	Shank	Die dia.	Model No.
1- 1/2" D X 1"	1/2" D X 2"	13/16"	318-2031
1- 1/2" D X 1"	1/2" D X 2"	1"	318-2032
2"D X 1-1/4"	3/4" D X 2"	1-1/2"	318-2033

PLAIN DIE STOCKS



4pcs/set Dia 13/16"-2" to Hex Size 1-1/16"-2-9/16"

Model No.318-2290

Hold both hex and round dies



Die Dia. To Hex Size	Model No.
13/16" to 1-1/16"	318-2250
1" to 1-1/4"	318-2255
1-1/2" to 1-31/32"	318-2260
2" to 2-9/16"	318-2265
2-1/2" to 2-3/4"	318-2270

Die Diameter	Model No.
5/8" for Hex Dies	318-2210
13/16 for Round Dies	318-2220
1" for Hex or Round Dies	318-2230

3 SCREW TYPE DIE STOCKS



* Use with round adjustable dies.

4pcs/set
includes 13/16, 1, 1-1/2, 2"
Model No.318-2320

Die Diameter	Overall Length	Model No.
5/8"	5"	318-2302
13/16"	6-1/4"	318-2304
*1"	9"	318-2306
*1-1/2"	12"	318-2308
*2"	19-1/2"	318-2310
2-1/2"	20"	318-2312
3"	22"	318-2314
4"	29"	318-2316
5"	33"	318-2318

2 in 1 Die Stocks

- Black finish.
- Front and back of stock complete with different size for different die diameter
- Attachable threaded handle



Die Diameter:
3/16" Model No.318-0350
1" Model No.318-0351

Tapping Accessories

TAP WRENCHES

Adjustable zinc die casting made
Din 1814

Size	Length	For Taps	Model No.
0	130mm	M 1-8	318-0200
1	188mm	M 1-10	318-0215
1-1/2	215mm	M 1-12	318-0220
2	280mm	M 3.5-12	318-0225
3	380mm	M 5-20	318-0230
4	500mm	M 11-27	318-0235
5	700mm	M 13-32	318-0240

DIE STOCKS

Din 225,
Zinc die casting made

Size	Length	For Taps	Model No.
16 x 5mm	160mm	M 1-2.6	318-2025
20 x 5mm	200mm	M 3-4	318-2030
20 x 7mm	200mm	M 4.5-6	318-2035
25 x 9mm	224mm	M 7-9	318-2040
30 x 11mm	280mm	M 10-11	318-2045
38 x 14mm	315mm	M 12-14	318-2050
45 x 18mm	450mm	M 16-20	318-2055
55 x 22mm	560mm	M 22-24	318-2060
65 x 25mm	630mm	M 27-36	318-2065

TEFLON TAPE



Specification	Model No.
260" x 1/2"	841-0001
260" x 3/4"	841-0002
520" x 1/2"	841-0003
520" x 3/4"	841-0004

T- HANDLE TAP WRENCHES

1/16 TO 1/2"



T-Handle tap wrenches are used for holding taps, reamers and other small tools to be turned by hand

Tap Capacity	Plain Model No.	Ratchet Model No.
(0-8#) 1/16-5/32" (1.5-4mm)	318-0010	318-0050
(0-14#) 5/32-1/4" (4-6mm)	318-0015	318-0055
(12-14#) 1/4-1/2" (6-12mm)	318-0020	318-0060
3 piece set	318-0030	318-0070

PILOTED SPINDLE TAP WRENCHES

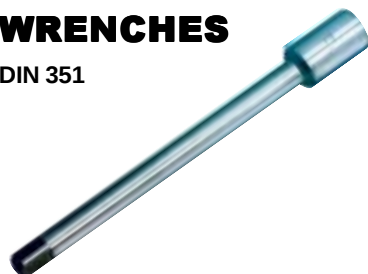


Used for threading a drilled hole manually at one machine location without moving the workpiece.

Tap Capacity	Model No.
#0-1/4" (1.5mm-6mm)	318-0180
#12-1/2" (6mm-12mm)	318-0182

SOCKET TAP WRENCHES

DIN 351



Size	Description	Model No.
2.1x60mm	for tap DIN352 M1-2.6	318-5021
2.4x70mm		318-5024
2.7x80mm	for tap DIN352 M3	318-5027
3.0x90mm	for tap DIN352 M3.5	318-5030
3.4x95mm	for tap DIN352 M4	318-5034
3.8x100mm		318-5038
4.3x105mm	for tap DIN351NO.10UNC	318-5043
4.9x110mm	for tap DIN352 M4.5-8	318-5049
5.5x115mm	for tap DIN352 M9-10	318-5055
6.2x120mm	for tap DIN352 M11	318-5062
7.0x125mm	for tap DIN352 M12	318-5070

Size	Description	Model No.
8.0x125mm		318-5080
9.0x130mm	for tap DIN352 M13-16	318-5090
10.0x140mm		318-5100
11.0x150mm	for tap DIN352 M18	318-5110
12.0x155mm	for tap DIN352 M20	318-5120
13.0x160mm		318-5130
14.5x175mm	for tap DIN352 M22-24	318-5145
16.0x180mm	for tap DIN352 M27	318-5160
18.0x200mm	for tap DIN352 M30	318-5180
20.0x220mm	for tap DIN352 M32	318-5200
22.0x230mm	for tap DIN352 M36	318-5220

EXTENSION TAP WRENCHES



- Attractive finish.
- Made of steel.
- Precision tap extension.
- 4 jaw chuck.

Tap Capacity	Model No.
# 0-1/4" (1.5-6mm)	318-0140
# 12-1/2" (6-12mm)	318-0145

MINI TAP HANDLE



- Handy tapping tool.
- Ideally suitable for jewelers, watch makers, and small tapping application

Tap Capacity	Model No.
1/4" (6mm)	318-0251
1/2" (12mm)	318-0252
2 piece set	318-0254

EXTRA LONG TAP WRENCHES

- 13" long.
- Shiny ground finish.
- Jaws are hardened and tempered.
- Jaws are replaceable.

Tap Capacity	Plain Type Model No.	Ratchet Type Model No.
5/32-1/4" (4-6mm)	318-0131	318-0136
1/4-1/2" (6-12mm)	318-0132	318-0137
2 piece set	318-0130	318-0135

T- HANDLE TAP WRENCHES

European Style

Ratchet shift key makes clockwise or counter clock wise rotation



Description	Plain Model No.	Ratchet Model No.
Length 85mm, for tap DIN M3-10	318-5305	318-5315
Length 110mm, for tap DIN M5-12	318-5310	318-5320
length 250mm, for tap DINM3-10	318-5306	318-5335
length 300mm, for tap DIN M5-12	318-5311	318-5340

Tap & Die Sets

NPT TAPER PIPE TAP SETS



3 Piece Tap Sets

Ground Thread

Descriptions	Wooden Case
High Speed Steel	Model No. 314-9503
Carbon Steel	Model No. 314-9603

Set includes one each: Taps

Size
1-1/4"-11-1/2
1-1/2"-11-1/2
2"-11-1/2



6 Piece Tap Sets

Ground Thread

Descriptions	Wooden Case
High Speed Steel	Model No. 314-9506
Carbon Steel	Model No. 314-9606

Set includes one each: Taps

Size
1/4"-18
3/8"-18
1/2"-14
3/4"-14
1"-11-1/2
1-1/4"-11-1/2

TAP AND DIE SETS

12 Piece Sets

Set includes one each:
Taps and 1" O.D. round dies
Adjustable die stock
Straight handle tap wrench 1/16"-1-1/2"



Metal case

Descriptions	Plastic Case	Metal Case
H.S.S	314-9512	314-9513
Carbon Steel	314-9612	314-9613

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2"-13NC

12 Piece Sets

Set includes one each:
Taps and 1" O.D. round dies
Adjustable die stock
Straight handle tap wrench 1/16"-1-1/2"



Descriptions	Plastic Case
H.S.S	314-9514
Carbon Steel	314-9614

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2"-20NF

16 Piece Sets

Set includes one each:
Taps and 1-1/2" O.D. round dies
Adjustable die stock 1-1/2"
Straight handle tap wrench 1/4"-3/4"



Descriptions	Plastic Case
H.S.S	314-9516
Carbon Steel	314-9616

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2"-20NF
5/8-18NF
3/4-16NF

16 Piece Sets

Set includes one each:
Taps and 1-1/2" O.D. round dies
Adjustable die stock 1-1/2"
Straight handle tap wrench 1/4"-3/4"

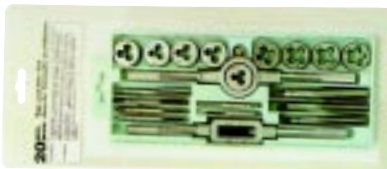


Descriptions	Plastic Case
H.S.S	314-9517
Carbon Steel	314-9617

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2"-13NC
5/8-11NC
3/4-10NC

20 Piece Sets

Set includes one each:
Taps and 1" O.D. round dies.
Adjustable die stock.
Adjustable handle tap wrench.



Descriptions	Polyethylene Case
H.S.S (Ground Thread)	Model No. 314-9520
Carbon Steel	Model No. 314-9620

Size
6-32NC
8-32NC
10-24NC
12-24NC
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC

Tap & Die Sets

20 Piece Sets

American Standard Metric size



Set includes one each:

9pcs taps
9pcs round dies
1pc die stock
1pc ttap wrench

Descriptions	Plastic Case
H.S.S	314-8202
Carbon Steel	314-8302

Size
M3
M4
M5
M6
M7
M8
M9
M10
M12

21 Piece Sets



Set includes one each:

Taps and 1-1/2" O.D. round dies
die stock 1-1/2"
Straight handle tap wrench 1/4"-3/4"
T-tap wrench 1/4"-1/2"
Screw driver
Screw pitch gage 12-40 pitch

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
5/8-11NC
3/4-10NC

Descriptions	Plastic Case
H.S.S	314-9523
Carbon Steel	314-9623

22 Piece Sets



Set includes one each:

Taps and 1" O.D. round dies
die stock 1"
Straight handle tap wrench 1/16"-1/2"

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF

Descriptions	Plastic Case
H.S.S	314-9522
Carbon Steel	314-9622

24 Piece Sets



Set includes one each:

11pcs Taps and round dies
1pc die stock
1pc Straight handle tap wrench

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
1/8-27NPT

Descriptions	Metal Case
H.S.S	314-9525
Carbon Steel	314-9625

24 Piece Sets

American Standard Metric size



Set includes one each:

11pcs Taps and round dies
1pc die stock
1pc Straight handle tap wrench

Size
M5x0.8
M5x0.9
M6x1
M6x0.75
M8x1

Size
M8x1.25
M10x1.5
M10x1.25
M12x1.5
M12x1.75
NPT1/8-27

Descriptions	Metal Case
H.S.S	314-8224
Carbon Steel	314-8324

28 Piece Sets

American Standard Metric size



Set includes one each:

8pcs adjustable round dies
8pcs taper taps
1pc die stock
1pc Straight handle tap wrench
1pc T-type wrench
1pc screw pitch gauge

Size
M3x0.5
M3.5x0.6
M4x7
M5x0.8
M6x1
M8x1.25
M10x1.5
M12x1.75

Descriptions	Metal Case
H.S.S	314-8228
Carbon Steel	314-8328

30 Piece Sets



Set includes one each:

Taps and 1-1/2" O.D. round dies
die stock 1-1/2"
Straight handle tap wrench 1/4"-3/4"
T-tap wrench 1/4"-3/4"

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
5/8-11NC

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
5/8-18NF
3/4-16NF

Descriptions	Plastic Case
H.S.S	314-9530
Carbon Steel	314-9630

Tap & Die Sets

31 Piece Sets

American Standard
Metric size Mini type



Descriptions	Plastic Case
H.S.S	314-8231

Set includes one each:

18pcs Taps
9pcs round dies
1pc tap wrench
1pc dies lining
2pcs tap linings

Size
M1
M1.1
M1.2
M1.4
M1.6
M1.8
M2
M2.2
M2.5

33 Piece Sets



Descriptions	Metal Case
H.S.S	314-9535
Carbon Steel	314-9635

Set includes one each:

Taps and round dies
die stock
Straight handle tap wrench
T-tap wrench
Screw driver
Screw pitch gage

Size	Size
1/4-28NF	M3
5/16-24NF	M4
3/8-24NF	M5
7/16-20NF	M6
1/2-20NF	M8
1/8-27NPT	M10
1/4-18NPT	M12

39 Piece Sets



Descriptions	Plastic Case
H.S.S	314-9540
Carbon Steel	314-9640

Set includes one each:

Taps and 1" O.D. round dies
die stock 1"
Straight handle tap wrench 1/16"-1/2"
T-tap wrench 0-1/4"
Screw driver
Screw pitch gage

Size
10-32NF
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
1/8-27NPT

Size
4-40 NC
6-32NC
8-32NC
10-24NC
12-24NC
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC

39 Piece Sets

American Standard Metric size



Descriptions	Plastic Case
H.S.S	314-9542
Carbon Steel	314-9642

Set includes one each:

17pcs Taps and round dies
1pc die stock
1pc tap wrench
1pc T-tap wrench
1pc Screw driver
1pc Screw pitch gage

Size
M3x0.5
M3x0.6
M4x0.7
M4x0.75
M5x0.8
M5x0.9
M6x1

Size
M7x0.75
M7x1
M8x1
M8x1.25
M10x1.25
M12x1.5
M12x1.75
NPT1/8-27

41 Piece Sets

Set includes one each:

Taps and 1-1/2" O.D. round dies
die stock 1-1/2"
Straight handle tap wrench 1/4"-3/4"

Screw pitch gage 12-40 pitch
T-tap wrench 0-1/4"
Screw driver



Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12
5/8-11NC
3/4-10NC

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
1/8-27NPT
1/4-18NPT

Descriptions	Plastic Case
H.S.S	314-9541
Carbon Steel	314-9641

45 Piece Sets



Descriptions	Plastic Case
H.S.S	314-9544
Carbon Steel	314-9644

Set includes one each:

20pcs Taps and round dies
2pcs die stock
2pcs tap wrench
1pc Screw driver

Size
1/4 -20NC
5/16-18 NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC
7/8-9NC
1-8NC

Size
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
7/8-14NF
1-14NS

Tap & Die Sets

45 Piece Sets



Set includes one each:

Plug taps and adjustable dies
for the 20 thread sizes.
Adjustable die stock with adapter.
Adjustable handle tap wrench.
T-Handle tap wrench.
Screw driver.

Descriptions	Plastic Case	Metal Case
H.S.S	Model No. 314-9545	Model No. 314-9546
Carbon Steel	Model No. 314-9645	Model No. 314-9646

Size
1/4 -20NC
5/16-18 NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC
7/8-9NC
1-8NC

Size
1/4-18NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
7/8-14NF
1-14NF

45 Piece Sets



Set includes one each:

20pcs Taps and round dies
1pc die stock
1pcs tap wrench
1pc Screw driver
1pc T-tap wrench
1pc lining



Metal case

Descriptions	Plastic Case	Metal Case
H.S.S	Model No. 314-8245	Model No. 314-8246
Carbon Steel	Model No. 314-8345	Model No. 314-8346

Size
1/4 -20NC
5/16-18 NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC
7/8-9NC
1-8NC

Size
1/4-18NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
7/8-14NF
1-14NS

45 Piece Sets

American Standard Metric size



Set includes one each:

20pcs Taps and round dies
1pc die stock
1pcs tap wrench
1pc Screw driver
1pc T-tap wrench
1pc lining



Metal case

Descriptions	Plastic Case	Metal Case
H.S.S	Model No. 314-9554	Model No. 314-9555
Carbon Steel	Model No. 314-9654	Model No. 314-9655

Size
M6x1
M6x0.75
M8x1.25
M8x1
M10x1.5
M10x1.25
M12x1.75
M12x1.5
M14x2
M14x1.5

Size
M16x2
M16x1.5
M18x2.5
M18x1.5
M20x2.5
M20x1.5
M22x2.5
M22x1.5
M24x3
M24x1.5

58 Piece Sets

American Standard Metric size



Set includes one each:

18pcs round dies
17pc tapers taps
17pcs plug taps(Bottoming)
1pc 1/8 BSP
1pc die stock
1pcs tap wrench
1pc Screw driver
1pc T-tap wrench
1pc screw pitch gauge

Descriptions	Plastic Case
H.S.S	314-8258
Carbon Steel	314-8358

Size
M2x0.25
M3x0.5
M3x0.35
M3.5x0.6
M4x0.7
M4x0.5
M4.5x0.75
M5x0.8
M5x0.5

Size
M6x1.0
M6x0.75
M8x1.25
M8x1.0
M10x1.50
M10x1.25
M12x1.75
M12x1.25
1/8 BSP

Tap & Die Sets

60 Piece Sets



Metal case

Set includes one each:
 Plug taps and 1" round dies
 for the 27 thread sizes.
 Adjustable die stock.
 Adjustable handle tap wrench.
 T-Handle tap wrench.
 Screw driver.
2 Screw pitch gage.



Descriptions	Plastic Box	Metal Box
H.S.S	Model No.314-9560	Model No.314-9561
Carbon Steel	Model No.314-9660	Model No.314-9661

Size
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
4-40NC
6-32NC
8-32NC
10-24NC
12-24NC

Size
1/4-18NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
10-32NF
1/8-27 NPT

Size
3mmx.5
4mmx.7
5mmx.8
6mmx1.0
7mmx1.0
8mmx1.25
9mmx1.25
10mmx1.5
10mmx1.0
12mmx1.75

64 Piece Sets

Set includes one each:
 Taps and round dies
 die stock 1"
 die stock 1-1/2"
 die stock 2"
 Straight handle tap wrench 1/16"-1/2"
 Straight handle tap wrench 3/8"-1"
 T-tap wrench 0-1/4"
 Screw driver
 Screw pitch gage 12-40 pitch



Descriptions	Plastic Case
H.S.S	314-9564
Carbon Steel	314-9664

Size
4-40NC
6-32NC
8-32NC
10-24NC
12-24NC
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC
7/8-9NC
1-8NC

Size
10-32NF
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
7/8-14NF
1/8-27NPT
1/4-18NPT
1-14NS

78 Piece Sets

Set includes one each:
 4pcs 4-40 taps & dies
 6pcs 6-32 taps & dies
 2pcs 8-32 taps & dies
 2pcs die handle
 2pcs standard tap handle
 2pcs T-tap wrench
 1pc screwdriver
 1pc pitch gage



Descriptions	Plastic Case
H.S.S	314-8278

Size
10-24NC
12-24NC
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC
7/8-9NC
1-8NC

Size
10-32NF
12-28NF
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
7/8-14NF
1-12NS

110 Piece Sets

Set includes one each:
 Taper taps, bottom taps and
 round dies
 die stock 1"
 die stock 1-1/2"
 Straight handle tap wrench 1/4-3/4"
 Straight handle tap wrench 1/16"-1/2"
 T-tap wrench 0-1/4"



Descriptions	Plastic Case
H.S.S	314-9596
Carbon Steel	314-9696

Size
4-40NC
6-32NC
8-32NC
10-24NC
12-24NC
1/4-20NC
5/16-18NC
3/8-16NC
7/16-14NC
1/2-13NC
9/16-12NC
5/8-11NC
3/4-10NC

Size
10-32NF
1/4-28NF
5/16-24NF
3/8-24NF
7/16-20NF
1/2-20NF
9/16-18NF
5/8-18NF
3/4-16NF
1/4-24NS
1/4-32NS
1/8-27NPT
1/4-18NPT

Size
M6x1.0
M8x1.25
M10x1.0
M10x1.5
M11x1.5
M12x1.5
M12x1.75
M14x1.25
M18x1.5

Tap & Die Sets



44Piece Metric Sets

6mm-24mm

Set includes one each:
Taps and adjustable dies for the 20 metric thread sizes
Adjustable die stock.
Adjustable handle tap wrench.
T-Tap wrench
Screw driver.

Descriptions	Plastic Box	Metal Box
H.S.S(Ground Thread)	Model No.314-9547	Model No. 314-9548
Carbon Steel	Model No.314-9647	Model No. 314-9648

Size	Size
6mmx0.75	16mmx1.5
6mmx1.0	16mmx2.0
8mmx1.0	18mmx1.5
8mmx1.25	18mmx2.5
10mmx1.25	20mmx1.5
10mmx1.5	20mmx2.5
12mmx1.5	22mmx1.5
12mmx1.75	22mmx2.5
14mmx1.5	24mmx1.5
14mmx2.0	24mmx3.0

18 PIECES TAP AND DRILL SETS

Set includes one each:

9pcs taps

9pcs drills



UNC Model

Size of taps	Size of dies
6-32UNC	27/64
8-36UNC	U
10-24UNC	5/16
10-32UNC	F
1/4-20UNC	7
5/16-18UNC	21
3/8-16UNC	25
7/16-14UNC	29
1/2-13UNC	36

Descriptions	Metal Case
H.S.S	314-8410

UNF Model

Size of taps	Size of dies
6-40UNF	29/64
8-36UNF	25/64
10-24UNF	Q
10-32UNF	T
1/4-20UNF	3
5/16-18UNF	21
3/8-16UNF	25
7/16-14UNF	29
1/2-13UNF	36

Descriptions	Metal Case
H.S.S	314-8412

American standard Metric size

Size of taps	Size of dies
2.5mm	2.05mm
3.0mm	2.5mm
3.5mm	2.9mm
4.0mm	3.3mm
5.0mm	4.2mm
6.0mm	5mm
8.0mm	6.7mm
10.0mm	8.5mm
12.0mm	10.2mm

Descriptions	Metal Case
H.S.S	314-8414

DIN TAP & DIE SETS

7 Piece Sets

Spiral point DIN371/DIN376

Set includes one each:

7pcs taps



Descriptions	Metal Case
H.S.S	314-8505

Size of taps
M3
M4
M5
M6
M8
M10
M12

7 Piece Sets

Spiral fluted DIN371/DIN376

Set includes one each:

7pcs taps



Descriptions	Metal Case
H.S.S	314-8506

Size of taps
M3
M4
M5
M6
M8
M10
M12

7 Piece Sets

Single Pass combination

Set includes one each:

6pcs taps

1pc linked shank



Descriptions	Metal Case
H.S.S	314-8507

Size of taps
M3
M4
M5
M6
M8
M10

8 Piece Sets

Spiral fluted DIN371/DIN376

Set includes one each:

7pcs taps

1pc tap wrench



Descriptions	Metal Case
H.S.S	314-8513

Size of taps
M3
M4
M5
M6
M8
M10
M12

Tap & Die Sets

8 Piece Sets

Spiral point DIN371/DIN376

Set includes one each:
6pcs taps
1pc tap wrench



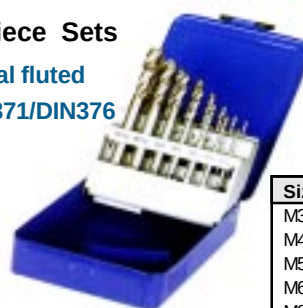
Descriptions	Metal Case
H.S.S	314-8508

Size of taps
M3
M4
M5
M6
M8
M10
M12

14 Piece Sets

Spiral fluted DIN371/DIN376

Set includes one each:
7pcs taps(DIN371/DIN376)
7pcs drills



Descriptions	Metal Case
H.S.S	314-8509

Size of taps
M3
M4
M5
M6
M8
M10
M12

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2

14 Piece Sets

Spiral point DIN371/DIN376

Set includes one each:
7pcs taps(DIN371/DIN376)
7pcs drills



Descriptions	Metal Case
H.S.S	314-8510

Size of taps
M3
M4
M5
M6
M8
M10
M12

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2

14 Piece Sets

Spiral fluted and Spiral point taps DIN371/DIN376

Set includes one each:
7pcs spiral point taps
7pcs spiral fluted taps



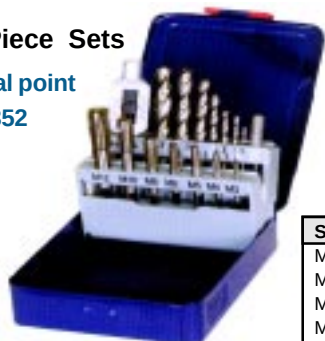
Descriptions	Metal Case
H.S.S	314-8511

Size of taps
M3
M4
M5
M6
M8
M10
M12

15 Piece Sets

Spiral point DIN352

Set includes one each:
7pcs taps(DIN352)
7pcs drills
1pc tap wrench



Descriptions	Metal Case
H.S.S	314-8514

Size of taps
M3
M4
M5
M6
M8
M10
M12

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2

15 Piece Sets

Straight timed DIN352

Set includes one each:
7pcs taps(DIN352)
7pcs drills
1pc tap wrench



Descriptions	Metal Case
H.S.S	314-8515

Size of taps
M3
M4
M5
M6
M8
M10
M12

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2

16 Piece Sets

Spiral point DIN352

Set includes one each:
14pcs taps(each size 2pcs)
1pc tap wrench
1pc ratchet wheel wrench



Descriptions	Metal Case
H.S.S	314-8516

Size of taps
M3
M4
M5
M6
M8
M10
M12

16 Piece Sets

Straight fluted DIN352

Set includes one each:
14pcs taps(each size 2pcs)
1pc tap wrench
1pc ratchet wheel wrench



Descriptions	Metal Case
H.S.S	314-8517

Size of taps
M3
M4
M5
M6
M8
M10
M12

Tap & Die Sets



21 Piece Sets

DIN352 taps sets

Set includes one each: 21pcs taps

Remark:

DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Metal Box
H.S.S	Model No.314-9521

Size of taps	Thread size & pitch		
M3	M3(V)	M3(M)	M3(F)
M4	M4(V)	M4(M)	M4(F)
M5	M5(V)	M5(M)	M5(F)
M6	M6(V)	M6(M)	M6(F)
M8	M8(V)	M8(M)	M8(F)
M10	M10(V)	M10(M)	M10(F)
M12	M12(V)	M12(M)	M12(F)



22 Piece Sets

DIN352 taps sets

Set includes one each:

21pcs taps/1pc adjustable handle tap wrench

Remark:

DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Metal Box
H.S.S	Model No.314-8622

Size of taps	Thread size & pitch		
M3	M3(V)	M3(M)	M3(F)
M4	M4(V)	M4(M)	M4(F)
M5	M5(V)	M5(M)	M5(F)
M6	M6(V)	M6(M)	M6(F)
M8	M8(V)	M8(M)	M8(F)
M10	M10(V)	M10(M)	M10(F)
M12	M12(V)	M12(M)	M12(F)



28 Piece Sets

DIN352 taps and drills sets

Set includes one each:

21pcs taps,DIN352

7pcs drills

Remark:

DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Metal Box
H.S.S	Model No.314-8628

Size of drills	Size of taps	Thread size & pitch		
M2.5	M3	M3(V)	M3(M)	M3(F)
M3.3	M4	M4(V)	M4(M)	M4(F)
M4.2	M5	M5(V)	M5(M)	M5(F)
M5.0	M6	M6(V)	M6(M)	M6(F)
M6.8	M8	M8(V)	M8(M)	M8(F)
M8.5	M10	M10(V)	M10(M)	M10(F)
M10.2	M12	M12(V)	M12(M)	M12(F)



29 Piece Sets

DIN352 taps and drills sets

Set includes one each:

21pcs taps,DIN352

7pcs drills

1pc adjustable handle tap wrench

Remark:

DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Metal Box
H.S.S	Model No.314-9529

Size of drills	Size of taps	Thread size & pitch		
M2.5	M3	M3(V)	M3(M)	M3(F)
M3.3	M4	M4(V)	M4(M)	M4(F)
M4.2	M5	M5(V)	M5(M)	M5(F)
M5.0	M6	M6(V)	M6(M)	M6(F)
M6.8	M8	M8(V)	M8(M)	M8(F)
M8.5	M10	M10(V)	M10(M)	M10(F)
M10.2	M12	M12(V)	M12(M)	M12(F)



31 Piece Sets

Set includes one each:

7pcs round die

21pcs taps DIN352

1pc die stock

1pc tap wrench

1pc screw driver

Remark: DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Plastic Box
H.S.S	Model No.314-8631

Size of taps 3mm-12mm

Size	Size	Size
M3(V)	M3(M)	M3(F)
M4(V)	M4(M)	M4(F)
M5(V)	M5(M)	M5(F)
M6(V)	M6(M)	M6(F)
M8(V)	M8(M)	M8(F)
M10(V)	M10(M)	M10(F)
M12(V)	M12(M)	M12(F)

Tap & Die Sets

32 Piece Sets

DIN352 taps sets



Metal case



Set includes one each:

- 21pcs taps
- 7pcs round die
- 1pc dies stock
- 1pc tap wrench
- 1pc screw driver
- 1pc screw pitch gauge

Remark: DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Plastic Box	Metal Box
H.S.S	Model No.314-9532	Model No.314-9533
Carbon Steel	Model No.314-9632	Model No. 314-9633

Thread size & pitch			Size of Dies
M3(V)	M3(M)	M3(F)	M3x0.5
M4(V)	M4(M)	M4(F)	M4x0.7
M5(V)	M5(M)	M5(F)	M5x0.8
M6(V)	M6(M)	M6(F)	M6x1.0
M8(V)	M8(M)	M8(F)	M8x1.25
M10(V)	M10(M)	M10(F)	M10x1.5
M12(V)	M12(M)	M12(F)	M12x1.75

33 Piece Sets

DIN352 taps sets

Set includes one each:

- 7pcs round die
- 21pcs taps DIN352
- 1pc die stock
- 1pc tap wrench
- 1pc screw driver
- 1pc screw pitch gauge
- 1pc ratchet wheel wrench

Remark: DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Plastic Box
H.S.S	Model No.314-8633

Size of taps 3mm-12mm

Size	Size	Size
M3(V)	M3(M)	M3(F)
M4(V)	M4(M)	M4(F)
M5(V)	M5(M)	M5(F)
M6(V)	M6(M)	M6(F)
M8(V)	M8(M)	M8(F)
M10(V)	M10(M)	M10(F)
M12(V)	M12(M)	M12(F)

44 Piece Sets

DIN352 taps sets

Set includes one each:

- 7pcs round die
- 7pcs drills
- 21pcs taps DIN352
- 5pc die stock
- 2pc tap wrench
- 1pc screw driver
- 1pc screw pitch gauge

Remark: DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Plastic Box	Metal Box
H.S.S	314-8644	314-8645
		314-8646
		314-8647

Thread size & pitch		
M3(V)	M3(M)	M3(F)
M4(V)	M4(M)	M4(F)
M5(V)	M5(M)	M5(F)
M6(V)	M6(M)	M6(F)
M8(V)	M8(M)	M8(F)
M10(V)	M10(M)	M10(F)
M12(V)	M12(M)	M12(F)

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2

Size of taps&die
M3
M4
M5
M6
M8
M10
M12



Model No.314-8644



Model No.314-8645



Model No.314-8646



Model No.314-8647

Tap & Die Sets



56 Piece Sets

DIN352 taps sets

Set includes one each:

- 11pcs round die
- 33pcs taps DIN352
- 6pc die stock
- 2pc tap wrench
- 2pc ratchet wheel wrench
- 1pc screw driver
- 1pc screw pitch gauge

Remark: DIN 352 V= Coarse Tap, M= Middle Tap, F= Fine Tap.

Descriptions	Plastic Box
H.S.S	Model No.314-8656

Size of taps 3mm-20mm

Size	Size	Size
M3(V)	M3(M)	M3(F)
M4(V)	M4(M)	M4(F)
M5(V)	M5(M)	M5(F)
M6(V)	M6(M)	M6(F)
M8(V)	M8(M)	M8(F)
M10(V)	M10(M)	M10(F)
M12(V)	M12(M)	M12(F)
M14(V)	M14(M)	M14(F)
M16(V)	M16(M)	M16(F)
M18(V)	M18(M)	M18(F)
M20(V)	M20(M)	M20(F)



110 Piece Sets

DIN2181 taps sets

Set includes one each:

- 35pcs round die
- 70pcs taps DIN2181
- 2pcs die stock
- 2pcs tap wrench
- 1pc T-type wrench

Descriptions	Wooden Box
H.S.S	Model No.314-8670
Carbon steel	Model No.314-8671

Size of taps& die
M2x0.4
M3x0.5
M4x0.7
M5x0.8
M6x0.75
M6x1.0
M7x0.75
M7x1.0
M8x0.75
M8x1.0
M8x1.25

Size of taps& die
M9x0.75
M9x1.0
M9x1.25
M10x0.75
M10x1.0
M10x1.25
M10x1.50
M11x0.75
M11x1.0
M11x1.25
M11x1.5

Size of taps& die
M12x0.75
M12x1.0
M12x1.25
M12x1.50
M12x1.75
M14x1.0
M14x1.25
M14x1.5
M14x2.0
M16x1.0
M16x2
M18x1.5



14 Piece Metric Set

ISO Standard Metric size

Spiral pointed taps

Set includes one each:

- 7pcs taps
- 7pcs drills

Descriptions	Plastic Box
H.S.S	Model No.314-8714

Size of taps
M3
M4
M5
M6
M8
M10
M12

Size of drills
M2.5
M3.3
M4.2
M5.0
M6.8
M8.5
M10.2



18 Piece Metric Set

ISO Standard Metric size

Set includes one each:

- 12pcs taper, plug, bottoming taps
- 4pcs round dies
- 1pc dies stock
- 1pc tap wrench

Descriptions	Plastic Box
H.S.S	Model No.314-8718

Size of taps
12mmx1.25
12mmx1.5
13mmx1.5
14mmx1.5

Size of dies
14mm
16mm
18mm
20mm



21 Piece Metric Set

ISO Standard Metric size

Set includes one each:

- 21pcs taper, plug, bottoming taps

Descriptions	Plastic Box
H.S.S	Model No.314-8721

Size of taps
M3
M4
M5
M6
M8
M10
M12

Keyway Broaches

KEYWAY BROACHES WITH SHIMS

HSS



Broach Size	Type	Broach Dimensions	Shims Required	Length of Cut Min.	Length of Cut Max.	Tolerances	Model No.
1/16	A	1/8x5	0	13/64	1-1/8	.0625-.0635	395-1004
3/32	A	1/8x5	0	13/64	1-1/8	.0938-.0948	395-1006
1/8	A	1/8x5	1	13/64	1-1/8	.1252-.1262	395-1008
3/32	B	3/16x6-3/4	0	19/64	1-11/16	.0937-.0947	395-1106
1/8	B	3/16x6-3/4	1	19/64	1-11/16	.1252-.1262	395-1108
5/32	B	3/16x6-3/4	1	19/64	1-11/16	.1564-.1574	395-1110
3/16	B	3/16x6-3/4	1	19/64	1-11/16	.1877-.1887	395-1112
3/16	C	3/8x11-3/4	1	25/64	2-1/2	.1877-.1887	395-1212
1/4	C	3/8x11-3/4	1	25/64	2-1/2	.2502-.2512	395-1216
5/16	C	3/8x11-3/4	2	25/64	2-1/2	.3127-.3137	395-1220
3/8	C	3/8x11-3/4	2	25/64	2-1/2	.3755-.3765	395-1224
5/16	D	9/16x13-7/8	2	1	6	.3127-.3137	395-1324
3/8	D	9/16x13-7/8	2	1	6	.3755-.3765	395-1328
7/16	D	9/16x13-7/8	3	1	6	.4380-.4390	395-1332
1/2	D	9/16x13-7/8	3	1	6	.5006-.5016	395-1336
5/8	E	3/4x15-1/2	4	1	6	.6260-.6270	395-1440
3/4	E	3/4x15-1/2	5	1	6	.7515-.7525	395-1448
7/8	F	1x20-14	6	1	6	.8765-.8775	395-1556
1	F	1x20-14	7	1	6	1.0015-1.0025	395-1564
1-1/8		1-1/8x20-1/4	8	1	6	1.1265-1.1275	395-1570
1-1/4		1-1/4x20-1/4	9	1-1/2	8	1.2520-1.2530	395-1572
1-3/8		1-3/8x20-1/4	10	1-1/2	8	1.3770-1.3780	395-1574
1-1/2		1-1/2x20-1/4	11	1-1/2	8	1.5020-1.5030	395-1576

METRIC KEYWAY BROACHES

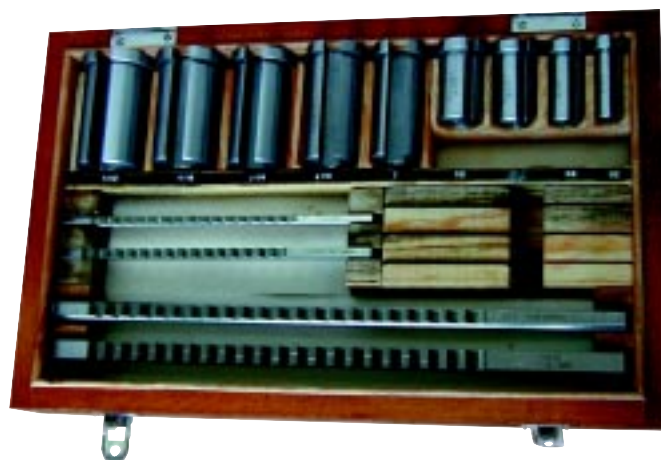
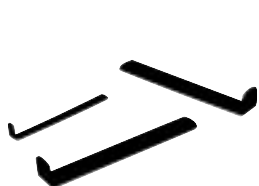
ISO, HSS



Size	S.Keys	Piece of Shim	Dimension	Tooth Pitch	Teeth	Length of Cut Min.	Length of cut Max.	Tolerance	Model No.
2-A mm	2x2mm		1/8x5"	3/16"	18	13/64"	1-1/8"	.0782-.0791	395-2006
3-A mm	3x3mm	1	1/8x5"	3/16"	18	13/64"	1-1/8"	.1176-.1185	395-2008
4-B-1 mm	4x4mm	1	1/4x6-3/4"	9/32"	16	19/64"	1-11/16"	.1569-.1579	395-2110
5-B-1 mm	5x5mm	1	1/4x6-3/4"	9/32"	16	19/64"	1-11/16"	.1963-.1972	395-2112
5-C mm	5x5mm	1	3/8x11-3/4"	3/8"	22	25/64"	2-1/2"	.1963-.1972	395-2212
6-C-1 mm	6x6mm	1	3/8x11-3/4"	3/8"	22	25/64"	2-1/2"	.2356-.2366	395-2216
8-C-1 mm	8x7mm	2	3/8x11-3/4"	3/8"	22	25/64"	2-1/2"	.3143-.3155	395-2220
10-D-1 mm	10x8mm	2	9/16x13-7/8"	5/8"	17	1"	6"	.3930-.3942	395-2224
12-D-1 mm	12x8mm	2	9/16x13-7/8"	5/8"	17	1"	6"	.4716-.4730	395-2324
14-D-1 mm	14x9mm	2	9/16x13-7/8"	5/8"	17	1"	6"	.5503-.5517	395-2328
16-E-1 mm	16x10mm	3	3/4x15-1/2"	5/8"	20	1"	6"	.6290-.6304	395-2332
18-E-1 mm	18x11mm	3	3/4x15-1/2"	5/8"	20	1"	6"	.7078-.7092	395-2336
20-F-1 mm	20x12mm	3	1x20-1/4"	5/8"	26	1"	6"	.7864-.7880	395-2440
22-F-1 mm	22x14mm	4	1x20-1/4"	5/8"	26	1"	6"	.8651-.8667	395-2448
24-F mm	24x14mm	5	1x20-1/4"	5/8"	26	1"	6"	.9439-.9455	395-2556
25-F-1 mm	25x14mm	4	1x20-1/4"	5/8"	26	1"	6"	.9832-.9848	395-2564

Keyway Broaches

INCH KEYWAY BROACH SETS



Pieces	No. Of Broachs	No.Of Shim	No. Of Bushings	Keyway Combinations	Model No.
9	3 Broaches: 1/16-A, 3/32-A, 1/8-A	1	5 Bushings: 1/4, 5/16, 3/8, 7/16, 1/2"	15	395-0109
17	2 Broaches: 5/8, 3/4"	9	6 Bushings: 2-5/16, 2-7/16, 2-9/16, 2-11/16, 2-13/16, 2-15/16"	12	395-0217
17	2 Broaches: 5/8-E, 3/4-E	9	6 Bushings: 2-3/8, 2-1/2, 2-5/8, 2-3/4, 2-7/8, 3"	12	395-0218
22	4 Broaches: 5/16-D, 3/8-D, 7/16-D, 1/2-D	10	8 Bushings: 1-7/16, 1-9/16, 1-11/16, 1-13/16, 1-15/16, 2-3/16, 2-7/16, 2-15/16"	32	395-0322
22	4 Broaches: 5/16-D, 3/8-D, 7/16-D, 1/2-D	10	8 Bushings: 1-1/2, 1-5/8, 1-3/4, 1-7/8, 2, 2-1/8, 2-1/4, 2-1/2"	32	395-0323
32	3 Broaches: 1/2-D, 5/8-E, 3/4-E	12	17 Bushings: 2, 2-1/16, 2-1/8, 2-3/16, 2-1/4, 2-5/16, 2-3/8, 2-7/16, 2-1/2, 2-9/16, 2-5/8, 2-11/16, 2-3/4, 2-13/16, 2-7/8, 2-15/16, 3"	26	395-0432
75	8 Broaches: 1/8, 3/16"(B), 1/4, 5/16"(C), 3/8, 7/16, 1/2"(D), 5/8, (E) 3/4"	22	44 Bushings: 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4, 1-5/16, 1-3/8, 1-7/16, 1-1/2, 1-9/16, 1-7/16, 1-1/2, 1-9/16, 1-5/8, 1-11/16, 1-3/4, 1-13/16, 1-7/8, 1-15/16, 2", 2-1/16, 2-1/8, 2-3/16, 2-1/4, 2-5/16, 2-3/8, 2-7/16, 2-1/2, 2-9/16, 2-5/8, 2-11/16, 2-3/4, 2-13/16, 2-7/8, 2-15/16, 3"	102	395-0575
18	4 Broaches: 1/8-B, 3/16-B, 1/4-C, 3/8-C	5	9 Bushings: 1/2, 5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2"	18	395-0718
18	4 Broaches: 1/8-B, 3/16-B, 1/4-C, 3/8-C	5	9 Bushings: 9/16, 11/16, 13/16, 15/16, 1-1/16, 1-3/16, 1-5/16, 1-7/16, 1-9/16"	18	395-0719
27	4 Broaches: 1/8-B, 3/16-B, 1/4-C, 3/8-C	5	18 Bushings: 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4, 1-5/16, 1-3/8, 1-7/16, 1-1/2, 1-9/16"	36	395-0727
30	5 Broaches: 1/8", 3/16"(B), 1/4", 5/16", 3/8"(C)	7	18 Bushings: 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4, 1-5/16, 1-3/8, 1-7/16, 1-1/2, 1-9/16"	47	395-0730

METRIC KEYWAY BROACH SETS

Piece	No. Of Broaches	No. Of Shim	No. Of Bushings	Keyway Combinations	Model No.
6	2 Broaches: 2mm, 3mm (A)	1	3 Bushings: 6, 8, 10mm	6	395-0806
16	2 Broaches 16mm, 18mm (E-1)	6	8 Bushings: 52, 54, 55, 56, 58, 60, 62, 65mm	16	395-0816
21	3 Broaches 10mm, 12mm, 14mm (D-1)	6	12 Bushings: 32, 34, 35, 36, 38, 40, 42, 44, 45, 46, 48, 50mm	36	395-0821
22	4 Broaches 4mm, 5mm (B-1), 6mm, 8mm (C-1)	5	13 Bushings: 12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30mm	26	395-0822

Keyway Broaches

STANDARD KEYWAY BUSHINGS

Different size bushings enable the individual keyway broaches to be used in a variety of bore sizes

Broaches and bushings with the same letter signify same size of broache width and bushing opening, please use bushings with the same letter designated broaches.

D,E Style: Plain
A,B,C Style: Collared



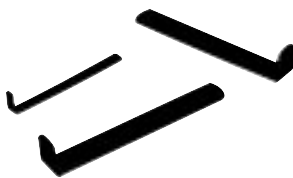
Inch Bushings

Bushing Type	Diameter	Model No.	Bushing Type	Diameter	Model No.
A	1/4	395-9001	D	1-13/16	395-9313
A	5/16	395-9003	D	1-7/8	395-9315
A	3/8	395-9005	D	1-15/16	395-9317
A	7/16	395-9007	D	2"	395-9319
A	1/2	395-9009	D	2-1/16	395-9321
B	1/2	395-9101	D	2-1/8	395-9323
B	9/16	395-9103	D	2-3/16	395-9325
B	5/8	395-9105	D	2-1/4	395-9327
B	11/16	395-9107	D	2-5/16	395-9329
B	3/4	395-9109	D	2-3/8	395-9331
B	13/16	395-9111	D	2-7/16	395-9333
B	7/8	395-9113	D	2-1/2	395-9335
C	3/4	395-9201	D	2-9/16	395-9337
C	13/16	395-9203	D	2-5/8	395-9339
C	7/8	395-9205	D	2-11/16	395-9341
C	15/16	395-9207	D	2-3/4	395-9343
C	1"	395-9209	D	2-13/16	395-9345
C	1-1/16	395-9211	D	2-7/8	395-9347
C	1-1/8	395-9213	D	2-15/16	395-9349
C	1-3/16	395-9215	E	2-5/16	395-9401
C	1-1/4	395-9217	E	2-3/8	395-9403
C	1-5/16	395-9219	E	2-7/16	395-9405
C	1-3/8	395-9221	E	2-1/2	395-9407
C	1-7/16	395-9223	E	2-9/16	395-9409
C	1-1/2	395-9225	E	2-5/8	395-9411
C	1-9/16	395-9227	E	2-11/16	395-9413
D	1-7/16	395-9301	E	2-3/4	395-9415
D	1-1/2	395-9303	E	2-13/16	395-9417
D	1-9/16	395-9305	E	2-7/8	395-9419
D	1-5/8	395-9307	E	2-15/16	395-9421
D	1-11/16	395-9309	E	3"	395-9423
D	1-3/4	395-9311			

Bushing Type	Diameter	Model No.	Bushing Type	Diameter	Model No.
A	6mm	395-7006	D	35mm	395-7235
A	7mm	395-7007	D	36mm	395-7236
A	8mm	395-7008	D	38mm	395-7238
A	9mm	395-7009	D	40mm	395-7240
A	10mm	395-7010	D	42mm	395-7242
B	12mm	395-7012	D	44mm	395-7244
B	14mm	395-7014	D	45mm	395-7245
B	15mm	395-7015	D	46mm	395-7246
B	16mm	395-7016	D	48mm	395-7248
B	17mm	395-7017	D	50mm	395-7250
B	18mm	395-7018	D	52mm	395-7252
B	19mm	395-7019	D	54mm	395-7254
C	18mm	395-7118	D	56mm	395-7256
C	19mm	395-7119	E	52mm	395-7352
C	20mm	395-7120	E	54mm	395-7354
C	22mm	395-7122	E	55mm	395-7355
C	24mm	395-7124	E	56mm	395-7356
C	25mm	395-7125	E	58mm	395-7358
C	26mm	395-7126	E	60mm	395-7360
C	28mm	395-7128	E	62mm	395-7362
C	30mm	395-7130	E	63mm	395-7363
C	32mm	395-7132	E	64mm	395-7364
C	34mm	395-7134	E	65mm	395-7365
C	35mm	395-7135	E	66mm	395-7366
C	36mm	395-7136	E	68mm	395-7368
D	32mm	395-7232	E	70mm	395-7370
D	34mm	395-7234	E	72mm	395-7372

SHIMS

For Keyway broaches



Inch & Metric

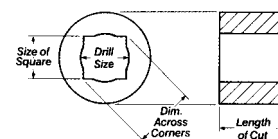
Size	Model No.
A 1/8" & A 3mm	395-5002
B 1/8"	395-5004
B 5/32"	395-5006
B-1 4mm	395-5008
B 3/16"	395-5010
B-1 5mm	395-5012
C 3/16"	395-5014
C 5mm	395-5016

Inch & Metric

Size	Model No.
C 1/4 & 3/8", C-1 6mm	395-5018
C 5/16 & C-1 8mm	395-5020
D 5/16"	395-5022
D 3/8 & 1/2", D-1 14mm	395-5024
D-1 10 & 12mm	395-5026
D 7/16"	395-5028
E 5/8, 3/4" E-1 16 & 18mm	395-5030
F 7/8 & 1" F-1 20-25mm	395-5032

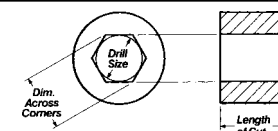
Keyway Broaches

SQUARE PUSH BROACHES



Broach Size	Broach Length	Pilot Dia.	Drill size	Length of Cut Min.	Length of cut Max.	Tolerance	Model No.
1/8"	4-1/8	.1285	#30	3/16	1/2	.1250-.1260	395-4002
3/16"	5-9/16	.1935	#10	1/4	5/8	.1880-.1890	395-4006
7/32"	6-3/8	.2280	#1	1/4	3/4	.2190-.2200	395-4010
1/4"	6-1/2	17/64	17/64	1/4	3/4	.2505-.2515	395-4014
5/16"	7-7/8	21/64	21/64	5/16	1	.3130-.3140	395-4018
3/8"	9-3/8	25/64	25/64	3/8	1-1/4	.3755-.3765	395-4022
1/2"	12	17/32	17/32	1/2	1-3/8	.5005-.5015	395-4026
5/8"	16-5/16	21/32	21/32	5/8	1-5/8	.6260-.6270	395-4030
11/16"	17-3/4	3/4	3/4	5/8	1-5/8	.6885-.6895	395-4034
3/4"	17-3/4	13/16	13/16	5/8	1-5/8	.7510-.7520	395-4038

HEXAGON PUSH BROACHES



Broach Size	Broach Length	Pilot Dia.	Drill size	Length of Cut Min.	Length of cut Max.	Tolerance	Model No.
3/16"	5-1/16	3/16	3/16	1/4	5/8	.1880-.1890	395-6002
1/4"	6	1/4	1/4	1/4	3/4	.2505-.2515	395-6006
5/16"	7-3/4	5/16	5/16	3/8	1	.3130-.3140	395-6010
3/8"	8-1/2	3/8	3/8	3/8	1-1/4	.3755-.3765	395-6014
7/16"	10-5/8	7/16	7/16	1/2	1-3/8	.4385-.4395	395-6018
1/2"	11-7/8	1/2	1/2	1/2	1-3/8	.5005-.5015	395-6022
5/8"	16-1/4	5/8	5/8	5/8	2	.6260-.6270	395-6026
11/16"	16-3/4	11/16	11/16	5/8	2	.6880-.6890	395-6030
7/8"	18-1/2	7/8	7/8	5/8	2	.8765-.8775	395-6034
1"	19-3/4	1	1	5/8	2	1.002-1.003	395-6038

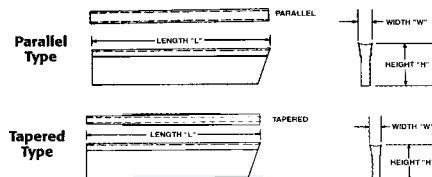
T - TYPE CUT-OFF BLADES

H.S.S.



Parallel Type

Tool No.	W	H	L	Co5 Model No.	Co8 Model No.
P1N	0.04"	1/2"	3-1/2"	363-6005	3363-6005
P1	1/16"	1/2"	4-1/2"	363-6010	3363-6010
P2N	5/64"	1/2"	4-1/2"	363-6015	3363-6015
P2	3/32"	1/2"	4-1/2"	363-6020	3363-6020
P3S	1/8"	1/2"	4-1/2"	363-6025	3363-6025
P3N	3/32"	11/16"	5"	363-6030	3363-6030
P3	1/8"	11/16"	5"	363-6035	3363-6035
P4	5/32"	11/16"	5"	363-6040	3363-6040
P5S	3/16"	11/16"	5"	363-6045	3363-6045
P3W	1/8"	3/4"	5"	363-6050	3363-6050
P4W	5/32"	3/4"	5"	363-6055	3363-6055
P5W	3/16"	3/4"	5"	363-6060	3363-6060
P5	1/8"	7/8"	6"	363-6065	3363-6065
P5N	5/32"	7/8"	6"	363-6070	3363-6070
P5	3/16"	7/8"	6"	363-6075	3363-6075
P6	1/4"	7/8"	6"	363-6080	3363-6080
P8	1/8"	1-1/8"	6-1/2"	363-6085	3363-6085
P8	5/32"	1-1/8"	6-1/2"	363-6090	3363-6090
P8	3/16"	1-1/8"	6-1/2"	363-6095	3363-6095
P9	1/4"	1-1/8"	6-1/2"	363-6100	3363-6100
P10	5/16"	1-1/8"	6-1/2"	363-6105	3363-6105



Tapered Type

Tool No.	W	H	L	Co5 Model No.	Co8 Model No.
T1-N	.040	1/2	3-1/2"	363-5005	3363-5005
T-1	1/16	1/2	4-1/4"	363-5010	3363-5010
T-2-N	5/64	1/2	4-1/4"	363-5015	3363-5015
T-2	3/32	1/2	4-1/4"	363-5020	3363-5020
T3-S	1/8"	1/2"	4-1/4"	363-5025	3363-5025
T3-N	3/32	11/16	4-1/4"	363-5030	3363-5030
T3	1/8"	11/16	4-1/4"	363-5035	3363-5035
T4	5/32"	11/16	4-1/4"	363-5040	3363-5040
T5-S	3/16"	11/16	5"	363-5045	3363-5045
T3-W	1/8	3/4	5"	363-5050	3363-5050
T4-W	5/32	3/4	5"	363-5055	3363-5055
T5-W	3/16	3/4	5"	363-5060	3363-5060
T5-X	1/8	7/8	5"	363-5065	3363-5065
T5-N	5/32	7/8	5"	363-5070	3363-5070
T5	3/16"	7/8	5"	363-5075	3363-5075
T6	1/4"	7/8"	5"	363-5080	3363-5080
T8-X	1/8	1-1/8	5-1/2"	363-5085	3363-5085
T8-N	5/32	1-1/8	5-1/2"	363-5090	3363-5090
T8	3/16"	1-1/8	5-1/2"	363-5095	3363-5095
T9	1/4	1-1/8	5-1/2"	363-5100	3363-5100
T10	5/16	1-1/8	5-1/2"	363-5105	3363-5105

Keyway Broaches

CUT-OFF BLADES H.S.S

W	H	L	Model No.	Co5 Model No.	Co8 Model No.
1/16	1/2	4"	363-0014	3363-0014	4363-0014
1/16	1/2	4-1/2"	363-0015	3363-0015	4363-0015
1/16	11/16	5"	363-0001	3363-0001	4363-0001
3/32	1/2	4"	363-0016	3363-0016	4363-0016
3/32	1/2	4-1/2"	363-0002	3363-0002	4363-0002
3/32	5/8	5	363-0003	3363-0003	4363-0003
3/32	5/8	6	363-0017	3363-0017	4363-0017
3/32	11/16	5	363-0018	3363-0018	4363-0018

W	H	L	Model No.	Co5 Model No.	Co8 Model No.
3/32	3/4	5"	363-0019	3363-0019	4363-0019
1/8	1/2	4"	363-0020	3363-0020	4363-0020
1/8	1/2	4-1/2"	363-0013	3363-0013	4363-0013
1/8	3/4	5"	363-0004	3363-0004	4363-0004
1/8	7/8	6"	363-0005	3363-0005	4363-0005
3/16	1	6-1/2"	363-0006	3363-0006	4363-0006
3/16	1-1/8	7"	363-0007	3363-0007	4363-0007
1/4	1-1/8	7"	363-0008	3363-0008	4363-0008
1/4	1-1/4	7"	363-0009	3363-0009	4363-0009
1/4	1-3/8	7"	363-0010	3363-0010	4363-0010

PLANER KNIFE SETS WITH SMOOTH BACK



L +0.5 -0.5	W +0.15 -0.15	T +0.1 -0.1	HSS-M2 Model No.	L +0.5 -0.5	W +0.15 -0.15	T +0.1 -0.1	HSS-M2 Model No.	L +0.5 -0.5	W +0.15 -0.15	T +0.1 -0.1	HSS-M2 Model No.	L +0.5 -0.5	W +0.15 -0.15	T +0.1 -0.1	HSS-M2 Model No.
100	20	2.0	364-0001	300	25	3.0	364-0091	4	5/8	1/8	364-1001	15-5/16	5/8	1/8	364-1091
150	20	2.0	364-0003	305	25	3.0	364-0093	4	3/4	1/8	364-1003	15-3/4	1-3/16	1/8	364-1093
160	20	2.0	364-0005	310	25	3.0	364-0095	6	5/8	1/8	364-1005	16	1	1/8	364-1095
200	20	2.0	364-0007	400	25	3.0	364-0097	6	3/4	1/8	364-1007	16	1-1/8	1/8	364-1097
210	20	2.0	364-0009	410	25	3.0	364-0099	6	1	1/8	364-1009	16	1-1/4	1/8	364-1099
250	20	2.0	364-0011	500	25	3.0	364-0101	6-1/16	5/8	1/8	364-1011	16-1/16	1	1/8	364-1101
260	20	2.0	364-0013	510	25	3.0	364-0103	6-1/16	3/4	1/8	364-1013	16-3/16	1-3/16	1/8	364-1103
300	20	2.0	364-0015	600	25	3.0	364-0105	6-1/16	13/16	1/8	364-1015	16-1/4	1-1/4	5/32	364-1105
100	25	2.0	364-0017	610	25	3.0	364-0107	6-1/16	5/8	5/32	364-1017	16-1/2	11/16	1/8	364-1107
150	25	2.0	364-0019	640	25	3.0	364-0109	6-1/8	5/8	3/32	364-1019	18	1-1/4	1/8	364-1109
160	25	2.0	364-0021	710	25	3.0	364-0111	6-1/8	5/8	1/8	364-1021	18	1-1/4	5/32	364-1111
200	25	2.0	364-0023	810	25	3.0	364-0113	6-1/8	11/16	1/8	364-1023	18-1/8	1-1/8	5/32	364-1113
210	25	2.0	364-0025	860	25	3.0	364-0115	8	5/8	1/8	364-1025	18-3/16	1-1/8	5/32	364-1115
250	25	2.0	364-0027	930	25	3.0	364-0117	8	3/4	1/8	364-1027	18-1/4	1-1/4	1/8	364-1117
260	25	2.0	364-0029	1000	25	3.0	364-0119	8	7/8	1/8	364-1029	18-1/4	1-1/4	5/32	364-1119
300	25	2.0	364-0031	1050	25	3.0	364-0121	8	1	1/8	364-1031	18-1/4	2	5/32	364-1121
100	20	2.5	364-0033	60	30	3.0	364-0123	8-1/16	5/8	3/32	364-1033	18-1/2	11/16	1/8	364-1123
150	20	2.5	364-0035	80	30	3.0	364-0125	8-1/16	5/8	1/8	364-1035	20	1	1/8	364-1125
160	20	2.5	364-0037	90	30	3.0	364-0127	8-1/16	3/4	1/8	364-1037	20	1-1/8	1/8	364-1127
200	20	2.5	364-0039	100	30	3.0	364-0129	8-1/16	13/16	1/8	364-1039	20	1-3/16	1/8	364-1129
210	20	2.5	364-0041	106	30	3.0	364-0131	10	1-3/8	1/8	364-1041	20	1-1/4	1/8	364-1131
250	20	2.5	364-0043	110	30	3.0	364-0133	10	1-3/8	5/32	364-1043	20-3/16	1-3/16	1/8	364-1133
260	20	2.5	364-0045	120	30	3.0	364-0135	12	5/8	1/8	364-1045	20-3/16	1-3/8	1/8	364-1135
300	20	2.5	364-0047	130	30	3.0	364-0137	12	3/4	1/8	364-1047	20-1/4	1-1/4	5/32	364-1137
100	20	3.0	364-0049	150	30	3.0	364-0139	12	7/8	1/8	364-1049	20-1/2	11/16	1/8	364-1139
120	20	3.0	364-0051	160	30	3.0	364-0141	12	1	1/8	364-1051	20-1/2	1-3/16	1/8	364-1141
150	20	3.0	364-0053	180	30	3.0	364-0143	12	1-1/4	1/8	364-1053	20-1/2	1-3/8	1/8	364-1143
160	20	3.0	364-0055	200	30	3.0	364-0145	12	1-1/2	5/32	364-1055	20-11/16	1-1/2	5/32	364-1145
200	20	3.0	364-0057	207	30	3.0	364-0147	12-1/4	5/8	1/8	364-1057	22-1/8	7/8	1/8	364-1147
210	20	3.0	364-0059	210	30	3.0	364-0149	12-1/4	3/4	1/8	364-1059	22-1/8	1	1/8	364-1149
250	20	3.0	364-0061	230	30	3.0	364-0151	12-1/4	7/8	1/8	364-1061	24	1-1/4	1/8	364-1151
260	20	3.0	364-0063	235	30	3.0	364-0153	12-1/2	5/8	1/8	364-1063	24	1-1/4	5/32	364-1153
300	20	3.0	364-0065	240	30	3.0	364-0155	12-1/2	11/16	1/8	364-1065	24-1/8	1-3/16	1/8	364-1155
80	25	3.0	364-0067	250	30	3.0	364-0157	12-1/2	3/4	1/8	364-1067	24-1/4	5/8	1/8	364-1157
90	25	3.0	364-0069	255	30	3.0	364-0159	13	1-3/8	5/32	364-1069	24-1/4	3/4	1/8	364-1159
100	25	3.0	364-0071	260	30	3.0	364-0161	13	1-3/4	5/32	364-1071	24-1/4	1-1/8	1/8	364-1161
120	25	3.0	364-0073	300	30	3.0	364-0163	13	2	5/32	364-1073	24-1/4	1-1/4	5/32	364-1163
150	25	3.0	364-0075	307	30	3.0	364-0165	13-1/16	5/8	1/8	364-1075	24-3/16	1-3/8	1/8	364-1165
160	25	3.0	364-0077	310	30	3.0	364-0167	13-1/8	5/8	1/8	364-1077	24-3/4	1-1/8	1/8	364-1167
200	25	3.0	364-0079	320	30	3.0	364-0169	13-1/8	1	1/8	364-1079	24-13/16	1-3/8	1/8	364-1169
207	25	3.0	364-0081	330	30	3.0	364-0171	15	11/16	1/8	364-1081	25	11/16	1/8	364-1171
210	25	3.0	364-0083	350	30	3.0	364-0173	15	1	1/8	364-1083	25	1-1/4	1/8	364-1173
250	25	3.0	364-0085	355	30	3.0	364-0175	15	2	5/32	364-1085	25	1-1/4	5/32	364-1175
255	25	3.0	364-0087	400	30	3.0	364-0177	15-1/16	1	1/8	364-1087	25	1-3/8	1/8	364-1177
260	25	3.0	364-0089	405	30	3.0	364-0179	15-1/4	5/8	1/8	364-1089	25	1-3/4	1/8	364-1179

Tool Bits

TOOL BITS

High Speed Steel, Precision Ground



Rectangular

Size	Inch Rectangular Model No.
1/8x1/2x4"	361-0000
1/4x3/8x3"	361-0003
1/4x3/8x4"	361-0005
1/4x3/8x6"	361-0010
1/4x1/2x3"	361-0015
1/4x1/2x4"	361-0020
1/4x1/2x6"	361-0025
1/4x3/4x4"	361-0030
1/4x3/4x5"	361-0035
1/4x3/4x6"	361-0040
1/4x1x6"	361-0045
5/16x3/8x4"	361-0050
5/16x7/16x3"	361-0055
5/16x1/2x4"	361-0060
5/16x3/4x4"	361-0065
5/16x1x6"	361-0070
3/8x1/2x3"	361-0075
3/8x1/2x4"	361-0080
3/8x5/8x4"	361-0085
3/8x5/8x5"	361-0090
3/8x5/8x6"	361-0095
3/8x3/4x4"	361-0100
3/8x3/4x5"	361-0103
3/8x3/4x6"	361-0105
3/8x1x6"	361-0110
3/8x1-1/4x6-1/2"	361-0112
1/2x3/4x4"	361-0115
1/2x3/4x5"	361-0117
1/2x3/4x6"	361-0120
1/2x1x7"	361-0125
1/2x1-1/4x7"	361-0130
1/2x1-1/2x7"	361-0135
5/8x3/4x5"	361-0140
5/8x7/8x6"	361-0145
5/8x1x6"	361-0150
5/8x1x7"	361-0155
5/8x1-1/4x6"	361-0160
5/8x1-1/4x7"	361-0165
5/8x1-1/2x7"	361-0170
3/4x1x6"	361-0175
3/4x1x7"	361-0180
3/4x1-1/4x6"	361-0185
3/4x1-1/4x7"	361-0190
3/4x1-1/2x7"	361-0195
1x1-1/4x6"	361-0200
1x1-1/4x7"	361-0205
1x1-1/2x7"	361-0210

Square

Size	Inch Square Model No.
1/8x2-1/2"	360-0010
1/8x4"	360-0014
1/8x6"	360-0016
1/8x8"	360-0018
3/16x2"	360-0020
3/16x2-1/2"	360-0021
3/16x3"	360-0022
3/16x4"	360-0023
3/16x5"	360-0024
3/16x6"	360-0026
3/16x8"	360-0028
1/4x2-1/2"	360-0033
1/4x3"	360-0034
1/4x4"	360-0035
1/4x6"	360-0037
1/4x8"	360-0039
5/16x2-1/2"	360-0049
5/16x3"	360-0050
5/16x3-1/2"	360-0051
5/16x4"	360-0052
5/16x6"	360-0054
5/16x8"	360-0057
3/8x3"	360-0067
3/8x4"	360-0069
3/8x6"	360-0071
3/8x8"	360-0073
7/16x3-1/2"	360-0090
7/16x4"	360-0091
7/16x6"	360-0095
7/16x8"	360-0097
1/2x3"	360-0109
1/2x4"	360-0111
1/2x6"	360-0113
1/2x8"	360-0115
5/8x4"	360-0127
5/8x4-1/2"	360-0128
5/8x6"	360-0131
5/8x8"	360-0135
3/4x4"	360-0147
3/4x5"	360-0148
3/4x6"	360-0149
3/4x8"	360-0163
7/8x6"	360-0165
1x4"	360-0175
1x6"	360-0177
1x7"	360-0179
1x8"	360-0180
1-1/8x8"	360-0185
1-1/4x6"	360-0200
1-1/4x8"	360-0202
1-1/2x8"	360-0204
1-1/2x10"	360-0208
2x8"	360-0210

Round

Size	Inch Round Model No.
1/8x2-1/2"	362-0030
1/8x2-3/4"	362-0031
1/8x4"	362-0034
1/8x6"	362-0036
1/8x8"	362-0038
5/32x2-1/2"	362-0040
3/16x2"	362-0050
3/16x2-1/2"	362-0051
3/16x3"	362-0052
3/16x3-1/2"	362-0053
3/16x4"	362-0054
3/16x6"	362-0056
3/16x8"	362-0058
7/32x3-1/2"	362-0064
1/4x2-1/2"	362-0074
1/4x3"	362-0075
1/4x4"	362-0077
1/4x6"	362-0078
1/4x8"	362-0079
9/32x4"	362-0090
5/16x2-1/2"	362-0100
5/16x3"	362-0101
5/16x4"	362-0102
5/16x4-1/2"	362-0103
5/16x6"	362-0104
5/16x8"	362-0107
3/8x3"	362-0117
3/8x4"	362-0119
3/8x5"	362-0121
3/8x6"	362-0123
3/8x8"	362-0124
7/16x4"	362-0133
7/16x5-1/2"	362-0135
1/2x3"	362-0143
1/2x4"	362-0145
1/2x6"	362-0147
1/2x8"	362-0149
9/16x6"	362-0153
5/8x4"	362-0160
5/8x6"	362-0163
5/8x8"	362-0168
3/4x4"	362-0173
3/4x6"	362-0175
3/4x8"	362-0178
1x4"	362-0191
1x6"	362-0193
1x8"	362-0198

Size	Metric Round Model No.
2x50mm	362-1030
2.5x50mm	362-1040
3x60mm	362-1050
3x100mm	362-1051
3x150mm	362-1052
3x200mm	362-1053
3.5x60mm	362-1055
4x80mm	362-1060
4x100mm	362-1065
4.5x80mm	362-1070
5x80mm	362-1080
5x100mm	362-1085
5x150mm	362-1086
5x200mm	362-1087
5.5x90mm	362-1095
6x80mm	362-1105
6x100mm	362-1107
6x150mm	362-1109
6x200mm	362-1111
6.5x100mm	362-1115
7x100mm	362-1120
7.5x100mm	362-1130
8x60mm	362-1140
8x100mm	362-1142
8x150mm	362-1144
8x200mm	362-1146
9x125mm	362-1152
10x100mm	362-1160
10x150mm	362-1162
10x200mm	362-1164
12x100mm	362-1170
12x150mm	362-1172
12x200mm	362-1174
14x150mm	362-1180
14x200mm	362-1182
16x100mm	362-1189
16x150mm	362-1190
16x200mm	362-1192
18x200mm	362-1202
20x100mm	362-1209
20x150mm	362-1210
20x200mm	362-1212
18x150mm	362-1219
25x100mm	362-1220
25x150mm	362-1221
25x200mm	362-1222

Tool Bits

TOOL BITS

COBALT, Precision Ground



Inch Rectangular

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
1/8x1/2x4"	3361-0000	4361-0000	5361-0000
1/4x3/8x3"	3361-0003	4361-0003	5361-0003
1/4x3/8x4"	3361-0005	4361-0005	5361-0005
1/4x3/8x6"	3361-0010	4361-0010	5361-0010
1/4x1/2x3"	3361-0015	4361-0015	5361-0015
1/4x1/2x4"	3361-0020	4361-0020	5361-0020
1/4x1/2x6"	3361-0025	4361-0025	5361-0025
1/4x3/4x4"	3361-0030	4361-0030	5361-0030
1/4x3/4x5"	3361-0035	4361-0035	5361-0035
1/4x3/4x6"	3361-0040	4361-0040	5361-0040
1/4x1x6"	3361-0045	4361-0045	5361-0045
5/16x3/8x4"	3361-0050	4361-0050	5361-0050
5/16x7/16x3"	3361-0055	4361-0055	5361-0055
5/16x1/2x4"	3361-0060	4361-0060	5361-0060
5/16x3/4x4"	3361-0065	4361-0065	5361-0065
5/16x1x6"	3361-0070	4361-0070	5361-0070
3/8x1/2x3"	3361-0075	4361-0075	5361-0075
3/8x1/2x4"	3361-0080	4361-0080	5361-0080
3/8x5/8x4"	3361-0085	4361-0085	5361-0085
3/8x5/8x5"	3361-0090	4361-0090	5361-0090
3/8x5/8x6"	3361-0095	4361-0095	5361-0095
3/8x3/4x4"	3361-0100	4361-0100	5361-0100
3/8x3/4x5"	3361-0103	4361-0103	5361-0103
3/8x3/4x6"	3361-0105	4361-0105	5361-0105
3/8x1x6"	3361-0110	4361-0110	5361-0110
3/8x1-1/4x6-1/2"	3361-0112	4361-0112	5361-0112
1/2x3/4x4"	3361-0115	4361-0115	5361-0115
1/2x3/4x5"	3361-0117	4361-0117	5361-0117
1/2x3/4x6"	3361-0120	4361-0120	5361-0120
1/2x1x7"	3361-0125	4361-0125	5361-0125
1/2x1-1/4x7"	3361-0130	4361-0130	5361-0130
1/2x1-1/2x7"	3361-0135	4361-0135	5361-0135
5/8x3/4x5"	3361-0140	4361-0140	5361-0140
5/8x7/8x6"	3361-0145	4361-0145	5361-0145
5/8x1x6"	3361-0150	4361-0150	5361-0150
5/8x1x7"	3361-0155	4361-0155	5361-0155
5/8x1-1/4x6"	3361-0160	4361-0160	5361-0160
5/8x1-1/4x7"	3361-0165	4361-0165	5361-0165
5/8x1-1/2x7"	3361-0170	4361-0170	5361-0170
3/4x1x6"	3361-0175	4361-0175	5361-0175
3/4x1x7"	3361-0180	4361-0180	5361-0180
3/4x1-1/4x6"	3361-0185	4361-0185	5361-0185
3/4x1-1/4x7"	3361-0190	4361-0190	5361-0190
3/4x1-1/2x7"	3361-0195	4361-0195	5361-0195
1x1-1/4x6"	3361-0200	4361-0200	5361-0200
1x1-1/4x7"	3361-0205	4361-0205	5361-0205
1x1-1/2x7"	3361-0210	4361-0210	5361-0210

Inch Square

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
1/8x2-1/2"	3360-0010	4360-0010	5360-0010
1/8x4"	3360-0014	4360-0014	5360-0014
1/8x6"	3360-0016	4360-0016	5360-0016
1/8x8"	3360-0018	4360-0018	5360-0018
3/16x2"	3360-0020	4360-0020	5360-0020
3/16x2-1/2"	3360-0021	4360-0021	5360-0021
3/16x3"	3360-0022	4360-0022	5360-0022
3/16x4"	3360-0023	4360-0023	5360-0023
3/16x5"	3360-0024	4360-0024	5360-0024
3/16x6"	3360-0026	4360-0026	5360-0026
3/16x8"	3360-0028	4360-0028	5360-0028
1/4x2-1/2"	3360-0033	4360-0033	5360-0033
1/4x3"	3360-0034	4360-0034	5360-0034
1/4x4"	3360-0035	4360-0035	5360-0035
1/4x6"	3360-0037	4360-0037	5360-0037
1/4x8"	3360-0039	4360-0039	5360-0039
5/16x2-1/2"	3360-0049	4360-0049	5360-0049
5/16x3"	3360-0050	4360-0050	5360-0050
5/16x3-1/2"	3360-0051	4360-0051	5360-0051
5/16x4"	3360-0052	4360-0052	5360-0052
5/16x6"	3360-0054	4360-0054	5360-0054
5/16x8"	3360-0057	4360-0057	5360-0057
3/8x3"	3360-0067	4360-0067	5360-0067
3/8x4"	3360-0069	4360-0069	5360-0069
3/8x6"	3360-0071	4360-0071	5360-0071
3/8x8"	3360-0073	4360-0073	5360-0073
7/16x3-1/2"	3360-0090	4360-0090	5360-0090
7/16x4"	3360-0091	4360-0091	5360-0091
7/16x6"	3360-0095	4360-0095	5360-0095
7/16x8"	3360-0097	4360-0097	5360-0097
1/2x3"	3360-0109	4360-0109	5360-0109
1/2x4"	3360-0111	4360-0111	5360-0111
1/2x6"	3360-0113	4360-0113	5360-0113
1/2x8"	3360-0115	4360-0115	5360-0115
5/8x4"	3360-0127	4360-0127	5360-0127
5/8x4-1/2"	3360-0128	4360-0128	5360-0128
5/8x6"	3360-0131	4360-0131	5360-0131
5/8x8"	3360-0135	4360-0135	5360-0135
3/4x4"	3360-0147	4360-0147	5360-0147
3/4x5"	3360-0148	4360-0148	5360-0148
3/4x6"	3360-0149	4360-0149	5360-0149
3/4x8"	3360-0163	4360-0163	5360-0163
7/8x6"	3360-0165	4360-0165	5360-0165
1x4"	3360-0175	4360-0175	5360-0175
1x6"	3360-0177	4360-0177	5360-0177
1x7"	3360-0179	4360-0179	5360-0179
1x8"	3360-0180	4360-0180	5360-0180
1-1/8x8"	3360-0185	4360-0185	5360-0185
1-1/4x6"	3360-0200	4360-0200	5360-0200
1-1/4x8"	3360-0202	4360-0202	5360-0202
1-1/2x8"	3360-0204	4360-0204	5360-0204
1-1/2x10"	3360-0208	4360-0208	5360-0208
2x8"	3360-0210	4360-0210	5360-0210

Inch Round

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
1/8x2-1/2"	3362-0030	4362-0030	5362-0030
1/8x2-3/4"	3362-0031	4362-0031	5362-0031
1/8x4"	3362-0034	4362-0034	5362-0034
1/8x6"	3362-0036	4362-0036	5362-0036
1/8x8"	3362-0038	4362-0038	5362-0038
5/32x2-1/2"	3362-0040	4362-0040	5362-0040
3/16x2"	3362-0050	4362-0050	5362-0050
3/16x2-1/2"	3362-0051	4362-0051	5362-0051
3/16x3"	3362-0052	4362-0052	5362-0052
3/16x3-1/2"	3362-0053	4362-0053	5362-0053
3/16x4"	3362-0054	4362-0054	5362-0054
3/16x6"	3362-0056	4362-0056	5362-0056
3/16x8"	3362-0058	4362-0058	5362-0058
7/32x3-1/2"	3362-0064	4362-0064	5362-0064
1/4x2-1/2"	3362-0074	4362-0074	5362-0074
1/4x3"	3362-0075	4362-0075	5362-0075
1/4x4"	3362-0077	4362-0077	5362-0077
1/4x6"	3362-0078	4362-0078	5362-0078
1/4x8"	3362-0079	4362-0079	5362-0079
9/32x4"	3362-0090	4362-0090	5362-0090
5/16x2-1/2"	3362-0100	4362-0100	5362-0100
5/16x3"	3362-0101	4362-0101	5362-0101
5/16x4"	3362-0102	4362-0102	5362-0102
5/16x4-1/2"	3362-0103	4362-0103	5362-0103
5/16x6"	3362-0104	4362-0104	5362-0104
5/16x8"	3362-0107	4362-0107	5362-0107
3/8x3"	3362-0117	4362-0117	5362-0117
3/8x4"	3362-0119	4362-0119	5362-0119
3/8x5"	3362-0121	4362-0121	5362-0121
3/8x6"	3362-0123	4362-0123	5362-0123
3/8x8"	3362-0124	4362-0124	5362-0124
7/16x4"	3362-0133	4362-0133	5362-0133
7/16x5-1/2"	3362-0135	4362-0135	5362-0135
1/2x3"	3362-0143	4362-0143	5362-0143
1/2x4"	3362-0145	4362-0145	5362-0145
1/2x6"	3362-0147	4362-0147	5362-0147
1/2x8"	3362-0149	4362-0149	5362-0149
9/16x6"	3362-0153	4362-0153	5362-0153
5/8x4"	3362-0160	4362-0160	5362-0160
5/8x6"	3362-0163	4362-0163	5362-0163
5/8x8"	3362-0168	4362-0168	5362-0168
3/4x4"	3362-0173	4362-0173	5362-0173
3/4x6"	3362-0175	4362-0175	5362-0175
3/4x8"	3362-0178	4362-0178	5362-0178
1x4"	3362-0191	4362-0191	5362-0191
1x6"	3362-0193	4362-0193	5362-0193
1x8"	3362-0198	4362-0198	5362-0198

Tool Bits

TOOL BITS

COBALT, Precision Ground



Metric Rectangular

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
3x13x100mm	3361-1000	4361-1000	5361-1000
6x10x100mm	3361-1005	4361-1005	5361-1005
6x10x160mm	3361-1010	4361-1010	5361-1010
6x13x75mm	3361-1015	4361-1015	5361-1015
6x13x100mm	3361-1020	4361-1020	5361-1020
6x13x150mm	3361-1025	4361-1025	5361-1025
6x20x100mm	3361-1030	4361-1030	5361-1030
6x20x125mm	3361-1035	4361-1035	5361-1035
6x20x150mm	3361-1040	4361-1040	5361-1040
6x25x150mm	3361-1045	4361-1045	5361-1045
8x10x100mm	3361-1050	4361-1050	5361-1050
8x11x75mm	3361-1055	4361-1055	5361-1055
8x13x100mm	3361-1060	4361-1060	5361-1060
8x20x100mm	3361-1065	4361-1065	5361-1065
8x25x150mm	3361-1070	4361-1070	5361-1070
10x13x75mm	3361-1075	4361-1075	5361-1075
10x13x100mm	3361-1080	4361-1080	5361-1080
10x16x100mm	3361-1085	4361-1085	5361-1085
10x16x125mm	3361-1090	4361-1090	5361-1090
10x16x150mm	3361-1095	4361-1095	5361-1095
10x20x100mm	3361-1100	4361-1100	5361-1100
10x20x150mm	3361-1105	4361-1105	5361-1105
10x25x150mm	3361-1110	4361-1110	5361-1110
13x20x100mm	3361-1115	4361-1115	5361-1115
13x20x150mm	3361-1120	4361-1120	5361-1120
13x25x175mm	3361-1125	4361-1125	5361-1125
13x32x175mm	3361-1130	4361-1130	5361-1130
13x38x175mm	3361-1135	4361-1135	5361-1135
16x20x125mm	3361-1140	4361-1140	5361-1140
16x22x150mm	3361-1145	4361-1145	5361-1145
16x25x150mm	3361-1150	4361-1150	5361-1150
16x25x175mm	3361-1155	4361-1155	5361-1155
16x32x150mm	3361-1160	4361-1160	5361-1160
16x32x175mm	3361-1165	4361-1165	5361-1165
16x38x175mm	3361-1170	4361-1170	5361-1170
22x25x150mm	3361-1175	4361-1175	5361-1175
22x25x175mm	3361-1180	4361-1180	5361-1180
22x32x150mm	3361-1185	4361-1185	5361-1185
22x32x175mm	3361-1190	4361-1190	5361-1190
22x38x175mm	3361-1195	4361-1195	5361-1195
25x32x150mm	3361-1200	4361-1200	5361-1200
25x32x175mm	3361-1205	4361-1205	5361-1205
25x38x175mm	3361-1210	4361-1210	5361-1210

Metric Square

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
3x100mm	3360-1014	4360-1014	5360-1014
3x150mm	3360-1016	4360-1016	5360-1016
3x200mm	3360-1018	4360-1018	5360-1018
4x60mm	3360-1020	4360-1020	5360-1020
4x80mm	3360-1022	4360-1022	5360-1022
5x100mm	3360-1025	4360-1025	5360-1025
5x150mm	3360-1026	4360-1026	5360-1026
5x200mm	3360-1028	4360-1028	5360-1028
6x60mm	3360-1029	4360-1029	5360-1029
6x100mm	3360-1031	4360-1031	5360-1031
6x150mm	3360-1032	4360-1032	5360-1032
6x200mm	3360-1033	4360-1033	5360-1033
7x150mm	3360-1038	4360-1038	5360-1038
7x120mm	3360-1039	4360-1039	5360-1039
8x60mm	3360-1041	4360-1041	5360-1041
8x100mm	3360-1042	4360-1042	5360-1042
8x125mm	3360-1043	4360-1043	5360-1043
8x150mm	3360-1044	4360-1044	5360-1044
8x200mm	3360-1045	4360-1045	5360-1045
10x100mm	3360-1048	4360-1048	5360-1048
10x125mm	3360-1049	4360-1049	5360-1049
10x150mm	3360-1050	4360-1050	5360-1050
10x200mm	3360-1051	4360-1051	5360-1051
12x100mm	3360-1055	4360-1055	5360-1055
12x125mm	3360-1056	4360-1056	5360-1056
12x150mm	3360-1057	4360-1057	5360-1057
12x200mm	3360-1058	4360-1058	5360-1058
14x150mm	3360-1061	4360-1061	5360-1061
14x200mm	3360-1063	4360-1063	5360-1063
15x200mm	3360-1068	4360-1068	5360-1068
16x100mm	3360-1070	4360-1070	5360-1070
16x150mm	3360-1072	4360-1072	5360-1072
16x200mm	3360-1073	4360-1073	5360-1073
18x150mm	3360-1075	4360-1075	5360-1075
18x200mm	3360-1076	4360-1076	5360-1076
20x100mm	3360-1078	4360-1078	5360-1078
20x150mm	3360-1079	4360-1079	5360-1079
20x200mm	3360-1080	4360-1080	5360-1080
25x100mm	3360-1090	4360-1090	5360-1090
25x150mm	3360-1092	4360-1092	5360-1092
25x200mm	3360-1095	4360-1095	5360-1095
25x250mm	3360-1098	4360-1098	5360-1098
32x200mm	3360-1110	4360-1110	5360-1110
38x200mm	3360-1120	4360-1120	5360-1120
50x200mm	3360-1130	4360-1130	5360-1130

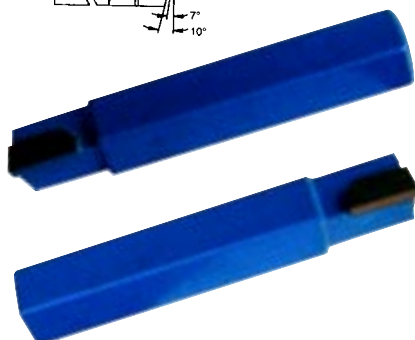
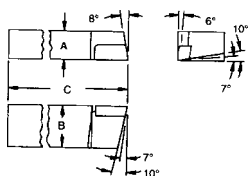
Metric Round

Size	Co5 Model No.	Co8 Model No.	Co10 Model No.
2x50mm	3362-1030	4362-1030	5362-1030
2.5x50mm	3362-1040	4362-1040	5362-1040
3x60mm	3362-1050	4362-1050	5362-1050
3x100mm	3362-1051	4362-1051	5362-1051
3x150mm	3362-1052	4362-1052	5362-1052
3x200mm	3362-1053	4362-1053	5362-1053
3.5x60mm	3362-1055	4362-1055	5362-1055
4x80mm	3362-1060	4362-1060	5362-1060
4x100mm	3362-1065	4362-1065	5362-1065
4.5x80mm	3362-1070	4362-1070	5362-1070
5x80mm	3362-1080	4362-1080	5362-1080
5x100mm	3362-1085	4362-1085	5362-1085
5x150mm	3362-1086	4362-1086	5362-1086
5x200mm	3362-1087	4362-1087	5362-1087
5.5x90mm	3362-1095	4362-1095	5362-1095
6x80mm	3362-1105	4362-1105	5362-1105
6x100mm	3362-1107	4362-1107	5362-1107
6x150mm	3362-1109	4362-1109	5362-1109
6x200mm	3362-1111	4362-1111	5362-1111
6.5x100mm	3362-1115	4362-1115	5362-1115
7x100mm	3362-1120	4362-1120	5362-1120
7.5x100mm	3362-1130	4362-1130	5362-1130
8x60mm	3362-1140	4362-1140	5362-1140
8x100mm	3362-1142	4362-1142	5362-1142
8x150mm	3362-1144	4362-1144	5362-1144
8x200mm	3362-1146	4362-1146	5362-1146
9x125mm	3362-1152	4362-1152	5362-1152
10x100mm	3362-1160	4362-1160	5362-1160
10x150mm	3362-1162	4362-1162	5362-1162
10x200mm	3362-1164	4362-1164	5362-1164
12x100mm	3362-1170	4362-1170	5362-1170
12x150mm	3362-1172	4362-1172	5362-1172
12x200mm	3362-1174	4362-1174	5362-1174
14x150mm	3362-1180	4362-1180	5362-1180
14x200mm	3362-1182	4362-1182	5362-1182
16x100mm	3362-1189	4362-1189	5362-1189
16x150mm	3362-1190	4362-1190	5362-1190
16x200mm	3362-1192	4362-1192	5362-1192
18x200mm	3362-1202	4362-1202	5362-1202
20x100mm	3362-1209	4362-1209	5362-1209
20x150mm	3362-1210	4362-1210	5362-1210
20x200mm	3362-1212	4362-1212	5362-1212
18x150mm	3362-1219	4362-1219	5362-1219
25x100mm	3362-1220	4362-1220	5362-1220
25x150mm	3362-1221	4362-1221	5362-1221
25x200mm	3362-1222	4362-1222	5362-1222

Tool Bits

CARBIDE TIPPED TOOL BITS

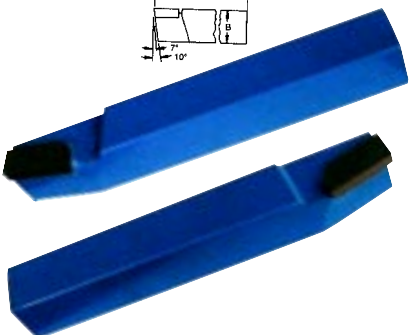
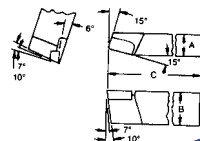
Grade C-2 for Cast Iron and Non-Ferrous Materials, Grade C-6 for Steel and Steel Alloys Premium Carbide



STYLE AR & AL

Straight Turning-for general machining applications such as turning, boring, facing and chamfering. Suitable for machining to a 90° shoulder.

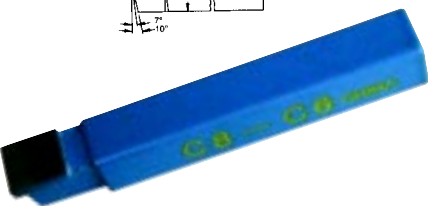
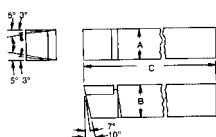
Square	Length	Right Hand		Left Hand	
		Industry Number	Model No.	Industry number	Model No.
1/4"	2"	AR-4	383-0012	AL-4	383-0112
5/16"	2-1/4"	AR-5	383-0022	AL-5	383-0122
3/8"	2-1/2"	AR-6	383-0032	AL-6	383-0132
7/16"	3"	AR-7	383-0042	AL-7	383-0142
1/2"	3-1/2"	AR-8	383-0052	AL-8	383-0152
5/8"	4"	AR-10	383-0062	AL-10	383-0162
3/4"	4-1/2"	AR-12	383-0072	AL-12	383-0172
1"	6"	AR-16	383-0082	AL-16	383-0182



STYLE BR & BL

Lead Angle turning - for general applications on turning, boring, and facing where a lead angle is either required or acceptable.

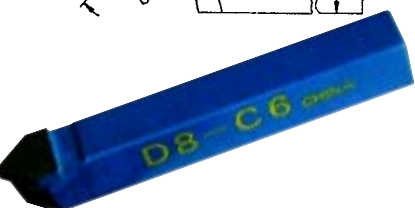
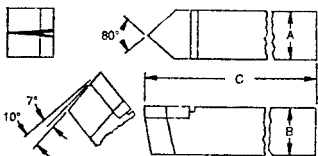
Square	Length	Right Hand		Left Hand	
		Industry number	Model No.	Industry Number	Model No.
1/4"	2"	BR-4	383-1012	BL-4	383-1112
5/16"	2-1/4"	BR-5	383-1022	BL-5	383-1122
3/8"	2-1/2"	BR-6	383-1032	BL-6	383-1132
7/16"	3"	BR-7	383-1042	BL-7	383-1142
1/2"	3-1/2"	BR-8	383-1052	BL-8	383-1152
5/8"	4"	BR-10	383-1062	BL-10	383-1162
3/4"	4-1/2"	BR-12	383-1072	BL-12	383-1172
1"	6"	BR-16	383-1082	BL-16	383-1182



STYLE C

Broad nose - a general purpose tool of great utility for facing, chamfering, and turning. This tool is generally used for making special form tools.

Square	Length	Industry No.	C-2	C-6
			Model No.	Model No.
1/4"	2"	C-4	383-2002	383-2006
5/16"	2-1/4"	C-5	383-2012	383-2016
3/8"	2-1/2"	C-6	383-2022	383-2026
7/16"	3"	C-7	383-2032	383-2036
1/2"	3-1/2"	C-8	383-2042	383-2046
5/8"	4"	C-10	383-2052	383-2056
3/4"	4-1/2"	C-12	383-2062	383-2066
1"	6"	C-16	383-2072	383-2076

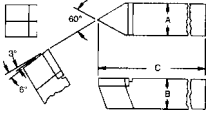


STYLE D

Round nose - an 80° included angle round nose tool for turning, boring, facing, chamfering and other miscellaneous machining operations.

Square	Length	Industry No.	C-2	C-6
			Model No.	Model No.
1/4"	2"	D-4	383-3012	383-3016
5/16"	2-1/4"	D-5	383-3022	383-3026
3/8"	2-1/2"	D-6	383-3032	383-3036
7/16"	3"	D-7	383-3042	383-3046
1/2"	3-1/2"	D-8	383-3052	383-3056
5/8"	4"	D-10	383-3062	383-3066
3/4"	4-1/2"	D-12	383-3072	383-3076
1"	6"	D-16	383-3082	383-3086

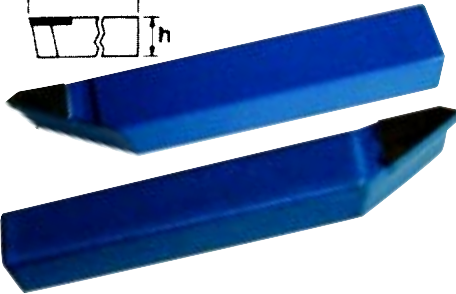
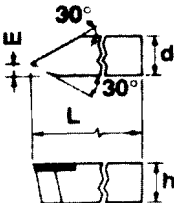
Tool Bits



STYLE E

Threading - conforms with the U.S. Standard 60° included angle thread, also used for V-grooving chamfering, turning, boring and facing.

Square	Length	Industry No.	C-2 Model No.	C-6 Model No.
1/4"	2"	E-4	383-4002	383-4006
5/16"	2-1/4"	E-5	383-4012	383-4016
3/8"	2-1/2"	E-6	383-4022	383-4026
7/16"	3"	E-7	383-4032	383-4036
1/2"	3-1/2"	E-8	383-4042	383-4046
5/8"	4"	E-10	383-4052	383-4056
3/4"	4-1/2"	E-12	383-4062	383-4066
1"	6"	E-16	383-4072	383-4076

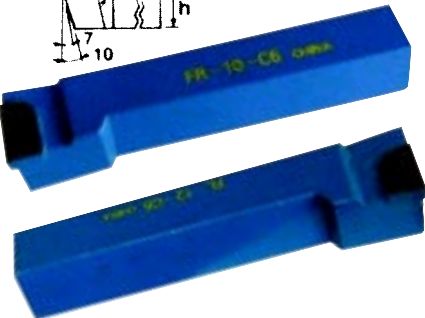
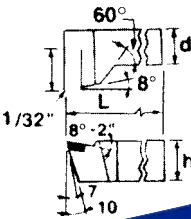


STYLES ER-RIGHT AND EL-LEFT

60° Offset Tool, Right hand for facing to square shoulder. Used mainly for turret lathe operations. Right and left hand tools are used together for straddle facing. Left hand for turning.

E	D	H	L	R.H. Industry No.	ER.R.H C-2 Model No.	ER.R.H. C-6 Model No.	L. H. Industry No.	EL.L.H. C-2 Model No.	EL.L.H. C-6 Model No.
1/16"	1/4"	1/4"	2"	ER-4	383-6202	383-6206	EL-4	383-6302	383-6306
1/16"	5/16"	5/16"	2-1/4"	ER-5	383-6232	383-6236	EL-5	383-6332	383-6336
1/16"	3/8"	3/8"	2-1/2"	ER-6	383-6212	383-6216	EL-6	383-6312	383-6316
1/8"	1/2"	1/2"	3-1/2"	ER-8	383-6222	383-6226	EL-8	383-6322	383-6326
1/8"	5/8"	5/8"	4"	ER-10	383-6242	383-6246	EL-10	383-6342	383-6346

FR & FL

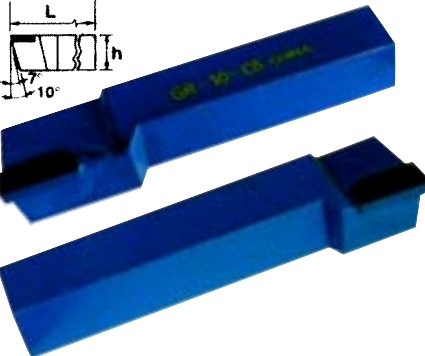
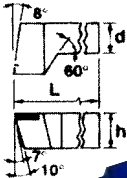


STYLES FR-RIGHT AND FL-LEFT

End Cutting Offset Tool, right hand for facing to square shoulder. Used mainly for turret lathe operations. Right and left hand tools are used together for straddle facing. Left hand for turning.

E	D	H	L	R. H. Industry No.	FR.R.H C-2 Model No.	FR.R.H. C-6 Model No.	L. H. Industry No.	FL.L.H. C-2 Model No.	FL.L.H. C-6 Model No.
1/32"	1/2"	1/2"	3-1/2"	FR-8	383-8002	383-8006	FL-8	383-8102	383-8106
1/32"	5/8"	5/8"	4"	FR-10	383-8012	383-8016	FL-10	383-8112	383-8116
1/32"	3/4"	3/4"	4-1/2"	FR-12	383-8022	383-8026	FL-12	383-8122	383-8126
1/32"	1"	1"	6"	FR-16	383-8032	383-8036	FL-16	383-8132	383-8136

GR & GL



STYLES GR-RIGHT AND GL-LEFT

Right, left hand for facing to square shoulder.

Side cutting offset tools.

Ideal for facing work close to chuck jaws on engine lathes, turret lathes, boring mills and vertical turret lathes.

E	D	H	L	R. H. Industry No.	GR.R.H C-2 Model No.	GR.R.H. C-6 Model No.	L. H. Industry No.	GL.L.H. C-2 Model No.	GL.L.H. C-6 Model No.
1/32"	1/2"	1/2"	3-1/2"	GR-8	383-8202	383-8206	GL-8	383-8302	383-8306
1/32"	5/8"	5/8"	4"	GR-10	383-8212	383-8216	GL-10	383-8312	383-8316
1/32"	3/4"	3/4"	4-1/2"	GR-12	383-8232	383-8236	GL-12	383-8332	383-8336
1/32"	1"	1"	6"	GR-16	383-8222	383-8226	GL-16	383-8322	383-8326

Tool Bits

Style TSA

Square Shank Boring Tools,
For boring to a square shoulder
in 90° boring bars.



Size	Radius	Industry No.	Style TSA	Style TSA
			C-2 Model No.	C-6 Model No.
5/16"	1/64"	TSA5	383-8402	383-8406
3/8"	1/64"	TSA6	383-8412	383-8416
1/2"	1/32"	TSA8	383-8422	383-8426
5/8"	1/32"	TSA10	383-8432	383-8436
3/4"	1/32"	TSA12	383-8442	383-8446

Style TSC

For boring to a square shoulder
in a 30° boring bar, or internal
Chamfering (30°) in a 0°



Size	Radius	Industry No.	Style TSC	Style TSC
			C-2 Model No.	C-6 Model No.
5/16"	1/64"	TSC5	383-8502	383-8506
3/8"	1/64"	TSC6	383-8512	383-8516
1/2"	1/32"	TSC8	383-8522	383-8526
5/8"	1/32"	TSC10	383-8532	383-8536
3/4"	1/32"	TSC12	383-8542	383-8546

Style TSE

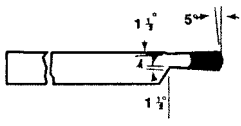
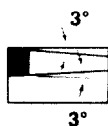
For boring to square shoulder in a
45° boring bar, or boring with a
15° lead angle in a 30° boring bar.



Size	Radius	Industry No.	Style TSE	Style TSE
			C-2 Model No.	C-6 Model No.
5/16"	1/64"	TSE5	383-8602	383-8606
3/8"	1/64"	TSE6	383-8612	383-8616
1/2"	1/32"	TSE8	383-8622	383-8626
5/8"	1/32"	TSE10	383-8632	383-8636
3/4"	1/32"	TSE12	383-8642	383-8646

Styles CTR & CTL:

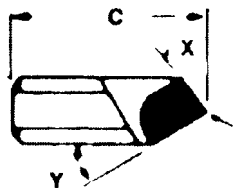
Cut-off-designed for cut-off or grooving solid bars and tube parting.



Overall				R. H. C-2	R. H. C-6	L. H. C-2	L. H. C-6
Shank Size	Tip Dia.	Length	R. H.	Model No.	Model No.	Model No.	Model No.
1/2 x 1	1/8	5	CTR-111	383-4602	383-4606	CTL-111	383-4702
1/2 x 1	3/16	5	CTR-122	383-4612	383-4616	CTL-122	383-4712
1/2 x 1	5/16	5	CTR-120	383-4622	383-4626	CTL-120	383-4722
1/2 x 1	1/4	5	CTR-121	383-4632	383-4636	CTL-121	383-4732
5/8 x 1-1/4	3/8	5	CTR-130	383-4642	383-4646	CTL-130	383-4742
3/4 x 1-1/2	3/8	6	CTR-140	383-4652	383-4656	CTL-140	383-4752

ROUND BORING TOOLS

Round Boring Tools. For boring to a square shoulder in 45° boring bars or with 15° lead angle in 30° boring bars. For recessing and internal chamfering in 90° boring bar.



Style TRC & TRE

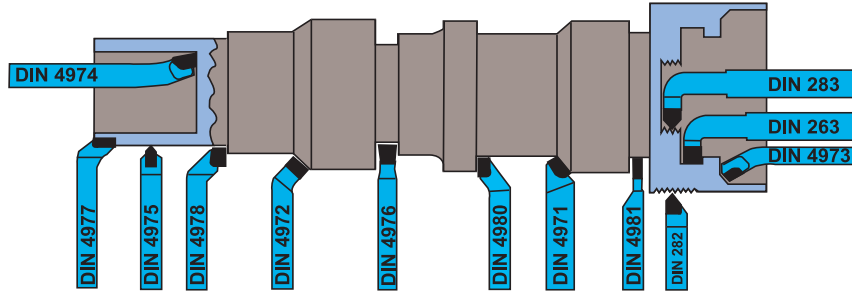
Specify Type

Type	Description
TRC	For Boring to Square Shoulder in 30° Bars
TRE	For Boring to a Square Shoulder in 45° Bars or with 15° Lead in 30° Bars.



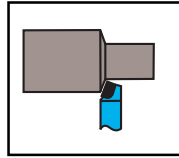
				Industry C - 2 C - 6			Industry C - 2 C - 6		
Size	Radius	Dia.	Length	Number	Model No.	Model No.	Number	Model No.	Model No.
.3120"	1/64"	5/16	1-1/2	TRC 5	383-8702	383-8706	TRE 5	383-8802	383-8806
.3745	1/64	3/8	1-3/4	TRC 6	383-8712	383-8716	TRE 6	383-8812	383-8816
.4995	1/64	1/2	2-1/2	TRC 8	383-8722	383-8726	TRE 8	383-8822	383-8826

DIN & ISO CARBIDE TIPPED TOOL BITS



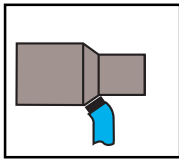
Carbide Tipped Tool Bits, DIN4971-ISO1

Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
10x10x90mm	4971-0001	4971-1001	4971-2001	4971-3001
12x12x100mm	4971-0003	4971-1003	4971-2003	4971-3003
16x16x110mm	4971-0005	4971-1005	4971-2005	4971-3005
20x20x125mm	4971-0007	4971-1007	4971-2007	4971-3007
25x25x140mm	4971-0009	4971-1009	4971-2009	4971-3009
32x32x170mm	4971-0011	4971-1011	4971-2011	4971-3011



Carbide Tipped Tool Bits, DIN4972-ISO2

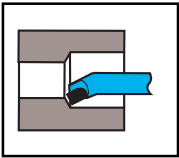
Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
10x10x90mm	4972-0001	4972-1001	4972-2001	4972-3001
12x12x100mm	4972-0003	4972-1003	4972-2003	4972-3003
16x16x110mm	4972-0005	4972-1005	4972-2005	4972-3005
20x20x125mm	4972-0007	4972-1007	4972-2007	4972-3007
25x25x140mm	4972-0009	4972-1009	4972-2009	4972-3009
32x32x170mm	4972-0011	4972-1011	4972-2011	4972-3011



Carbide Tipped Tool Bits, DIN4973-ISO8



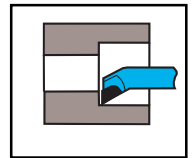
Size	K10/20 Model No.	P25/30 Model No.
8x8x14x125mm	4973-0001	4973-2001
10x10x18x150mm	4973-0003	4973-2003
12x12x21x180mm	4973-0005	4973-2005
16x16x27x210mm	4973-0007	4973-2007
20x20x34x250mm	4973-0009	4973-2009
25x25x43x300mm	4973-0011	4973-2011
32x32x52x355mm	4973-0013	4973-2013



Carbide Tipped Tool Bits DIN4974-ISO9



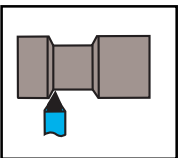
Size	K10/20 Model No.	P25/30 Model No.
8x8x14x125mm	4974-0001	4974-2001
10x10x18x150mm	4974-0003	4974-2003
12x12x21x180mm	4974-0005	4974-2005
16x16x27x210mm	4974-0007	4974-2007
20x20x34x250mm	4974-0009	4974-2009
25x25x43x300mm	4974-0011	4974-2011
32x32x52x355mm	4974-0013	4974-2013



Carbide Tipped Tool Bits. DIN 4975-ISO10



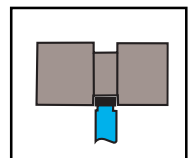
Size	K10/20 Model No.	P25/30 Model No.
26x10x110mm	4975-0001	4975-2001
20x12x125mm	4975-0003	4975-2003
25x16x140mm	4975-0005	4975-2005
32x20x170mm	4975-0007	4975-2007



Carbide Tipped Tool Bits. DIN 4976-ISO4

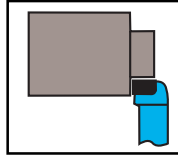


Size	K10/20 Model No.	P25/30 Model No.
10x10x90mm	4976-0001	4976-2001
12x12x100mm	4976-0003	4976-2003
16x16x110mm	4976-0005	4976-2005
20x20x125mm	4976-0007	4976-2007
25x25x140mm	4976-0009	4976-2009
32x32x170mm	4976-0011	4976-2011



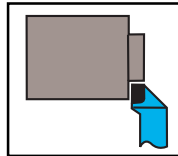
DIN & ISO CARBIDE TIPPED TOOL BITS

Carbide Tipped Tool Bits. DIN 4977-ISO5



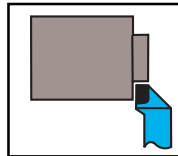
Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
16x16x110mm	4977-0001	4977-1001	4977-2001	4977-3001
20x20x125mm	4977-0003	4977-1003	4977-2003	4977-3003
25x25x140mm	4977-0005	4977-1005	4977-2005	4977-3005
32x32x170mm	4977-0007	4977-1007	4977-2007	4977-3007

Carbide Tipped Tool Bits. DIN 4978-ISO3



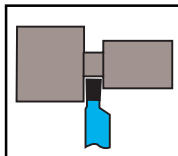
Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
16x10x110mm	4978-0001	4978-1001	4978-2001	4978-3001
20x12x125mm	4978-0003	4978-1003	4978-2003	4978-3003
25x16x140mm	4978-0005	4978-1005	4978-2005	4978-3005
32x20x170mm	4978-0007	4978-1007	4978-2007	4978-3007

Carbide Tipped Tool Bits. DIN 4980-ISO6



Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
10x10x90mm	4980-0001	4980-1001	4980-2001	4980-3001
12x12x100mm	4980-0003	4980-1003	4980-2003	4980-3003
16x16x110mm	4980-0005	4980-1005	4980-2005	4980-3005
20x20x125mm	4980-0007	4980-1007	4980-2007	4980-3007
25x25x140mm	4980-0009	4980-1009	4980-2009	4980-3009
32x32x170mm	4980-0011	4980-1011	4980-2011	4980-3011

Carbide Tipped Tool Bits. DIN 4981-ISO7

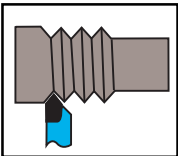


Size	K10/20 right Model No.	K10/20 left Model No.	P25/30 right Model No.	P25/30 left Model No.
12x8x100mm	4981-0001	4981-1001	4981-2001	4981-3001
16x10x110mm	4981-0003	4981-1003	4981-2003	4981-3003
20x12x125mm	4981-0005	4981-1005	4981-2005	4981-3005
25x16x140mm	4981-0007	4981-1007	4981-2007	4981-3007
32x20x170mm	4981-0009	4981-1009	4981-2009	4981-3009

Carbide Tipped Tool Bits. DIN 282-60 Degree



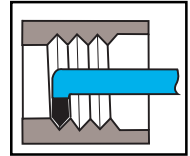
Size	K10/20 Model No.	P25/30 Model No.
10x10x100mm	2820-0001	2820-2001
12x12x110mm	2820-0003	2820-2003
16x16x125mm	2820-0005	2820-2005
20x20x140mm	2820-0007	2820-2007
25x25x160mm	2820-0009	2820-2009
32x32x180mm	2820-0011	2820-2011



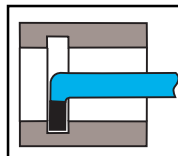
Carbide Tipped Tool Bits. DIN 283-60 degree



Size	K10/20 Model No.	P25/30 Model No.
10x10x24x140mm	2830-0001	2830-2001
12x12x30x160mm	2830-0003	2830-2003
16x16x36x180mm	2830-0005	2830-2005
20x20x45x210mm	2830-0007	2830-2007
25x25x55x250mm	2830-0009	2830-2009
32x32x70x300mm	2830-0011	2830-2011



Carbide Tipped Tool Bits. DIN 263

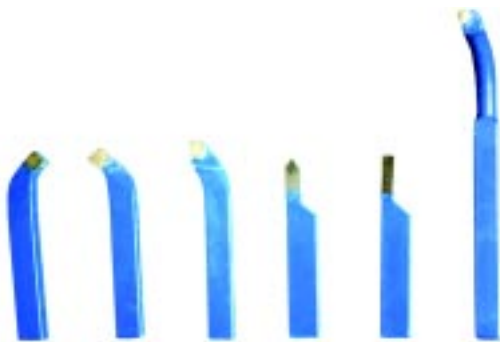


Size	K10/20 Model No.	P25/30 Model No.
10x10x25x140mm	2630-0001	2630-2001
12x12x30x160mm	2630-0003	2630-2003
16x16x40x180mm	2630-0005	2630-2005
20x20x50x210mm	2630-0007	2630-2007
25x25x60x250mm	2630-0009	2630-2009
32x32x85x300mm	2630-0011	2630-2011

Tool Bits Set

CARBIDE TIPPED TOOL BIT SET

3/8" Shank 6pcs sets



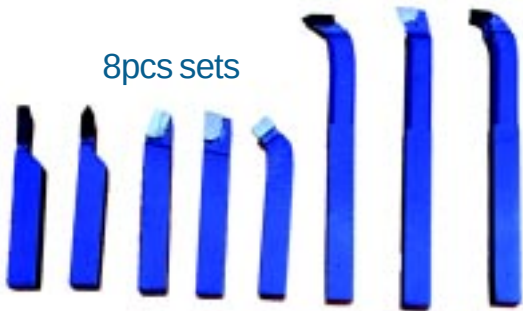
6pcs sets

Square	Length	Descriptions	Model No.
3/8x3/8	3-1/2	45 left angle	383-3601
3/8x3/8	3-1/2	45 right angle	
3/8x3/8	3-1/2	30 angle	
3/8x3/8	3-3/4	3/16 wide,60 point	
3/8x3/8	4	1/8x5/16 straight point	
3/8x3/8	5-3/4	15 angle	

1/2" Shank 6pcs sets

Square	Length	Descriptions	Model No.
1/2x1/2	4"	45 left angle	383-3602
1/2x1/2	4"	45 right angle	
1/2x1/2	4"	30 angle	
1/2x1/2	4-3/8	3/16 wide,60 point	
3/8x5/8	4-1/2	1/8x5/16 straight point	
1/2x1/2	7-1/4	15 angle	

12mm Shank 8pcs sets



8pcs sets

Square	Length	Descriptions	Model No.
12x12mm	140mm	DIN4974R	383-3608
12x12mm	140mm	DIN263R	
12x12mm	140mm	DIN283-60jR	
12x12mm	80mm	DIN4972R	
12x12mm	80mm	DIN4978R	
12x12mm	80mm	DIN4971R	
12x12mm	80mm	DIN4981R	
12x12mm	80mm	DIN282-60jR	

11pcs sets



11pcs sets

Descriptions	8x8mm	10x10mm
	Model No.	Model No.
DIN4974R,DIN4972R,DIN4973R DIN4974R,DIN4975,DIN4976 DIN4977R,DIN4978R,DIN4980L DIN4980R,DIN4981R	387-3610	387-3611

Descriptions	12x12mm	14x14mm
	Model No.	Model No.
DIN4974R,DIN4972R,DIN4973R DIN4974R,DIN4975,DIN4976 DIN4977R,DIN4978R,DIN4980L DIN4980R,DIN4981R	387-3612	387-3613

Inserts

INSERTS

RNMA 			
Insert	TIN		
Size	Model No.	Model No.	No.
RNMA100300	2107-0020	2107-1020	
RNMA120400	2107-0022	2107-1022	
RNMA160500	2107-0024	2107-1024	
RNMA200600	2107-0026	2107-1026	

RNMM 			
Insert	TIN		
Size	Model No.	Model No.	No.
RNMM120400	2108-0020	2108-1020	
RNMM160500	2108-0022	2108-1022	
RNMM200600	2108-0024	2108-1024	
RNMM250700	2108-0026	2108-1026	

RCMM 			
Insert	TIN		
Size	Model No.	Model No.	No.
RCMM120400	2109-0020	2109-1020	
RCMM160500	2109-0022	2109-1022	
RCMM200600	2109-0024	2109-1024	
RCMM250800	2109-0026	2109-1026	

RCMT 			
Insert	TIN		
Size	Model No.	Model No.	No.
RCMT10T300	2110-0020	2110-1020	
RCMT120400	2110-0022	2110-1022	
RCMT160500	2110-0024	2110-1024	
RCMT200600	2110-0026	2110-1026	

RCMW 			
Insert	TIN		
Size	Model No.	Model No.	No.
RNMG32	2111-0020	2111-1020	
RNMG090300			
RNMG43	2111-0022	2111-1022	
RNMG120400			
RNMG54	2111-0024	2111-1024	
RNMG150600			
RNMG64	2111-0026	2111-1026	
RNMG190600			
RNMG86	2111-0028	2111-1028	
RNMG250900			

RPGN 			
Insert	TIN		
Size	Model No.	Model No.	No.
RPGN090300	2112-0020	2112-1020	
RPGN120300	2112-0022	2112-1022	
RPGN160400	2112-0024	2112-1024	
RPGN160500	2112-0026	2112-1026	
RPGN190300	2112-0028	2112-1028	

SCMT 			
Insert	TIN		
Size	Model No.	Model No.	No.
SCMT32.51	2113-0020	2113-1020	
SCMT09T304			
SCMT32.52	2113-0022	2113-1022	
SCMT09T308			
SCMT431	2113-0024	2113-1024	
SCMT120404			
SCMT432	2113-0026	2113-1026	
SCMT120408			
SCMT433	2113-0028	2113-1028	
SCMT120412			

SNGN 			
Insert	TIN		
Size	Model No.	Model No.	No.
SNGN321	2116-0020	2116-1020	
SNGN090304			
SNGN322	2116-0022	2116-1022	
SNGN090308			
SNGN431	2116-0024	2116-1024	
SNGN120404			
SNGN432	2116-0026	2116-1026	
SNGN120408			
SNGN433	2116-0028	2116-1028	
SNGN120412			
SNGN532	2116-0030	2116-1030	
SNGN150408			
SNGN533	2116-0032	2116-1032	
SNGN150412			
SNGN534	2116-0034	2116-1034	
SNGN150416			
SNGN633	2116-0036	2116-1036	
SNGN190412			
SNGN634	2116-0038	2116-1038	
SNGN190416			

SNMA 			
Insert	TIN		
Size	Model No.	Model No.	No.
SNMA321	2117-0020	2117-1020	
SNMA090304			
SNMA322	2117-0022	2117-1022	
SNMA090308			
SNMA431	2117-0024	2117-1024	
SNMA120404			
SNMA432	2117-0026	2117-1026	
SNMA120408			
SNMA433	2117-0028	2117-1028	
SNMA120412			
SNMA542	2117-0030	2117-1030	
SNMA150608			
SNMA543	2117-0032	2117-1032	
SNMA150612			
SNMA642	2117-0034	2117-1034	
SNMA190608			
SNMA643	2117-0036	2117-1036	
SNMA190612			
SNMA856	2117-0038	2117-1038	
SNMA250724			

SCMW 			
Insert	TIN		
Size	Model No.	Model No.	No.
SCMW32.51	2115-0020	2115-1020	
SCMW09T304			
SCMW32.52	2115-0022	2115-1022	
SCMW09T308			
SCMW431	2115-0024	2115-1024	
SCMW120404			
SCMW432	2115-0026	2115-1026	
SCMW120408			
SCMW433	2115-0028	2115-1028	
SCMW120412			
SCMW543	2115-0030	2115-1030	
SCMW150512			
SCMW544	2115-0032	2115-1032	
SCMW150516			

INSERTS

SNMG 			
Insert Size	TIN		
	Model No.	Model No.	
SNMG321	2118-0020	2118-1020	
SNMG090304			
SNMG322	2118-0022	2118-1022	
SNMG090308			
SNMG431	2118-0024	2118-1024	
SNMG120404			
SNMG432	2118-0026	2118-1026	
SNMG120408			
SNMG433	2118-0028	2118-1028	
SNMG120412			
SNMG542	2118-0030	2118-1030	
SNMG150608			
SNMG543	2118-0032	2118-1032	
SNMG150612			
SNMG642	2118-0034	2118-1034	
SNMG190608			
SNMG643	2118-0036	2118-1036	
SNMG190612			
SNMG866	2118-0038	2118-1038	
SNMG250924			

SNMM 			
Insert Size	TIN		
	Model No.	Model No.	
SNMM321	2119-0020	2119-1020	
SNMM090304			
SNMM322	2119-0022	2119-1022	
SNMM090308			
SNMM431	2119-0024	2119-1024	
SNMM120404			
SNMM432	2119-0026	2119-1026	
SNMM120408			
SNMM433	2119-0028	2119-1028	
SNMM120412			
SNMM542	2119-0030	2119-1030	
SNMM150608			
SNMM543	2119-0032	2119-1032	
SNMM150612			
SNMM642	2119-0034	2119-1034	
SNMM190608			
SNMM643	2119-0036	2119-1036	
SNMM190612			
SNMM644	2119-0038	2119-1038	
SNMM190616			

CCMT 			
Insert Size	TIN		
	Model No.	Model No.	
CCMT21.50	2100-0006	2100-1006	
CCMT060202			
CCMT21.51	2100-0008	2100-1008	
CCMT060204			
CCMT21.52	2100-0010	2100-1010	
CCMT060208			
CCMT32.50	2100-0012	2100-1012	
CCMT09T302			
CCMT32.51	2100-0014	2100-1014	
CCMT09T304			
CCMT32.52	2100-0016	2100-1016	
CCMT09T308			
CCMT431	2100-0018	2100-1018	
CCMT120404			
CCMT432	2100-0020	2100-1020	
CCMT120408			
CCMT433	2100-0022	2100-1022	
CCMT120412			

CNMA 			
Insert Size	TIN		
	Model No.	Model No.	
CNMA321	2101-0008	2101-1008	
CNMA090304			
CNMA322	2101-0010	2101-1010	
CNMA090308			
CNMA323	2101-0012	2101-1012	
CNMA090312			
CNMA431	2101-0014	2101-1014	
CNMA120404			
CNMA432	2101-0016	2101-1016	
CNMA120408			
CNMA433	2101-0018	2101-1018	
CNMA120412			
CNMA434	2101-0020	2101-1020	
CNMA120416			
CNMA542	2101-0022	2101-1022	
CNMA160608			
CNMA543	2101-0024	2101-1024	
CNMA160612			
CNMA544	2101-0026	2101-1026	
CNMA160616			
CNMA642	2101-0028	2101-1028	
CNMA190608			
CNMA643	2101-0030	2101-1030	
CNMA190612			
CNMA644	2101-0032	2101-1032	
CNMA190616			

CNMG 			
Insert Size	TIN		
	Model No.	Model No.	
CNMG321	2102-0008	2102-1008	
CNMG090304			
CNMG322	2102-0010	2102-1010	
CNMG090308			
CNMG323	2102-0012	2102-1012	
CNMG090312			
CNMG431	2102-0014	2102-1014	
CNMG120404			
CNMG432	2102-0016	2102-1016	
CNMG120408			
CNMG433	2102-0018	2102-1018	
CNMG120412			
CNMG434	2102-0020	2102-1020	
CNMG120416			
CNMG542	2102-0022	2102-1022	
CNMG160608			
CNMG543	2102-0024	2102-1024	
CNMG160612			
CNMG544	2102-0026	2102-1026	
CNMG160616			
CNMG642	2102-0028	2102-1028	
CNMG190608			
CNMG643	2102-0030	2102-1030	
CNMG190612			
CNMG644	2102-0032	2102-1032	
CNMG190616			

CNMM 			
Insert Size	TIN		
	Model No.	Model No.	
CNMM321	2103-0008	2103-1008	
CNMM090304			
CNMM322	2103-0010	2103-1010	
CNMM090308			
CNMM323	2103-0012	2103-1012	
CNMM090312			
CNMM431	2103-0014	2103-1014	
CNMM120404			
CNMM432	2103-0016	2103-1016	
CNMM120408			
CNMM433	2103-0018	2103-1018	
CNMM120412			
CNMM434	2103-0020	2103-1020	
CNMM120416			
CNMM542	2103-0022	2103-1022	
CNMM160608			
CNMM543	2103-0024	2103-1024	
CNMM160612			
CNMM544	2103-0026	2103-1026	
CNMM160616			
CNMM642	2103-0028	2103-1028	
CNMM190608			
CNMM643	2103-0030	2103-1030	
CNMM190612			
CNMM644	2103-0032	2103-1032	
CNMM190616			

INSERTS

DCMT 			
Insert Size	TIN Model No. Model No.		
DCMT21.50	2104-0008	2104-1008	
DCMT070202			
DCMT21.51	2104-0010	2104-1010	
DCMT070204			
DCMT21.52	2104-0012	2104-1012	
DCMT070208			
DCMT32.51	2104-0014	2104-1014	
DCMT11T304			
DCMT32.52	2104-0016	2104-1016	
DCMT11T308			
DCMT32.53	2104-0018	2104-1018	
DCMT11T312			

DNMG 			
Insert Size	TIN Model No. Model No.		
DNMG331	2106-0008	2106-1008	
DNMG110404			
DNMG332	2106-0010	2106-1010	
DNMG110408			
DNMG333	2106-0012	2106-1012	
DNMG110412			
DNMG441	2106-0014	2106-1014	
DNMG150604			
DNMG442	2106-0016	2106-1016	
DNMG150608			
DNMG443	2106-0018	2106-1018	
DNMG150612			
DNMG444	2106-0020	2106-1020	
DNMG150616			
DNMG541	2106-0022	2106-1022	
DNMG190604			
DNMG542	2106-0024	2106-1024	
DNMG190608			
DNMG543	2106-0026	2106-1026	
DNMG190612			

SPUN 			
Insert Size	TIN Model No. Model No.		
SPU321	2137-0020	2137-1020	
SPUN090304			
SPU322	2137-0022	2137-1022	
SPUN090308			
SPU421	2137-0024	2137-1024	
SPUN120304			
SPU422	2137-0026	2137-1026	
SPUN120308			
SPU423	2137-0028	2137-1028	
SPUN120312			

DCMM 			
Insert Size	TIN Model No. Model No.		
DCMM321	2114-0008	2114-1008	
DCMM110304			
DCMM322	2114-0010	2114-1010	
DCMM110308			
DCMM431	2114-0012	2114-1012	
DCMM150404			
DCMM432	2114-0014	2114-1014	
DCMM150408			
DCMM433	2114-0016	2114-1016	
DCMM150412			
DCMM434	2114-0018	2114-1018	
DCMM150416			
DCMM441	2114-0020	2114-1020	
DCMM150604			
DCMM442	2114-0022	2114-1022	
DCMM150608			
DCMM443	2114-0024	2114-1024	
DCMM150612			
DCMM444	2114-0026	2114-1026	
DCMM160616			

SNUN 			
Insert Size	TIN Model No. Model No.		
SNU321	2120-0020	2120-1020	
SNUN090304			
SNU322	2120-0022	2120-1022	
SNUN090308			
SNU432	2120-0024	2120-1024	
SNUN120408			
SNU423	2120-0026	2120-1026	
SNUN120412			
SNU532	2120-0028	2120-1028	
SNUN150408			
SNU533	2120-0030	2120-1030	
SNUN150412			
SNU534	2120-0032	2120-1032	
SNUN150416			
SNU633	2120-0034	2120-1034	
SNUN190412			
SNU634	2120-0036	2120-1036	
SNUN190416			

SPUN 			
Insert Size	TIN Model No. Model No.		
SPU532	2137-0030	2137-1030	
SPUN150408			
SPU533	2137-0032	2137-1032	
SPUN150412			
SPU633	2137-0034	2137-1034	
SPUN190412			
SPU634	2137-0036	2137-1036	
SPUN190416			

DNMA 			
Insert Size	TIN Model No. Model No.		
DNMA331	2105-0008	2105-1008	
DNMA110404			
DNMA332	2105-0010	2105-1010	
DNMA110408			
DNMA333	2105-0012	2105-1012	
DNMA110412			
DNMA441	2105-0014	2105-1014	
DNMA150604			
DNMA442	2105-0016	2105-1016	
DNMA150608			
DNMA443	2105-0018	2105-1018	
DNMA150612			
DNMA444	2105-0020	2105-1020	
DNMA150616			
DNMA541	2105-0022	2105-1022	
DNMA190604			
DNMA542	2105-0024	2105-1024	
DNMA190608			
DNMA543	2105-0026	2105-1026	
DNMA190612			

SPGN 			
Insert Size	TIN Model No. Model No.		
SPG321	2136-0020	2136-1020	
SPGN090304			
SPG322	2136-0022	2136-1022	
SPGN090308			
SPG421	2136-0024	2136-1024	
SPGN120304			
SPG422	2136-0026	2136-1026	
SPGN120308			
SPG423	2136-0028	2136-1028	
SPGN120312			
SPG532	2136-0030	2136-1030	
SPGN150408			
SPG533	2136-0032	2136-1032	
SPGN150412			
SPG632	2136-0034	2136-1034	
SPGN190408			
SPG633	2136-0036	2136-1036	
SPGN190412			
SPG634	2136-0038	2136-1038	
SPGN190616			

INSERTS

TCMT 			
Insert Size	TIN		
	Model No.	Model No.	No.
1.8(1.5)0	2124-0020	2124-1020	
TCMT090202			
1.8(1.5)1	2124-0022	2124-1022	
TCMT090204			
1.8(1.5)2	2124-0024	2124-1024	
TCMT090208			
TCMT21.50	2124-0026	2124-1026	
TCMT110202			
TCMT21.51	2124-0028	2124-1028	
TCMT110204			
TCMT21.52	2124-0030	2124-1030	
TCMT110208			
TCMT32.50	2124-0032	2124-1032	
TCMT16T302			
TCMT32.51	2124-0034	2124-1034	
TCMT16T304			
TCMT32.52	2124-0036	2124-1036	
TCMT16T308			

TCMW 			
Insert Size	TIN		
	Model No.	Model No.	No.
1.8(1.5)0	2121-0020	2121-1020	
TCMW090202			
1.8(1.5)1	2121-0022	2121-1022	
TCMW090204			
1.8(1.5)2	2121-0024	2121-1024	
TCMW090208			
TCMW21.50	2121-0026	2121-1026	
TCMW110202			
TCMW21.51	2121-0028	2121-1028	
TCMW110204			
TCMW21.52	2121-0030	2121-1030	
TCMW110208			
TCMW32.51	2121-0032	2121-1032	
TCMW16T304			
TCMW32.52	2121-0034	2121-1034	
TCMW16T308			
TCMW32.53	2121-0036	2121-1036	
TCMW16T312			

TNMG 			
Insert Size	TIN		
	Model No.	Model No.	No.
TNMG21.51	2122-0020	2122-1020	
TNMG110204			
TNMG221	2122-0022	2122-1022	
TNMG110304			
TNMG222	2122-0024	2122-1024	
TNMG110308			
TNMG321	2122-0026	2122-1026	
TNMG160304			
TNMG322	2122-0028	2122-1028	
TNMG160308			
TNMG323	2122-0030	2122-1030	
TNMG160312			
TNMG331	2122-0032	2122-1032	
TNMG160403			
TNMG322	2122-0034	2122-1034	
TNMG160408			
TNMG432	2122-0036	2122-1036	
TNMG220408			
TNMG433	2122-0038	2122-1038	
TNMG220412			

TPMR 			
Insert Size	TIN		
	Model No.	Model No.	No.
1.8(1.5)1	2123-0020	2123-1020	
TPMR090204			
TPMR221	2123-0022	2123-1022	
TPMR110304			
TPMR222	2123-0024	2123-1024	
TPMR110308			
TPMR321	2123-0026	2123-1026	
TPMR160304			
TPMR322	2123-0028	2123-1028	
TPMR160308			
TPMR323	2123-0030	2123-1030	
TPMR160312			
TPMR332	2123-0032	2123-1032	
TPMR160408			
TPMR333	2123-0034	2123-1034	
TPMR160412			
TPMR432	2123-0036	2123-1036	
TPMR220408			
TPMR433	2123-0038	2123-1038	
TPMR220412			

TNMA 			
Insert Size	TIN		
	Model No.	Model No.	No.
1.8(1.5)0	2126-0020	2126-1020	
TNMA090202			
TNMA220	2126-0022	2126-1022	
TNMA110300			
TNMA221	2126-0024	2126-1024	
TNMA110304			
TNMA222	2126-0026	2126-1026	
TNMA110308			
TNMA321	2126-0028	2126-1028	
TNMA160304			
TNMA322	2126-0030	2126-1030	
TNMA160308			
TNMA323	2126-0032	2126-1032	
TNMA160312			
TNMA331	2126-0034	2126-1034	
TNMA160404			
TNMA332	2126-0036	2126-1036	
TNMA160408			
TNMA333	2126-0038	2126-1038	
TNMA160412			
TNMA432	2126-0040	2126-1040	
TNMA220408			
TNMA433	2126-0042	2126-1042	
TNMA220412			

TNMM 			
Insert Size	TIN		
	Model No.	Model No.	No.
TNMM21.51	2125-0020	2125-1020	
TNMM110204			
TNMM221	2125-0022	2125-1022	
TNMM110304			
TNMM222	2125-0024	2125-1024	
TNMM110308			
TNMM321	2125-0026	2125-1026	
TNMM160304			
TNMM322	2125-0028	2125-1028	
TNMM160308			
TNMM323	2125-0030	2125-1030	
TNMM160312			
TNMM332	2125-0032	2125-1032	
TNMM160408			
TNMM333	2125-0034	2125-1034	
TNMM160412			
TNMM432	2125-0036	2125-1036	
TNMM220408			
TNMM433	2125-0038	2125-1038	
TNMM220412			

Inserts

INSERTS

TPGN			
Insert Size	TIN	Model No.	Model No.
TPG220	2127-0020	2127-1020	
TPGN110300			
TPG221	2127-0022	2127-1022	
TPGN110304			
TPG222	2127-0024	2127-1024	
TPGN110308			
TPG321	2127-0026	2127-1026	
TPGN160304			
TPG322	2127-0028	2127-1028	
TPGN160308			
TPG323	2127-0030	2127-1030	
TPGN160312			
TPG431	2127-0032	2127-1032	
TPGN220404			
TPG432	2127-0034	2127-1034	
TPGN220408			
TPG433	2127-0036	2127-1036	
TPGN220412			
TPG434	2127-0038	2127-1038	
TPGN220416			

TPUN			
Insert Size	TIN	Model No.	Model No.
TPU220	2128-0020	2128-1020	
TPUN110300			
TPU221	2128-0022	2128-1022	
TPUN110304			
TPU222	2128-0024	2128-1024	
TPUN110308			
TPU321	2128-0026	2128-1026	
TPUN160304			
TPU322	2128-0028	2128-1028	
TPUN160308			
TPU323	2128-0030	2128-1030	
TPUN160312			
TPU431	2128-0032	2128-1032	
TPUN220404			
TPU432	2128-0034	2128-1034	
TPUN220408			
TPU433	2128-0036	2128-1036	
TPUN220412			
TPU434	2128-0038	2128-1038	
TPUN220416			

VBMT			
Insert Size	TIN	Model No.	Model No.
VBMT21.50	2138-0020	2138-1020	
VBMT110202			
VBMT21.51	2138-0022	2138-1022	
VBMT110204			
VBMT21.52	2138-0024	2138-1024	
VBMT110208			
VBMT331	2138-0026	2138-1026	
VBMT160404			
VBMT332	2138-0028	2138-1028	
VBMT160408			
VBMT333	2138-0030	2138-1030	
VBMT260412			

VNMG			
Insert Size	TIN	Model No.	Model No.
VNMG331	2132-0022	2132-1022	
VNMG160404			
VNMG332	2132-0024	2132-1024	
VNMG160408			
VNMG333	2132-0026	2132-1026	
VNMG160412			
VNMG542	2132-0028	2132-1028	
VNMG220408			
VNMG543	2132-0030	2132-1030	
VNMG220412			

VNMA			
Insert Size	TIN	Model No.	Model No.
VNMA331	2131-0022	2131-1022	
VNMA160404			
VNMA332	2131-0024	2131-1024	
VNMA160408			
VNMA333	2131-0026	2131-1026	
VNMA160412			
VNMA542	2131-0028	2131-1028	
VNMA220408			
VNMA543	2131-0030	2131-1030	
VNMA220412			

VCMX			
Insert Size	TIN	Model No.	Model No.
VCMX220	2130-0022	2130-1022	
VCMX110302			
VCMX221	2130-0024	2130-1024	
VCMX110304			
VCMX331	2130-0026	2130-1026	
VCMX160404			
VCMX332	2130-0028	2130-1028	
VCMX160408			
VCMX333	2130-0030	2130-1030	
VCMX160412			

WCMT			
Insert Size	TIN	Model No.	Model No.
WCMT050304	2139-0020	2139-1020	
WCMT050308	2139-0022	2139-1022	
WCMT06T304	2139-0024	2139-1024	
WCMT06T308	2139-0026	2139-1026	
WCMT080408	2139-0028	2139-1028	
WCMT100508	2139-0030	2139-1030	

VBMW			
Insert Size	TIN	Model No.	Model No.
VBMW331	2129-0026	2129-1026	
VBMW160404			
VBMW332	2129-0028	2129-1028	
VBMW160408			
VBMW333	2129-0030	2129-1030	
VBMW160412			

WNMG			
Insert Size	TIN	Model No.	Model No.
WNMG431	2133-0020	2133-1020	
WNMG080404			
WNMG432	2133-0022	2133-1022	
WNMG080408			
WNMG433	2133-0024	2133-1024	
WNMG080412			
WNMG434	2133-0026	2133-1026	
WNMG080416			
WNMG542	2133-0028	2133-1028	
WNMG100608			
WNMG543	2133-0030	2133-1030	
WNMG100612			

WOMX			
Insert Size	TIN	Model No.	Model No.
WOMX050304	2135-0020	2135-1020	
WOMX060304	2135-0022	2135-1022	
WOMX070404	2135-0024	2135-1024	
WOMX070408	2135-0026	2135-1026	
WOMX090504	2135-0028	2135-1028	
WOMX090508	2135-0030	2135-1030	
WOMX110608	2135-0031	2135-1031	

Indexable tool Holder

INDEXABLE CARBIDE TURNING TOOLSET



Efficiency:

- An inexpensive way to replace carbide tipped tool bits.
- Versatile and economical.
- Available in 5 shank size and styles.
- Each tool cuts right, left or plunges.
- Positive rake cutting and built in chip breaker groove.
- Available with 3 different radio.

5 Piece Sets

- Set includes: 5 tools in styles-AR, AL, BR, BL and E insert, with 5 extra screws and 2 wrenches, set also comes in 1/4", 3/8", 1/2", 5/8", 3/4" and 1" sets.

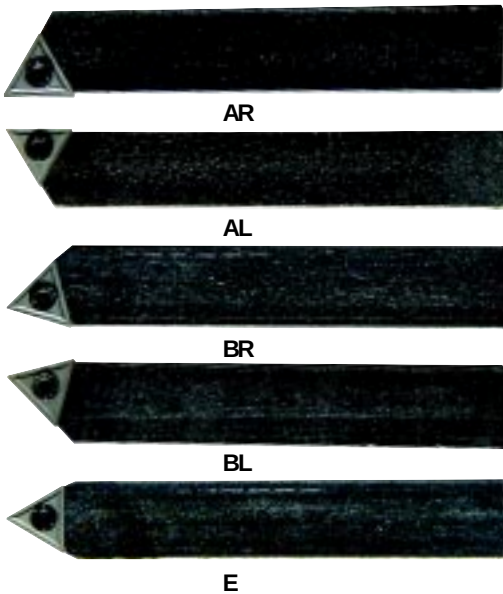
Shank (Square)	Set No.	Descriptions.	C-2 Model No.	C-6 Model No.
1/4"	ST-4	AR-4, AL-4, BR-4, BL-4, E-4	250-1399	251-1399
3/8"	ST-6	AR-6, AL-6, BR-6, BL-6, E-6	250-1400	251-1400
1/2"	ST-8	AR-8, AL-8, BR-8, BL-8, E-8	250-1401	251-1401
5/8"	ST-10	AR-10, AL-10, BR-10, BL-10, E-10	250-1402	251-1402
3/4"	ST-12	AR-12, AL-12, BR-12, BL-12, E-12	250-1404	251-1404
1"	ST-16	AR-16, AL-16, BR-16, BL-16, E-16	250-1406	251-1406

7 Piece Sets

- Include: one each of right hand 90,93,95,62.5 external turning, Left hand 95 external turning, external threading & cutting-off tool holder
- Complete with fited case

Shank	Model No.
1/4"	251-1701
3/8"	251-1704
1/2"	251-1706

Shank	Model No.
5/8"	251-1708
3/4"	251-1710



Indexable Carbide Turning Tools

1/4" Shank, 7/32" I.C. Insert

Type	Model No.
AR 4	250-1391
AL 4	250-1392
BR 4	250-1393
BL 4	250-1394
E 4	250-1395

3/8" Shank, 1/4" I.C. Insert

Type	Model No.
AR 6	250-1411
AL 6	250-1412
BR 6	250-1413
BL 6	250-1414
E 6	250-1415

1/2" Shank, 3/8" I.C. Insert

Type	Model No.
AR 8	250-1421
AL 8	250-1422
BR 8	250-1423
BL 8	250-1424
E 8	250-1425

5/8" Shank, 3/8" I.C. Insert.

Type	Model No.
AR 10	250-1431
AL 10	250-1432
BR 10	250-1433
BL 10	250-1434
E 10	250-1435

3/4" Shank, 3/8" I.C. Insert

Type	Model No.
AR 12	250-1441
AL 12	250-1442
BR 12	250-1443
BL 12	250-1444
E 12	250-1445

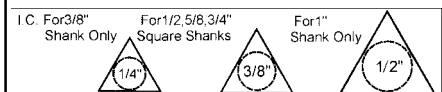
1" Shank, 1/2" I.C. Insert

Type	Model No.
AR 16	250-1451
AL 16	250-1452
BR 16	250-1453
BL 16	250-1454
E 16	250-1455

CARBIDE INSERTS

Insert I.C.	Radius	Insert No.	C2 Model No.	C6 Model No.	Tin Coated Model No.
3/16"	—	—	340-0097	340-0098	340-0099
1/4"	.015	TT-221	340-1000	340-1002	340-1003
1/4"	.032	TT-222	340-1004	340-1006	340-1007
3/8"	.015	TT-321	340-1008	340-1010	340-1011
3/8"	.032	TT-322	340-1012	340-1014	340-1015
3/8"	.046	TT-323	340-1016	340-1018	340-1019
1/2"	.015	TT-431	340-1020	340-1022	340-1023
1/2"	.032	TT-432	340-1024	340-1026	340-1027
1/2"	.046	TT-433	340-1028	340-1030	340-1031

REPLACEMENT SCREWS



Descriptions	Model No.
M2.5 screw for 1/4", 3/8" shank	250-1297
M4 screw for 1/2", 5/8", 3/4" shank	250-1298
M5 screw for 1" shank	250-1299

Indexable tool Holder

METRIC INDEXABLE CARBIDE TURNING TOOLSET



5 Piece Sets

- Set includes: 5 tools in styles-AR, AL, BR, BL and E insert, with 5 extra screws and 2 wrenches, set also comes in 6mm, 8mm, 10mm, 12mm, 14mm, 16mm, 18mm, 20mm, and 25mm sets.

Shank (Square)	Length	Description	ISO K20 Model No.	ISO P20 Model No.
6mm		AR, AL, BR, BL, E	250-5398	251-5398
8mm		AR, AL, BR, BL, E	250-5399	251-5399
10mm	63mm	AR, AL, BR, BL, E	250-5400	251-5400
12mm	76mm	AR, AL, BR, BL, E	250-5401	251-5401
16mm	102mm	AR, AL, BR, BL, E	250-5402	251-5402
14mm	76mm	AR, AL, BR, BL, E	250-5403	251-5403
20mm	120mm	AR, AL, BR, BL, E	250-5404	251-5404
18mm	115mm	AR, AL, BR, BL, E	250-5405	251-5405
25mm	150mm	AR, AL, BR, BL, E	250-5406	251-5406

Indexable Carbide Turning Tools



AR



AL



BR



BL



E

10mm Shank 6.5mm I.C. Insert

Type	Model No.
AR	250-1591
AL	250-1592
BR	250-1593
BL	250-1594
E	250-1595

12mm Shank 9.5mm I.C. Insert

Type	Model No.
AR	250-1611
AL	250-1612
BR	250-1613
BL	250-1614
E	250-1615

14mm Shank 9.5mm I.C. Insert

Type	Model No.
AR	250-1621
AL	250-1622
BR	250-1623
BL	250-1624
E	250-1625

16mm Shank 9.5mm I.C. Insert

Type	Model No.
AR	250-1631
AL	250-1632
BR	250-1633
BL	250-1634
E	250-1635

18mm Shank 9.5mm I.C. Insert

Type	Model No.
AR	250-1641
AL	250-1642
BR	250-1643
BL	250-1644
E	250-1645

20mm Shank 9.5mm I.C. Insert

Type	Model No.
AR	250-1651
AL	250-1652
BR	250-1653
BL	250-1654
E	250-1655

25mm Shank 12.5mm I.C. Insert

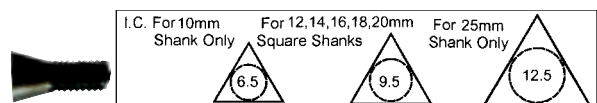
Type	Model No.
AR	250-1661
AL	250-1662
BR	250-1663
BL	250-1664
E	250-1665

CARBIDE INSERTS



Insert	I.C.	Radius	ISO K20	ISO P20
	6.5mm	0.8mm	340-1102	340-1100
	9.5mm	0.8mm	340-1108	340-1106
	12.5mm	0.8mm	340-1112	340-1110

REPLACEMENT SCREWS



Descriptions	Model No.
6.5mm I.C. for 10mm shank	250-1287
9.5mm I.C. for 12, 14, 16, 18, 20 mm square shank	250-1288
12.5mm I.C. for 25mm shank only	250-1289

Indexable tool Holder

Type	Model No.	Tin-Coated Model No.
TCMT090204 (TCMT1.81.5)	2124-0022	2124-1022
TCMT110204 (TCMT21.51)	2124-0028	2124-1028
TCMT16T304 (TCMT32.51)	2124-0034	2124-1034
TCMT220408 (TCMT432)	2124-0038	2124-1038

Type	Insert type	Model No.	Tin-Coated Model No.
AR06-09	TCMT090204	251-2301	251-2401
AL06-09	TCMT090204	251-2302	251-2402
BR06-09	TCMT090204	251-2303	251-2403
BL06-09	TCMT090204	251-2304	251-2404
E06-09	TCMT090204	251-2305	251-2405

Type	Insert type	Model No.	Tin-Coated Model No.
AR08-09	TCM090204	251-2306	251-2406
AL08-09	TCMT090204	251-2307	251-2407
BR08-09	TCMT090204	251-2308	251-2408
BL08-09	TCMT090204	251-2309	251-2409
E08-09	TCMT090204	251-2310	251-2410

Type	Insert type	Model No.	Tin-Coated Model No.
AR10-11	TCMT110204	251-2311	251-2411
AL10-11	TCMT110204	251-2312	251-2412
BR10-11	TCMT110204	251-2313	251-2413
BL10-11	TCMT110204	251-2314	251-2414
E10-11	TCMT110204	251-2315	251-2415

Type	Insert type	Model No.	Tin-Coated Model No.
AR12-11	TCMT110204	251-2316	251-2416
AL12-11	TCMT110204	251-2317	251-2417
BR12-11	TCMT110204	251-2318	251-2418
BL12-11	TCMT110204	251-2319	251-2419
E12-11	TCMT110204	251-2320	251-2420

Type	Insert type	Model No.	Tin-Coated Model No.
AR12-16	TCMT16T304	251-2321	251-2421
AL12-16	TCMT16T304	251-2322	251-2422
BR12-16	TCMT16T304	251-2323	251-2423
BL12-16	TCMT16T304	251-2324	251-2424
E12-16	TCMT16T304	251-2325	251-2425

Type	Insert type	Model No.	Tin-Coated Model No.
AR16-16	TCMT16T304	251-2326	251-2426
AL16-16	TCMT16T304	251-2327	251-2427
BR16-16	TCMT16T304	251-2328	251-2428
BL16-16	TCMT16T304	251-2329	251-2429
E16-16	TCMT16T304	251-2330	251-2430

Type	Insert type	Model No.	Tin-Coated Model No.
AR4-1.8	TCMT1.81.5	251-2501	251-2601
AL4-1.8	TCMT1.81.5	251-2502	251-2602
BR4-1.8	TCMT1.81.5	251-2503	251-2603
BL4-1.8	TCMT1.81.5	251-2504	251-2604
E4-1.8	TCMT1.81.5	251-2505	251-2605

Type	Insert type	Model No.	Tin-Coated Model No.
AR5-1.8	TCMT1.81.5	251-2506	251-2606
AL5-1.8	TCMT1.81.5	251-2507	251-2607
BR5-1.8	TCMT1.81.5	251-2508	251-2608
BL5-1.8	TCMT1.81.5	251-2509	251-2609
E5-1.8	TCMT1.81.5	251-2510	251-2610

Type	Insert type	Model No.	Tin-Coated Model No.
AR6-2	TCMT21.51	251-2511	251-2611
AL6-2	TCMT21.51	251-2512	251-2612
BR6-2	TCMT21.51	251-2513	251-2613
BL6-2	TCMT21.51	251-2514	251-2614
E6-2	TCMT21.51	251-2515	251-2615

Type	Insert type	Model No.	Tin-Coated Model No.
AR8-2	TCMT32.51	251-2516	251-2616
AL8-2	TCMT32.51	251-2517	251-2617
BR8-2	TCMT32.51	251-2518	251-2618
BL8-2	TCMT32.51	251-2519	251-2619
E8-2	TCMT32.51	251-2520	251-2620

Type	Insert type	Model No.	Tin-Coated Model No.
AR8-3	TCMT32.51	251-2521	251-2621
AL8-3	TCMT32.51	251-2522	251-2622
BR8-3	TCMT32.51	251-2523	251-2623
BL8-3	TCMT32.51	251-2524	251-2624
E8-3	TCMT32.51	251-2525	251-2625

Type	Insert type	Model No.	Tin-Coated Model No.
AR10-3	TCMT32.51	251-2526	251-2626
AL10-3	TCMT32.51	251-2527	251-2627
BR10-3	TCMT32.51	251-2528	251-2628
BL10-3	TCMT32.51	251-2529	251-2629
E10-3	TCMT32.51	251-2530	251-2630

Type	Insert type	Model No.	Tin-Coated Model No.
AR20-16	TCMT16T304	251-2531	251-2631
AL20-16	TCMT16T304	251-2532	251-2632
BR20-16	TCMT16T304	251-2533	251-2633
BL20-16	TCMT16T304	251-2534	251-2634
E20-16	TCMT16T304	251-2535	251-2635

Type	Insert type	Model No.	Tin-Coated Model No.
AR12-3	TCMT32.51	251-2731	251-2831
AL12-3	TCMT32.51	251-2732	251-2832
BR12-3	TCMT32.51	251-2733	251-2833
BL12-3	TCMT32.51	251-2734	251-2834
E12-3	TCMT32.51	251-2735	251-2835

Type	Insert type	Model No.	Tin-Coated Model No.
AR25-16	TCMT16T304	251-2536	251-2636
AL25-16	TCMT16T304	251-2537	251-2637
BR25-16	TCMT16T304	251-2538	251-2638
BL25-16	TCMT16T304	251-2539	251-2639
E25-16	TCMT16T304	251-2540	251-2640

Type	Insert type	Model No.	Tin-Coated Model No.
AR16-3	TCMT32.51	251-2736	251-2836
AL16-3	TCMT32.51	251-2737	251-2837
BR16-3	TCMT32.51	251-2738	251-2838
BL16-3	TCMT32.51	251-2739	251-2839
E16-3	TCMT32.51	251-2740	251-2840

Type	Insert type	Model No.	Tin-Coated Model No.
AR25-22	TCMT220408	251-2541	251-2641
AL25-22	TCMT220408	251-2542	251-2642
BR25-22	TCMT220408	251-2543	251-2643
BL25-22	TCMT220408	251-2544	251-2644
E25-22	TCMT220408	251-2545	251-2645

Type	Insert type	Model No.	Tin-Coated Model No.
AR16-4	TCMT432	251-2741	251-2841
AL16-4	TCMT432	251-2742	251-2842
BR16-4	TCMT432	251-2743	251-2843
BL16-4	TCMT432	251-2744	251-2844
E16-4	TCMT432	251-2745	251-2845

Type	Model No.	Tin-Coated Model No.
VNMG160408 (VNMG432)	2132-0024	2132-1024
CNMG120408 (CNMG432)	2102-0016	2101-1016
GTN-3	2403-1004	2403-2004
GTN-4	2403-1006	2403-2006
16ER AG60		16ER AG60

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR1616H16	VNMG160408	251-2546	251-2646
MVJNR1616H16	VNMG160408	251-2547	251-2647
MCLNR1616H12	CNMG120408	251-2548	251-2648
QA1616R03	GTN-3	251-2549	251-2649
SER1616H16	16ER AG60		251-2650

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR10-4A	VNMG432	251-2746	251-2846
MVJNR10-4A	VNMG432	251-2747	251-2847
MCLNR10-4A	CNMG432	251-2748	251-2848
QA10R-3	GTN-3	251-2749	251-2849
SER0625H16	DCMT32.51		251-2850

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR2020K16	VNMG160408	251-2551	251-2651
MVJNR2020K16	VNMG160408	251-2552	251-2652
MCLNR2020K16	CNMG120408	251-2553	251-2653
QA2020R03	GTN-3	251-2554	251-2654
SER2020K16	16ER AG60		251-2655

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR12-4B	VNMG160408	251-2751	251-2851
MVJNR12-4B	VNMG160408	251-2752	251-2852
MCLNR12-4B	CNMG120408	251-2753	251-2853
QA12R-3	GTN-3	251-2754	251-2854
SER0750K16	16ER AG60	251-2755	251-2855

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR2525M16	VNMG160408	251-2556	251-2656
MVJNR2525M16	VNMG160408	251-2557	251-2657
MCLNR2525M12	CNMG120408	251-2558	251-2658
QA2525R04	GTN-4	251-2559	251-2659
SER2525M16	16ER AG60		251-2660

Type	Insert type	Model No.	Tin-Coated Model No.
MVJNR16-4D	VNMG160408	251-2756	251-2856
MVJNR16-4D	VNMG160408	251-2757	251-2857
MCLNR16-4D	CNMG120408	251-2758	251-2858
QA16R-4	GTN-4	251-2759	251-2859
SER1000M16	16ER AG60		251-2860

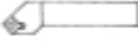
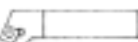
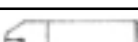
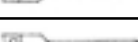
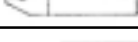
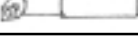
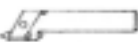
MANUAL TURNING TOOL SET



Type	Figure	Tip Height 12mm	Tip Height 15mm	Tip Height 16mm	Tip Height 20mm	Tip Height 25mm	Tip Height 32mm
External Turning Tools		PSSNR1215H09	PSSNR1516H09	PSSNR1616H09	PSSNR2020-12	PSSNR2525-15	PSSNR3225-19
		Insert 41005V	Insert 41005V	Insert 41005V	Insert 41310V	Insert 41610V	Insert 41910V
		PSBNR1215H09	PSBNR1516H09	PSBNR1616H09	PSRNR2020-12	PSRNR2525-15	PSRNR3225-19
		Insert 41005V	Insert 41005V	Insert 41005V	Insert 41310V	Insert 41610V	Insert 41910V
		PWGNR1215H06	PWGNR1516H06	PWGNR1616H06	PWGNR2020-08	PWGNR2525-10	PWGNR3225-10
		Insert T31005A	Insert T31005A	Insert T31005A	Insert T3K1305A	Insert T3K1605A	Insert T3K1910A
Internal turning Tools		PSSNR1012J09	PSSNR1412J09	PSSNR1412K09	PSSNR1518M12	PSSNR2020R15	PSSNR2525S15
		Insert 41005Fb	Insert 41005Fb	Insert 41005Fb	Insert 41305Fb	Insert 41605Fb	Insert 41605Fb
		PWKNR1012J06	PWKNR1412K06	PWKNR1412K06	PWKNR1518M08	PWKNR2020R10	PWKNR2525S10
		Insert 31005Az	Insert 31005Az	Insert 31005Az	Insert T31305Fb	Insert T31605Fb	Insert T31605Fb
		PWUNR1012J06	PWUNR1412K06	PWUNR1412K06	PWUNR1518M08	PWUNR2020R10	PWUNR2525S10
		Insert T31005Fb	Insert T31005Fb	Insert T31005Fb	Insert T31305Fb	Insert T31605Fb	Insert T31605Fb
Internal& External Threading Tools		LN1215R-04	LN1216R-04	LN1616R-04	LN2520R-06	LN2020R-06	LN3225R-06
		Insert JCL15-120	Insert JCL15-120	Insert JCL15-120	Insert M606	Insert M606	Insert M608
		LW1215R-06	LW1516R-06	LW1616R-06	LW2020R-08	LW2520R-08	LW3225R-08
		Insert M606	Insert M606	Insert M606	JcL25-120	JcL25-120	JcL25-120
Cut-off Tools		QA1222R-03	QA1522R-03	QA1622R-03	QA2027A-04	QA2527R-05	QA3234R-05
		J200	J200	J200	J201	J203	J203
Model No.		250-0000	250-0010	250-0020	250-0030	250-0040	250-0050

MANUAL TURNING TOOL SET



Type	Figure	Tip Height 16mm
External Turning Tools		SSSCR1616H09
		Insert SCMT09T308
		SSRCR1616H09
		Insert SCMT09T308
		SCGCR1616H09
		Insert CCMT09T308
Internal turning Tools		SCGCL1616H09
		Insert CCMT09T308
		SCLCR1616K06
External Threading Tools		Insert CCMT060204
		LW1616R-04
Cut-off Tools		Insert M606
		QA1622R-03
		Insert J200
Model No.		250-0100

Type	Figure	Tip Height 8mm	Tip Height 10mm
External Turning Tools		SWGCR0810D05	SWGCR1010E05
		Insert WCMx050308	Insert WCMx050308
		SCLCR0810D06	SCLCR0810D06
		Insert CCMT060204	Insert CCMT060204
		SDJCR0810D07	SDJCR1010E07
		Insert DCMT070202	Insert DCMT070202
		SDNCN0810D07	SDNCN1010E07
		Insert DCMT070202	Insert DCMT070202
Internal turning Tools		SCLCL0810D06	SCLCL1010E06
		Insert CCMT060204	Insert CCMT060204
External Threading Tools		LW0810R-04	LW1010R-04
		Insert JcL15-120	Insert JcL15-120
Cut-off Tools		QA0812R-03	QA1012R-03
		Insert JCQ3	Insert JCQ3
Model No.		250-0200	250-0300

Indexable tool Holder

MULTI-PURPOSE INDEXABLE TOOLS SETS

Set Include:

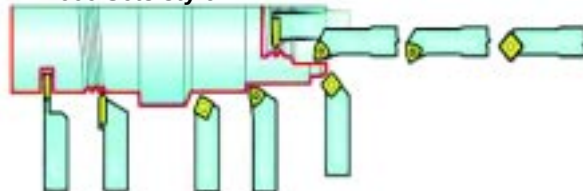
- External Turning.
- Boring Turning
- External threading tools
- Internal threading tools
- Cutt-Off tools
- Wooden case



7Piece Sets 6mm & 1/4

Metric	Imperial	Insert
QA0612R-03	QA1/4R-03	CK3/CK3
LW0610R-04	LW1/4R-04	JCL15-120/JCL15-120
SWGCR0610D05	SWGCR1/4	WCMX050304/WCMX541
SCLCR0610D06	SCLCR1/4	CCMT060204/CCMT21.51
SCLCL0610D6	SCLCL1/4	CCMT060204/CCMT21.51
SDNCN0610E07	SDNCN1/4	DCMT070204/DCMT21.51
SDJCR0610E07	SDJCR1/4	DCMT070204/DCMT21.51
Mertic Model. No. 2387-0001 & Tin-coated Inserts 2387-1001		
Imperial Model. No. 2387-2001 & Tin-coated Inserts 2387-3001		

7 Piece Sets style



7Piece Sets 8mm & 5/16

Metric	Imperial	Insert
QA0812R-03	QA5/16R-03	CK3/CK3
LW0810R-04	LW5/16R-04	JCL15-120/JCL15-120
SWGCR0808D05	SWGCR06-2J	WCMX050304/WCMX541
SCLCR0808D06	SCLCR06-2J	CCMT060204/CCMT21.51
SCLCL0808D06	SCLCL06-2J	CCMT060204/CCMT21.51
SDNCN0808D07	SDNCN06-2J	DCMT070204/DCMT21.51
SDJCR0808D07	SDJCR06-2J	DCMT070204/DCMT21.51
Mertic Model. No. 2387-0002 & Tin-coated Inserts 2387-1002		
Imperial Model. No. 2387-2002 & Tin-coated Inserts 2387-3002		

7Piece Sets 10mm & 3/8

Metric	Imperial	Insert
QA1012R-03	QA3/8R-03	CK3/CK3
LW1010R-04	LW3/8R-04	JCL15-120/JCL15-120
SWGCR1010E05	SWGCR06-3	WCMX050304/WCMX541
SCLCR1010E06	SCLCR06-2	CCMT060204/CCMT21.51
SCLCL1010E06	SCLCL06-2	CCMT060204/CCMT21.51
SDNCN1010E07	SDNCN06-2	DCMT070204/DCMT21.51
SDJCR1010E07	SDJCR06-2	DCMT070204/DCMT21.51
Mertic Model. No. 2387-0003 & Tin-coated Inserts 2387-1003		
Imperial Model. No. 2387-2003 & Tin-coated Inserts 2387-3003		

7Piece Sets 10mm & 3/8

Metric	Imperial	Insert
QA1212R-04	QA3/8R-03	CK3/CK3
LW1212R-04	LW3/8R-04	JCL15-120/JCL15-120
SWGCR1212E05	SWGCR08-3	WCMX050304/WCMX541
SCLCR1212E06	SCLCR08-2	CCMT060204/CCMT21.51
SCLCL1212E06	SCLCL08-2	CCMT060204/CCMT21.51
SDNCN1212E07	SDNCN08-2	DCMT070204/DCMT21.51
SDJCR1212E07	SDJCR08-2	DCMT070204/DCMT21.51
Mertic Model. No. 2387-0004 & Tin-coated Inserts 2387-1004		
Imperial Model. No. 2387-2004 & Tin-coated Inserts 2387-3004		

7Piece Sets 16mm & 5/8

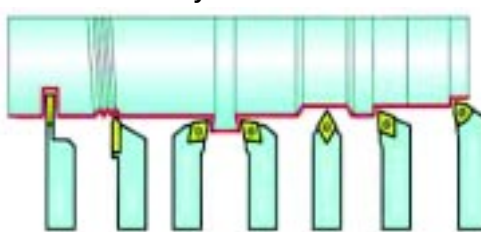
Metric	Imperial	Insert
QA1616R-04	QA3/8R-03	CK3/CK3
LW1616R-04	LW3/8R-04	JCL15-120/JCL15-120
SWGCR1616H06	SWGCR06-3A	WCMT06T304/WCMT32.51
SCLCR1616H09	SCLCR06-3A	CCMT09T304/CCMT32.51
SCLCL1616H09	SCLCL06-3A	CCMT09T304/CCMT32.51
SDNCN1616H11	SDNCN06-3A	DCMT11T304/DCMT32.51
SDJCR1616H11	SDJCR06-3A	DCMT11T304/DCMT32.51
Mertic Model. No. 2387-0005 & Tin-coated Inserts 2387-1005		
Imperial Model. No. 2387-2005 & Tin-coated Inserts 2387-3005		

7Piece Sets 20mm & 3/4

Metric	Imperial	Insert
QA2020R-03	QA5/8R-03	CK4/CK4
LW2020R-04	LW5/8R-04	JCL20-120A/JCL20-120A
SWGCR2020K05	SWGCR10-3B	WCMT06T304/WCMT32.51
SCLCR2020K06	SCLCR10-3B	CCMT09T304/CCMT32.51
SCLCL2020K06	SCLCL10-3B	CCMT09T304/CCMT32.51
SDNCN2020K07	SDNCN10-3B	DCMT11T304/DCMT32.51
SDJCR2020K07	SDJCR10-3B	DCMT11T304/DCMT32.51
Mertic Model. No. 2387-0006 & Tin-coated Inserts 2387-1006		
Imperial Model. No. 2387-2006 & Tin-coated Inserts 2387-3006		



9 Piece Sets style



7 Piece Sets For Inserts

Style		INSERT TIN	
mm	In	Model No.	Model No.
6mm	1/4	2386-0071	2386-1071
8mm	5/16	2386-0072	2386-1072
10mm	3/8	2386-0073	2386-1073
12mm	1/2	2386-0074	2386-1074
16mm	5/8	2386-0075	2386-1075
20mm	3/4	2386-0076	2386-1076

9 Piece Sets

Style		INSERT TIN		INSERT TIN	
mm	In	Metric Model No.	Metric Model No.	Imperial Model No.	Imperial Model No.
16mm	5/8	2389-0001	2389-1001	2389-2001	2389-3001
20mm	3/4	2389-0002	2389-1002	2389-2002	2389-3002
25mm	1"	2389-0003	2389-1003	2389-2003	2389-3003
32mm	1-1/4	2389-0004	2389-1004	2389-2004	2389-3004

9 Piece Sets For Inserts

Style		INSERT TIN	
mm	In	Model No.	Model No.
16mm	5/8	2386-0091	2386-1091
20mm	3/4	2386-0092	2386-1092
25mm	1"	2386-0093	2386-1093
32mm	1-1/4	2386-0094	2386-1094

Tool Holders

NEW CARBIDE TOOLHOLDERS SETS



Model:4+1 5Piece Sets

Style		Includes		Imperial		Metric	
				Model No.	Model No.	Model No.	Model No.
In	mm	4Piece Turning	1Piece Boring(Imperial)				
3/8	10mm	STNCR,STACR	S08H-STFCR09(S06M-STFNR2)	2381-5045	2381-6045	2381-7045	2381-8045
1/2	12mm	STECH,STDCR	S10K-STFCR11(S08M-STFNR2)	2381-5046	2381-6046	2381-7046	2381-8046
5/8	16mm		S12M-STFCR11(S10S-STFNR2)	2381-5047	2381-6047	2381-7047	2381-8047

3PCS MINI TOOLHOLDERS SETS



Model:2+1 3Piece Sets

Style		Includes		Imperial		Metric	
				Model No.	Model No.	Model No.	Model No.
In	mm	2Piece Turning	1Piece Boring(Imperial)				
3/8	10mm		S08H-SCLCR06(S06M-SCLCR2)	2381-5065	2381-6065	2381-7065	2381-8065
1/2	12mm	SCLCR,SDJCR	S10K-SCLCR06(S08M-SCLCR2)	2381-5066	2381-6066	2381-7066	2381-8066
5/8	16mm		S12M-SCLCR06(S10S-SCLCR2)	2381-5067	2381-6067	2381-7067	2381-8067

7PCS MINI TOOLHOLDERS SETS



Features:

- 4Pcs Turning.
- 1Pcs Boring bar.
- 1Pcs Wrench Key.

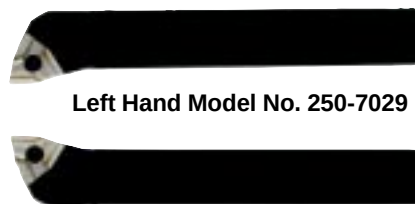
Model:6+1 7Piece Sets

Style		Includes		Imperial		Metric	
				Model No.	Model No.	Model No.	Model No.
In	mm	6Piece Turning	1Piece Boring(Imperial)				
1/4	6mm	SCMCN,SCDCN	S08H-SCLCR06(S05H-SCLCR2)	2381-0080	2381-1080	2381-2080	2381-3080
3/8	10mm	SCLCR,SCKCR	S10K-SCLCR06(S06M-SCLCR2)	2381-0082	2381-1082	2381-2082	2381-3082
1/2	12mm	SCBCR,SCLCR	S12M-SCLCR06(S08M-SCLCR2)	2381-0084	2381-1084	2381-2084	2381-3084
5/8	16mm		S16R-SCLCR09(S10S-SCLCR3)	2381-0086	2381-1086	2381-2086	2381-3086

CARBIDE INSERT TOOL HOLDERS

Lathe Toolholders

For turning or facing with trigon chip breaker inserts



Left Hand Model No. 250-7029



Right Hand Model No. 250-7028



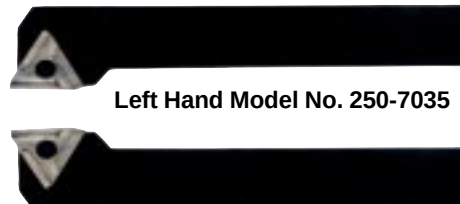
Inserts



Description	Inserts of Right Hand Model No.	Inserts of Left Hand Model No.
For Steel	250-7039	250-7040
For Cast Iron	250-7047	250-7048

Turning Toolholders

For turning or facing with triangle chip breaker inserts



Left Hand Model No. 250-7035



Right Hand Model No. 250-7034

Inserts



Description	Inserts of Right Hand Model No.	Inserts of Left Hand Model No.
For Steel	250-7043	250-7044
For Cast Iron	250-7051	250-7052

Tool Holders

CARBIDE INSERT TOOL HOLDERS

Turning Toolholders

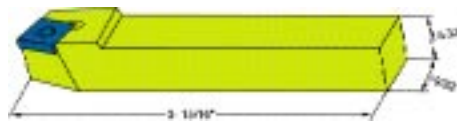
For facing end of tubing and front and back flanges, with square inserts



Right Hand Model No. 250-7036



Left Hand Model No. 250-7037



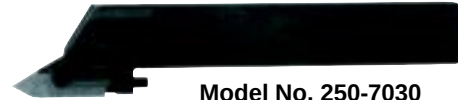
Inserts



Description	Inserts of Right Hand Model No.	Inserts of Left Hand Model No.
For Steel	250-7045	250-7046
For Cast Iron	250-7053	250-7054

Threading Toolholders

For all external threading, with adjustable insert



Model No. 250-7030



Inserts



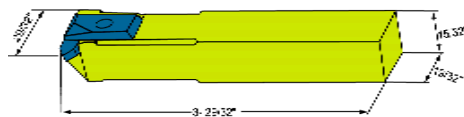
Description	Inserts Model No.
For Steel	250-7041
For Cast Iron	250-7049

Internal Threading Toolholders

For internal threading, with adjustable insert



Model No. 250-7033



Inserts



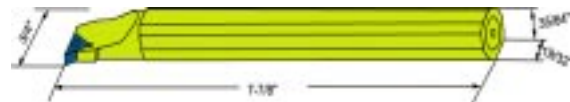
Description	Inserts Model No.
For Steel	250-7042
For Cast Iron	250-7050

Boring Bar

For all your boring bar works, with triangle inserts



Model No. 250-7038



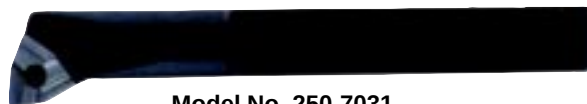
Inserts



Description	Inserts Model No.
For Steel	250-7055
For Cast Iron	250-7056

Boring Tool Holders

For boring bar works, with trigon chip breaker inserts

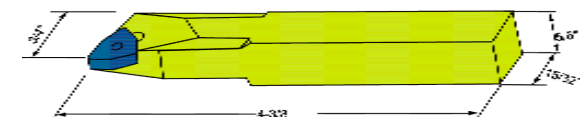


Model No. 250-7031



Model No. 250-7032

Inserts



Description	Inserts Model No.
For Steel	250-7040
For Cast Iron	250-7048

Tool Holders

MCLNR/L TOOL HOLDERS

Legend

A=Shank D=Head Length
B=Shank F=Overall Height
C=Overall length

INSERT



CNMG

CNMA

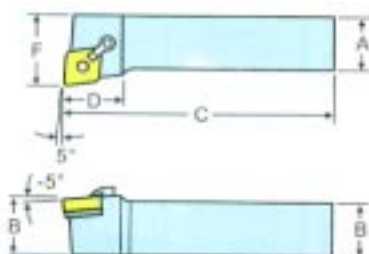
CNMM

Features:

- General purpose toolholder fitted with a negative insert.
- Top and hole clamping of insert guarantees good insert stability.

Applications:

- For turning, facing and copying from light roughing to finishing.



PARTS FOR MDPNN TOOLHOLDERS

Metric & Imperial

MCLNR/L #	SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.
1616H12,2020K12								
2525M12,3225P12								
12-4A,12-4B,16-4C	C1203B	2990-3433	NL-0617	2991-0580	CL-12	2992-0120	XNS-0829	2993-0038
16-4D,20-4D,24-4D								
16-3D	C0903B	2990-3332	NL-0412	2991-0460	CL-6	2992-0060	XNS-0520	2993-0035
2525M16,3225P16								
3232P16,16-5C	C1604B	2990-3533	NL-0822	2991-0680				
16-5D,20-5D					CL-30	2992-0300	XNS-1829	2993-1038
4040R19,	C1904B	2990-3633	NL-0823	2991-0810				
16-C,16-4D,20-6D								

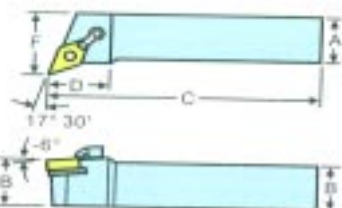
MDQNR/L TOOL HOLDERS

INSERT



CNMG

CNMA



Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND Model #	LEFT HAND Model #
	A	B	F	C	D			
MDQNR1616H11	16	16	20	100	30	DN..1104	2304-0008	2304-1008
MDQNR2020K11	20	20	25	125	30	DN..1104	2304-0010	2304-1010
MDQNR2525M11	25	25	32	150	30	DN..1104	2304-0012	2304-1012
MDQNR3225P11	25	32	32	170	30	DN..1104	2304-0014	2304-1014
MDQNR2525M15	25	25	32	150	38	DN..1506	2304-0016	2304-1016
MDQNR3225P15	25	32	32	170	38	DN..1506	2304-0018	2304-1018
MDQNR3232P15	32	32	40	170	38	DN..1506	2304-0020	2304-1020

Metric & Imperial

MCLNR/L #	SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.
1616H11,2020K11	D1103B	2990-4322	NL-0412	2991-0460	CL-12	2992-0120		
2525K11,3225P11							XNS-0829	2993-0038
2525M15,3225P15	D1504B	2990-4433	NL-0617	2991-0580	CL-30	2992-0300		
3232P15								

Tool Holders

MDJNR/L TOOL HOLDERS

Legend

A=Shank D=Head Length
B=Shank F=Overall Height
C=Overall length

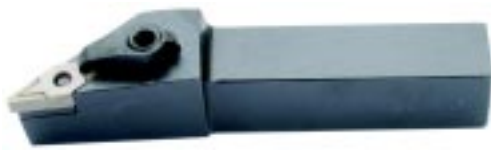


Features:

- General purpose toolholder fitted with a negative 55° angle insert.
- Top and hole clamping of insert guarantees good insert stability.

Applications:

- For turning, facing and copying from roughing to finishing in all types of machining.



Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND		LEFT HAND
	A	B	F	C	D		Model #	Model #	
MDJNR1616H11	16	16	16	100	32	DN..1104	2302-0018		2302-1018
MDJNR2020K11	20	20	20	125	32	DN..1104	2302-0020		2302-1020
MDJNR2525M11	25	25	32	150	32	DN..1104	2302-0022		2302-1022
MDJNR3225P11	25	32	32	170	32	DN..1104	2302-0024		2302-1024
MDJNR2525M15	25	25	32	150	38	DN..1506	2302-0026		2302-1026
MDJNR3225P15	25	32	32	170	38	DN..1506	2302-0028		2302-1028
MDJNR3232P15	32	32	40	170	38	DN..1506	2302-0030		2302-1030

Imperial

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND		LEFT HAND
	A	B	F	C	D		Model #	Model #	
MDJNR/L 12-3A	0.75	0.75	1.000	4.00	1.19	DN..432	2302-5014		2302-6044
MDJNR/L 12-4B	0.75	0.75	1.000	4.50	1.19	DN..432	2302-5016		2302-6046
MDJNR/L 16-4C	1.00	1.00	1.250	5.00	1.00	DN..432	2302-5018		2302-6048
MDJNR/L 16-4D	1.00	1.00	1.250	6.00	1.19	DN..432	2302-5020		2302-6050
MDJNR/L 16-5D	1.00	1.00	1.250	6.00	1.19	DN..543	2302-5022		2302-6052
MDJNR/L 20-4D	1.25	1.25	1.250	6.00	1.38	DN..432	2302-5024		2302-6054
MDJNR/L 20-5D	1.25	1.25	1.250	6.00	1.38	DN..543	2302-5026		2302-6056
MDJNR/L 24-4E	1.50	1.50	1.250	7.00	1.50	DN..432	2302-5028		2302-6058
MDJNR/L 24-5E	1.50	1.50	1.250	7.00	1.50	DN..543	2302-5030		2302-6060
MDJNR/L 85-4D	1.00	1.25	1.500	6.00	1.19	DN..432	2302-5032		2302-6062
MDJNR/L 85-5D	1.00	1.25	1.500	6.00	1.38	DN..543	2302-5034		2302-6064
MDJNR/L 86-5E	1.00	1.50	1.500	7.00	1.50	DN..543	2302-5036		2302-6066

PARTS FOR MDJNR/L TOOLHOLDERS

Metric & Imperial		SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
MCLNR/L #	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.	
1616H11,2020K11	D1103B	2990-4322	NL-0410	2991-0460	CL-12	2992-0120			
2525K11,3225P11									
2525M15,3225P15	D1504B	2990-4433	NL-0617	2991-0580	CL-30	2992-0300	XNS-0829	2993-0038	
3232P15,10-3A, 12-4B,16-4C,16-4D 20-4D,24-4E,85-4E									
16-5D,20-5D,24-5E 85-5D,86-5E	D1904B	2990-4533	NL-0823	2991-0810					

MDPNN TOOL HOLDERS



INSERT



PARTS FOR MDPNN TOOLHOLDERS

Metric & Imperial		SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
MCLNR/L #	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.	
1616H11,2020K11	D1103B	2990-4322	NL-0410	2991-0340	CL-12	2992-0120			
2525K11,3225P11									
2525M15,3225P15	D1504B	2990-4433	NL-0617	2991-0580	CL-30	2992-0300	XNS-0829	2993-0038	
3232P15,12-4B 16-4D,20-4D									
16-5D	D1904B	2990-4533	NL-0822	2991-0680					

Metric

Model #	DIMENSIONS					INSERT SIZE	Model #
	A	B	F	C	D		
MDPNN1616H11	16	16	8	100	35	DN..1104	2303-0008
MDPNN2020K11	20	20	10	125	35	DN..1104	2303-0010
MDPNN2525M11	25	25	12.5	150	35	DN..1104	2303-0012
MDPNN3225P11	25	32	12.5	170	35	DN..1104	2303-0014
MDPNN2525M15	25	25	12.5	150	42	DN..1506	2303-0016
MDPNN3225P15	25	32	12.5	170	42	DN..1506	2303-0018
MDPNN3232P15	32	32	16	170	42	DN..1506	2303-0020

Imperial

Model #	DIMENSIONS					INSERT SIZE	Model #
	A	B	F	C	D		
MDPNN12-4B	0.75	0.75	0.375	4.50	1.62	DN..432	2303-5012
MDPNN16-4D	1.00	1.00	0.500	6.00	1.62	DN..432	2303-5014
MDPNN20-4D	1.25	1.25	0.625	6.00	1.62	DN..432	2303-5016
MDPNN16-5D	1.00	1.00	0.500	6.00	1.92	DN..543	2303-5018

Tool Holders

MWLNR TOOL HOLDERS

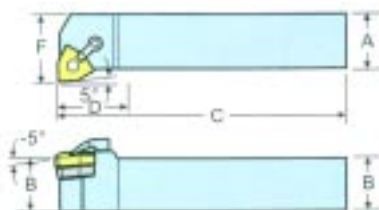
INSERT



WNMM,WNMG

Applications:

- Used for turning, facing and profiling, from roughing to finishing in all types of material.



Imperial

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	
	A	B	F	C	D		Model #	Model #
MWLNR 10-3A	0.625	0.625	0.875	4.00	1.00	WN..32	2316-0004	2316-1004
MWLNR 12-3B	0.75	0.75	1.00	4.50	1.00	WN..32	2316-0006	2316-1006
MWLNR 16-3D	1.00	1.00	1.25	6.00	1.00	WN..32	2316-0008	2316-1008
MWLNR 12-4B	0.75	0.75	1.00	4.50	1.25	WN..43	2316-0010	2316-1010
MWLNR 16-3C	1.00	1.00	1.25	5.00	1.25	WN..43	2316-0012	2316-1012
MWLNR 16-4D	1.00	1.00	1.25	6.00	1.25	WN..43	2316-0014	2316-1014
MWLNR 20-4D	1.25	1.25	1.50	6.00	1.25	WN..43	2316-0016	2316-1016

PARTS FOR MDPNN TOOLHOLDEERS

Metric & Imperial

		SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
MCLNR/L #	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.	Model No.
10-3A,12-3B,16-3D	W0603B	2990-5322	NL-0412	2991-0460	CL-6	2992-0060	XNS-0520	2993-0035	
16-3C									
12-4B,16-4D,20-4D	W0803B	2990-5432	NL-0617	2991-0580	CL-12	2992-0120	XNS-0829	2993-0038	

MRGNR/L TOOL HOLDERS

Legend

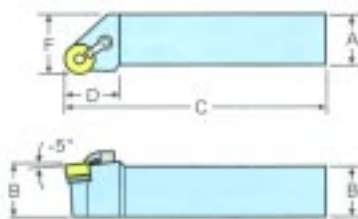
A=Shank D=Head Length
B=Shank F=Overall Height
C=Overall length



INSERT



RNMA,RNMM



Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	
	A	B	F	C	D		Model #	Model #
MRGNR1616H09	16	16	20	100	30	RN..0903	2305-0008	2305-1008
MRGNR2020K09	20	20	25	125	30	RN..0903	2305-0010	2305-1010
MRGNR2525M09	25	25	32	150	30	RN..0903	2305-0012	2305-1012
MRGNR2525M12	25	25	32	150	32	RN..1204	2305-0014	2305-1014
MRGNR3225P12	25	32	32	170	32	RN..1204	2305-0016	2305-1016
MRGNR3232P12	32	32	40	170	32	RN..1204	2305-0018	2305-1018

Imperial

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	
	A	B	F	C	D		Model #	Model #
MRGNR12-3B	0.75	0.75	1.00	4.50	0.93	RN..32	2305-5008	2305-6008
MRGNR12-4B	0.75	0.75	1.00	4.50	1.18	RN..43	2305-5010	2305-6010
MRGNR16-3D	1.00	1.00	1.25	6.00	0.81	RN..32	2305-5012	2305-6012
MRGNR16-4D	1.00	1.00	1.25	6.00	1.18	RN..43	2305-5014	2305-6014
MRGNR20-4D	1.25	1.25	1.50	6.00	1.18	RN..43	2305-5016	2305-6016

PARTS FOR MDPNN TOOLHOLDEERS

Metric & Imperial

		SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
MCLNR/L #	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.	Model No.
1616H09,2020K09	R0903B	2990-6320	NL-0412	2991-0460	CL-6	2992-0060	XNS-0520	2993-0035	
2525M09,12-3B									
16-3D,20-6D									
2525M12,3225P12	R1203B	2990-6430	NL-0617	2991-0580	CL-12	2992-0120	XNS-0829	2993-0038	
3232P12,12-4B									
16-4D,20-4D,									

Tool Holders

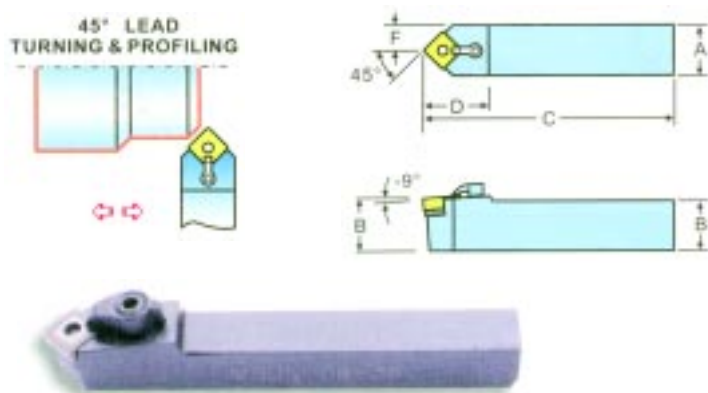
MSDNN TOOL HOLDERS

Features:

- Specific purpose toolholder fitted with negative double sided square inserts with strong cutting edges.
- The top and hole clamping of the insert guarantees sturdiness and safety even in difficult machining conditions.

Uses:

- For turning or chamfering from roughing to finishing in all types of material as per the sketch. The part to machine should be rigid and/or of large size.
- If the power available is low, the part small and/or not stable, select rather the SSDCN toolholder.



Metric

Model #	DIMENSIONS					INSERT	
	A	B	F	C	D	SIZE	Model #
MSDNN1616H09	16	16	8	100	35	SN..0903	2306-0008
MSDNN2020K12	20	20	10	125	35	SN..1204	2306-0010
MSDNN2525M12	25	25	12.5	150	35	SN..1204	2306-0012
MSDNN3225P12	25	32	12.5	170	35	SN..1204	2306-0014
MSDNN2525M15	25	25	12.5	150	42	SN..1506	2306-0016
MSDNN3225P15	25	32	12.5	170	42	SN..1506	2306-0018
MSDNN3232P15	32	32	16.5	170	42	SN..1506	2306-0020

Imperial

Model #	DIMENSIONS					INSERT	
	A	B	F	C	D	SIZE	Model #
MSDNN 08-3B	0.5	0.5	.250	4.5	.97	SN..32	2306-5008
MSDNN 10-3B	0.625	0.625	.312	4.5	.97	SN..32	2306-5010
MSDNN 12-3B	0.75	0.75	.375	4.5	.97	SN..32	2306-5012
MSDNN 12-4B	0.75	0.75	.375	4.5	1.3	SN..43	2306-5014
MSDNN 16-4D	1.00	1.00	.375	6.0	1.3	SN..43	2306-5016
MSDNN 16-5D	1.00	1.00	.500	6.0	1.5	SN..54	2306-5018
MSDNN 16-6D	1.00	1.00	.500	6.0	1.63	SN..64	2306-5020
MSDNN 85-4D	1.00	1.25	.500	6.0	1.3	SN..43	2306-5022
MSDNN 85-5D	1.00	1.25	.500	6.0	1.5	SN..54	2306-5024
MSDNN 20-5E	1.25	1.25	.625	7.0	1.61	SN..54	2306-5026
MSDNN 20-6E	1.25	1.25	.625	7.0	1.63	SN..64	2306-5028
MSDNN 24-6E	1.5	1.5	.625	7.0	1.73	SN..64	2306-5030

PARTS FOR MSDNN TOOLHOLDERS

Metric & Imperial

SHIM SEAT

LOCK PIN

CLAMP

CLAMP SCREW

MCLNR/L #	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.
1616H09,08-3B								
10-3B,12-3B	S0903B	2990-2322	NL-0412	2991-0460	CL-6	2992-0060	XNS-0520	2993-0036
2020K12,2525M12								
3225P12,12-4B,16-4D,85-4D	S1203B	2990-2433	NL-0617	2991-0580	CL-12	2992-0120	XNS-0829	2993-0038
2525M15,3225P15								
3232P15,16-5D,85-5D,20-5D	S1504B	2990-2533	NL-0822	2991-0680	CL-12	2992-0121		
16-6D,20-6E,24-6E	S1904B	2990-2633	NL-0823	2991-0810	CL-30	2992-0300		

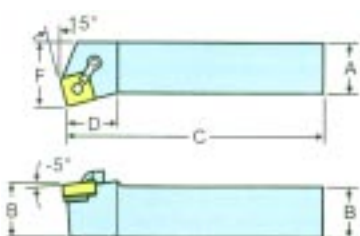
INSERT



SNMA, SNMG, SNMM

MSKNR/L TOOL HOLDERS

- Negative rake right/left hand
- For facing
- Offset shank with 15° side cutting edge angle



INSERT



SNMA, SNMG, SNMM

Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	
	A	B	F	C	D		Model #	Model #
MSKNR 1616H09	16	16	20	100	30	SN..0903	2307-0008	2307-1008
MSKNR 2020K09	20	20	25	125	30	SN..0903	2307-0010	2307-1010
MSKNR 1616H12	16	16	20	100	32	SN..1204	2307-0012	2307-1012
MSKNR 2020K12	20	20	25	125	32	SN..1204	2307-0014	2307-1014
MSKNR 2525M12	25	25	32	150	32	SN..1204	2307-0016	2307-1016
MSKNR 3225P12	25	32	32	170	32	SN..1204	2307-0018	2307-1018
MSKNR 2525M15	25	25	32	150	38	SN..1506	2307-0020	2307-1020
MSKNR 3225P15	23	32	32	170	38	SN..1506	2307-0022	2307-1022
MSKNR 3232P15	32	32	40	170	38	SN..1506	2307-0024	2307-1024
MSKNR 4040R19	40	40	50	200	38	SN..1906	2307-0026	2307-1026

Imperial

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	
	A	B	F	C	D		Model #	Model #
MSKNR 12-4B	0.75	0.75	1.00	4.50	1.25	SN..43	2307-5008	2307-6008
MSKNR 16-4D	1.00	1.00	1.25	6.00	1.25	SN..43	2307-5010	2307-6010
MSKNR 16-5D	1.00	1.00	1.25	6.00	1.35	SN..54	2307-5012	2307-6012

Tool Holders

MSRNR/L TOOL HOLDERS



Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	LEFT HAND
	A	B	F	C	D		Model #	Model #
MSRNR 1616H09 16	16	16	17	100	30	SN..0903	2308-0008	2308-1008
MSRNR 2020K09 20	20	20	22	125	30	SN..0903	2308-0010	2308-1010
MSRNR 2020K12 20	20	20	22	125	32	SN..1204	2308-0012	2308-1012
MSRNR 2525M12 25	25	25	27	150	32	SN..1204	2308-0014	2308-1014
MSRNR 3225P12 25	32	32	27	170	32	SN..1204	2308-0016	2308-1016
MSRNR 2525M15 25	25	25	27	150	38	SN..1204	2308-0018	2308-1018
MSRNR 3225P15 25	32	32	27	170	38	SN..1506	2308-0020	2308-1020
MSRNR 3232P15 32	32	32	35	170	38	SN..1506	2308-0022	2308-1022
MSRNR 4040R19 40	40	40	43	200	38	SN..1506	2308-0024	2308-1024

Imperial

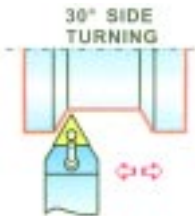
Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND	LEFT HAND
	A	B	F	C	D		Model #	Model #
MSRNR 12-3B 0.75	0.75	0.75	0.880	4.50	1.00	SN..33	2308-5008	2308-6008
MSRNR 12-4B 0.75	0.75	0.75	0.880	4.50	1.25	SN..43	2308-5010	2308-6010
MSRNR 16-4D 1.00	1.00	1.00	1.130	6.00	1.25	SN..43	2308-5012	2308-6012
MSRNR 16-5D 1.00	1.00	1.00	1.103	6.00	1.50	SN..54	2308-5014	2308-6014
MSRNR 16-6D 1.00	1.00	1.00	1.071	6.00	1.50	SN..64	2308-5016	2308-6016
MSRNR 20-4D 1.25	1.25	1.25	1.353	6.00	1.50	SN..54	2308-5018	2308-6018
MSRNR 20-6D 1.25	1.25	1.25	1.321	6.00	1.50	SN..64	2308-5020	2308-6020

PARTS FOR MSKNR/L & MSRNR/L TOOL HOLDERS

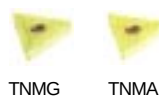
MCLNR/L #	SHIM SEAT		LOCK PIN		CLAMP		CLAMP SCREW	
	Model	Model No.	Model	Model No.	Model	Model No.	Model	Model No.
1616H09,2020K09 12-3B	S0903B	2990-2322	NL-0412	2991-0460	CL-6	2992-0060	XNS-0520	2993-0035
1616H12,2020K12 2525M12,3225P12 12-4B,16-4D,20-4D	S1203B	2990-2433	NL-0617	2991-0580	CL-12	2992-0120	XNS-0829	2993-0038
2525M15,3225P15 3232P15,16-5D,	S1504B	2990-2543	NL-0822	2991-0680				
4040R19,16-6D 20-6D	S1904B	2990-2643	NL-0823	2991-0810				

MTENN TOOL HOLDERS

- For turning, facing or chamfering
- 30° side cutting edge angle



INSERT



Metric

Model #	DIMENSIONS					INSERT SIZE	Model #
	A	B	F	C	D		
MTENN 2020K16 20	20	20	10	125	35	TN..1604..	2313-0012
MTENN 2525M16 25	25	25	12.5	150	35	TN..1604..	2313-0014
MTENN 3225P16 25	32	32	12.5	170	35	TN..1604..	2313-0016
MTENN 2525M22 25	25	25	12.5	150	38	TN..2204..	2313-0018
MTENN 3225P22 25	32	32	12.5	170	38	TN..2204..	2313-0020
MTENN 3232P22 32	32	32	16	170	38	TN..2204..	2313-0022

Imperial

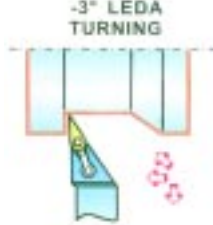
Model #	DIMENSIONS					INSERT SIZE	Model #
	A	B	F	C	D		
MTENN 08-2B 0.5	0.5	0.5	.250	4.50	1.00	TN..22.	2313-5012
MTENN 10-3B 0.625	0.625	0.625	.312	4.50	1.15	TN..32.	2313-5014
MTENN 12-3B 0.75	0.75	0.75	.375	4.50	1.15	TN..32.	2313-5016
MTENN 12-4B 0.75	0.75	0.75	.375	4.50	1.50	TN..43.	2313-5018
MTENN 16-4D 1.00	1.00	1.00	.500	6.00	1.50	TN..43.	2313-5020
MTENN 20-5E 1.25	1.25	1.25	.625	7.00	1.62	TN..54.	2313-5022
MTENN 24-6E 1.5	1.5	1.5	.750	7.00	1.95	TN..64.	2313-5024

Tool Holders

MVJNR/L TOOL HOLDERS

Features:

- 35° angle is extremely free cutting.
- Torx screw guarantees good insert stability.

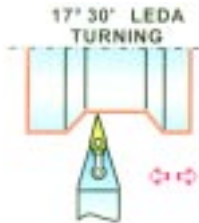
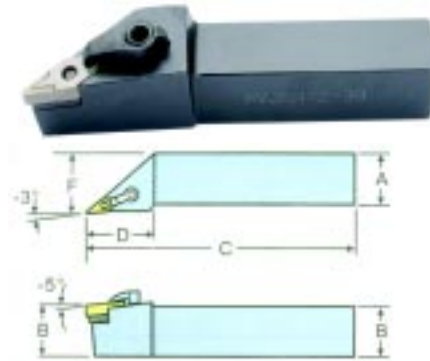


Metric

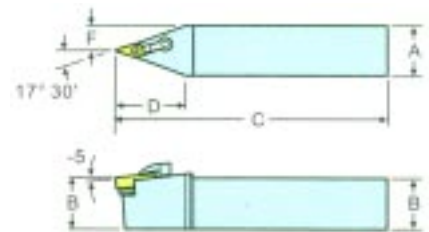
Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND		LEFT HAND
	A	B	F	C	D		Model #	Model #	
MVJNR 1616H16	16	16	20	100	45	VN..1604..	2314-0008	2314-1008	
MVJNR 2020K16	20	20	25	125	45	VN..1604..	2314-0010	2314-1010	
MVJNR 2525M16	25	25	32	150	45	VN..1604..	2314-0012	2314-1012	
MVJNR 3225P16	25	32	32	170	45	VN..1604..	2314-0014	2314-1014	
MVJNR 3232P16	32	32	40	170	45	VN..1604..	2314-0016	2314-1016	

Metric

Model #	DIMENSIONS					INSERT SIZE	RIGHT HAND		LEFT HAND
	A	B	F	C	D		Model #	Model #	
MVJNR 12-3B	0.75	0.75	1.00	4.50	1.73	VN..33..	2314-5008	2314-6008	
MVJNR 12-4B	0.75	0.75	1.00	4.50	1.73	VN..43..	2314-5010	2314-6010	
MVJNR 16-3C	1.00	1.00	1.25	5.00	1.73	VN..33..	2314-5012	2314-6012	
MVJNR 16-3D	1.00	1.00	1.25	6.00	1.73	VN..33..	2314-5014	2314-6014	
MVJNR 16-4D	1.00	1.00	1.25	6.00	1.94	VN..43..	2314-5016	2314-6016	
MVJNR 20-3D	1.25	1.25	1.50	6.00	1.73	VN..33..	2314-5018	2314-6018	
MVJNR 20-4D	1.25	1.25	1.50	6.00	1.94	VN..43..	2314-5020	2314-6020	
MVJNR 24-3D	1.50	1.50	2.00	6.00	1.73	VN..33..	2314-5022	2314-6022	
MVJNR 24-4E	1.50	1.50	2.00	7.00	1.94	VN..43..	2314-5024	2314-6024	
MVJNR 85-4D	1.00	1.25	1.25	6.00	1.94	VN..43..	2314-5026	2314-6026	
MVJNR 86-6D	1.00	1.50	1.25	6.00	1.94	VN..43..	2314-5028	2314-6028	



MVVNN TOOL HOLDERS



Imperial

DIMENSIONS					INSERT	
A	B	F	C	D	SIZE	Model #
0.75	0.75	.375	4.50	1.62	VN..33..	2315-5010
0.75	0.75	.375	6.00	1.88	VN..43..	2315-5012
1.00	1.00	.50	5.00	1.66	VN..33..	2315-5014
1.00	1.00	.50	6.00	1.62	VN..33..	2315-5016
1.00	1.00	.50	6.00	1.88	VN..43..	2315-5018
1.25	1.25	.625	6.00	1.66	VN..33..	2315-5020

Metric

DIMENSIONS					INSERT	
A	B	F	C	D	SIZE	Model #
20	20	25	125	45	VN..1604..	2315-0010
25	25	32	150	45	VN..1604..	2315-0012
25	32	32	170	45	VN..1604..	2315-0014
32	32	40	170	45	VN..1604..	2315-0016

PARTS FOR MVJNR/L MVVNN TOOL HOLDERS

Metric & Imperial

Metric & Imperial	SHIM SEAT		LOCK PIN		CLAMP	CLAMP SCREW
MODEL #	Model	Model No.	Model	Model No.	Model No.	Model No.
1616H16,2020K16 2525M16,3225P16 12-3B,16-3C,16-3D 20-3D,24-3D	V1603B	2990-1324	NL-0414	2991-0340	2992-0300	2993-0510
16-4D,16-4C,20-4D 24-4E,85-4D,86-4D	V2203B	2990-1433	NL-0617	2991-0460		
1616H16,2020K16 2525M16,3225P16 12-3B,16-3C,16-3D 20-3D	V1603B	2990-1324	NL-0414	2991-0340		
12-4D,16-4D	V2203B	2990-1433	NL-0617	2991-0460		

CTFPR.L TOOL HOLDERS

- Offset shank with 0° side cutting edge angle for straight turning.



Imperial

Metric

Model #	DIMENSIONS			INSERT SIZE	RIGHT HAND	
	A	B	C		Model #	Model #
CTFPR1212D11	12	12	60	TPG110304	2392-0008	2392-1008
CTFPR1616H16	16	16	100	TPG160304	2392-0010	2392-1010
CTFPR2020K16	20	20	125	TPG160304	2392-0012	2392-1012
CTFPR2525M22	25	25	150	TPG220404	2392-0014	2392-1014
CTFPR3232P22	32	32	170	TPG220404	2392-0016	2392-1016

Model #	DIMENSIONS			INSERT SIZE	RIGHT HAND	
	A	B	C		Model #	Model #
CTFPR08-2	.50	.50	2.50	TPG221	2392-2008	2392-3008
CTFPR10-2	.625	.625	2.75	TPG221	2392-2010	2392-3010
CTFPR10-3B	.625	.625	4.50	TPG321	2392-2012	2392-3012
CTFPR12-3C	.75	.75	5.00	TPG321	2392-2014	2392-3014
CTFPR12-4B	.75	.75	4.50	TPG431	2392-2016	2392-3016
CTFPR16-3D	1.00	1.00	6.00	TPG321	2392-2018	2392-3018
CTFPR16-4D	1.00	1.00	6.00	TPG431	2392-2020	2392-3020
CTFPR20-4D	1.25	1.25	6.00	TPG431	2392-2022	2392-3022

Tool Holders

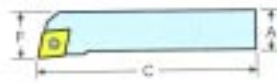
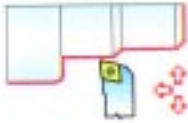
S-STYLE SCREW-ON TOOLHOLDERS

The screw-on toolholders accept all of the industry standard inserts such as CCMT, DCMT, TCMT, VBMT, and WCMT. Look for the matching boring bars to suit the small inserts and reduce your inventory even further. Toolholders are ideal for thin walled and generally small parts on manual or CNC lathes.

S-STYLE SCLCR/L 95° SCREW-ON TOOLHOLDERS

TURNING-EXTERNAL -7° POSITIVE INSERT

Negative 5° End or Side Cutting Edge Angle for 7° positive 80° diamond CCMT inserts



Metric

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SCLCR0808D06	8	60	10	CCMT0602.	2370-0004	2370-1004
SCLCR1010E06	10	70	12	CCMT0602.	2370-0006	2370-1006
SCLCR1212E09	12	80	16	CCMT09T3.	2370-0008	2370-1008
SCLCR1616H09	16	100	20	CCMT09T3.	2370-0010	2370-1010
SCLCR2020K12	20	125	25	CCMT1204.	2370-0012	2370-1012
SCLCR2525M12	25	150	26	CCMT1204.	2370-0014	2370-1014
SCLCR3232P12	32	170	26	CCMT1204.	2370-0016	2370-1016

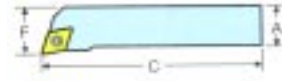
Imperial

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SCLCR06-2J	3/8	3-1/2	1/2	CCMT21.5.	2370-5004	2370-6004
SCLCR08-3A	1/2	4	5/8	CCMT32.5.	2370-5006	2370-6006
SCLCR10-3B	5/8	4-1/2	3/4	CCMT32.5.	2370-5008	2370-6008
SCLCR12-3B	3/4	4-1/2	1	CCMT32.5.	2370-5010	2370-6010
SCLCR16-4D	1	6	1-1/4	CCMT43.	2370-5012	2370-6012

S-STYLE SDJCR/L 93° SCREW-ON TOOLHOLDERS

TURNING-EXTERNAL -7° POSITIVE INSERT

Negative 3° End or Side Cutting Edge Angle for 7° positive 55° diamond DCMT inserts



Metric

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SDJCR1010E07	10	70	12	DCMT0702.	2371-0004	2371-1004
SDJCR1212F07	12	80	16	DCMT0702.	2371-0006	2371-1006
SDJCR1616H07	16	100	20	DCMT0702.	2371-0008	2371-1008
SDJCR1616H11	16	100	20	DCMT11T3.	2371-0010	2371-1010
SDJCR2020K11	20	125	25	DCMT11T3.	2371-0012	2371-1012
SDJCR2525M11	25	150	32	DCMT11T3.	2371-0014	2371-1014
SDJCR3225P11	32	170	32	DCMT11T3.	2371-0016	2371-1016

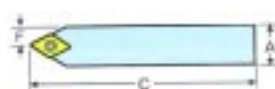
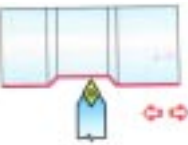
Imperial

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SDJCR06-2J	3/8	3-1/2	1/2	DCMT21.5.	2371-5004	2371-6004
SDJCR08-3A	1/2	4	5/8	DCMT32.5.	2371-5006	2371-6006
SDJCR10-3B	5/8	4-1/2	3/4	DCMT32.5.	2371-5008	2371-6008
SDJCR12-3B	3/4	4-1/2	1	DCMT32.5.	2371-5010	2371-6010

S-STYLE SDNCN 62.5° SCREW-ON TOOLHOLDERS

TURNING-EXTERNAL -7° POSITIVE INSERT

Negative 27.5° End or Side Cutting Edge Angle for 7° positive 55° diamond DCMT inserts



Metric

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SDNCN 1010E07	8	60	10	DCMT0702.	2372-0004	2372-1004
SDNCN 1212F07	10	70	12	DCMT0702.	2372-0006	2372-1006
SDNCN 1212H11	12	80	16	DCMT11T3.	2372-0008	2372-1008
SDNCN 1616H11	16	100	20	DCMT11T3.	2372-0010	2372-1010
SDNCN 2020K11	20	125	25	DCMT11T3.	2372-0012	2372-1012
SDNCN 2525M11	25	150	26	DCMT11T3.	2372-0014	2372-1014

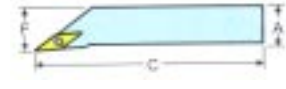
Imperial

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SDNCN06-2J	3/8	3-1/2	3/16	DCMT21.5.	2372-5004	2372-6004
SDNCN08-3A	1/2	4	1/4	DCMT32.5.	2372-5006	2372-6006
SDNCN10-3B	5/8	4-1/2	5/16	DCMT32.5.	2372-5008	2372-6008
SDNCN12-3B	3/4	4-1/2	3/8	DCMT32.5.	2372-5010	2372-6010
SDNCN16-4D	1	6	1/2	DCMT43.	2372-5012	2372-6012

S-STYLE SVJBR/L 93° SCREW-ON TOOLHOLDERS

TURNING-EXTERNAL -7° POSITIVE INSERT

Negative 3° End or Side Cutting Edge Angle for 7° positive 35° diamond VBMT inserts



Metric

STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SVJBR1212F11	12	80	16	VBMT1102.	2373-0004	2373-1004
SVJBR1616H11	16	100	20	VBMT1102.	2373-0006	2373-1006
SVJBR2020K11	20	125	25	VBMT1102.	2373-0008	2373-1008
SVJBR2525M11	25	150	32	VBMT1102.	2373-0010	2373-1010
SVJBR1616H16	16	100	20	VBMT1604.	2373-0012	2373-1012
SVJBR2020K16	20	125	25	VBMT1604.	2373-0014	2373-1014
SVJBR2525M16	25	150	32	VBMT1604.	2373-0016	2373-1016
SVJBR3225P16	32	170	32	VBMT1604.	2373-0018	2373-1018

Imperial

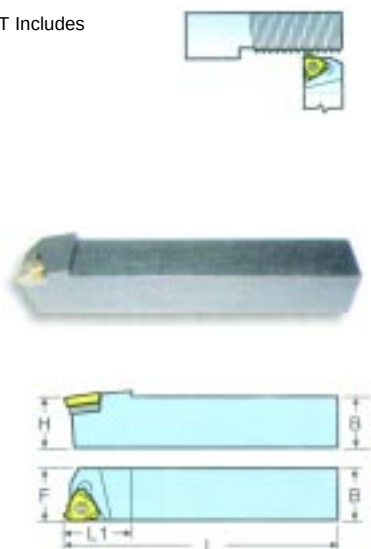
STYLE	DIMENSIONS			INSERT SIZE	LEFT Model #	RIGHT Model #
	A	C	F			
SVJBR06-2J	3/8	3-1/2	1/2	VBMT22.	2373-5004	2373-6004
SVJBR08-2A	1/2	4	5/8	VBMT22.	2373-5006	2373-6006
SVJBR10-2B	5/8	4-1/2	3/4	VBMT22.	2373-5008	2373-6008
SVJBR12-3B	3/4	4-1/2	1	VBMT33.	2373-5010	2373-6010
SVJBR16-3C	1	5	1-1/4	VBMT33.	2373-5012	2373-6012
SVJBR16-3D	1	6	1-1/4	VBMT33.	2373-5014	2373-6014

Threading Tool Holders

EXTERNAL TOOLHOLDERS

Right Hand. *=Shim not Includes

- Inserts NOT Includes



Imperial

MODEL #	B=H	L	L1	F	Insert I.C.	RIGHT Model #	LEFT Model #
SER0375D16	0.38"	2.50"	.81"	0.38"	3/8	2650-0002	2650-2002
SER0500F16	0.50	3.25	.87	0.50	3/8	2650-0004	2650-2004
SER0625K16	0.63	5.00	1.20	0.63	3/8	2650-0006	2650-2006
SER0750K16	0.75	5.00	1.20	0.75	3/8	2650-0008	2650-2008
SER1000M16	1.00	6.00	1.20	1.00	3/8	2650-0010	2650-2010
SER1000M22	1.00	6.00	1.42	1.00	1/2	2650-0012	2650-2012
SER1250P22	1.25	7.00	1.42	1.25	1/2	2650-0014	2650-2014

Metric

MODEL #	B=H	L	L1	F	Insert I.C.	RIGHT Model #	LEFT Model #
SER0808H11*	8	100	17.5	11	11	2650-1002	2650-3002
SER1010H11*	10	100	17.5	11	11	2650-1004	2650-3004
SER1616H16	16	100	20.5	16	16	2650-1006	2650-3006
SER2020K16	20	125	30	20	16	2650-1008	2650-3008
SER2525M16	25	150	30	25	16	2650-1010	2650-3010
SER2525M22	25	150	36	25	22	2650-1012	2650-3012
SER3232P22	32	170	36	32	22	2650-1014	2650-3014

INTERNAL TOOLHOLDERS

Right Hand. *=Shim not Includes

- Inserts NOT Includes



Imperial

MODEL #	D	L	F	D1	L1	MIN BORE	Insert I.C.	RIGHT Model #	LEFT Model #
SIR0375H11*	0.37	4.00	0.29	.38	-	0.47	1/4	2651-0002	2651-3002
SIR0375K11*	0.62	5.00	0.26	.38	1.00	0.47	1/4	2651-0004	2651-3004
SIR0500L11*	0.62	5.50	0.32	.50	1.25	0.63	1/4	2651-0006	2651-3006
SIR0500M16	0.62	7.00	0.39	.50	1.25	0.64	3/8	2651-0008	2651-3008
SIR0625P16	0.75	7.00	0.45	.62	1.50	0.75	3/8	2651-0010	2651-3010
SIR0750R16	0.75	8.00	0.51	.75	-	1.00	3/8	2651-0012	2651-3012
SIR1000R16	1.00	7.00	0.65	1.00	-	1.20	3/8	2651-0014	2651-3014
SIR1250S16	1.25	8.00	0.77	1.25	-	1.42	3/8	2651-0016	2651-3016
SIR1500T16	1.50	10.00	0.90	1.50	-	1.65	3/8	2651-0018	2651-3018
SIR0750P22	0.75	10.00	0.51	.75	-	0.95	1/2	2651-0020	2651-3020
SIR1000R22	1.00	10.00	0.71	1.00	-	1.20	1/2	2651-0022	2651-3022
SIR1250S22	1.25	10.00	0.85	1.25	-	1.50	1/2	2651-0024	2651-3024
SIR1500T22	1.50	10.00	0.98	1.50	-	1.75	1/2	2651-0026	2651-3026

Metric

MODEL #	D	L	F	D1	L1	MIN BORE	Insert I.C.	RIGHT Model #	LEFT Model #
SIR0010H11*	10	100	7.4	10	-	12	11	2651-1002	2651-4002
SIR0013L11*	16	140	8.9	13	32	15	11	2651-1004	2651-4004
SIR0016P16	20	170	11.7	16	40	19	16	2651-1006	2651-4006
SIR0020P16	20	170	13.7	20	-	24	16	2651-1008	2651-4008
SIR0025R16	25	200	16.2	25	-	29	16	2651-1010	2651-4010
SIR0020P22	20	170	15.6	20	-	24	22	2651-1012	2651-4012
SIR0025R22	25	200	18.1	25	-	29	22	2651-1014	2651-4014

PARTS FOR THERADING TOOL HOLDERS



Threading inserts screw

Model	Insert	Model No.
MLD-M25	11ER	2995-0162
MLD-M35	16ER	2995-0163
MLD-M50	22ER	2995-0166



Anvil screw

Model	Insert	Model No.
SDN535	16ER	2995-0300
SDN850	22ER	2995-0302



Shim

Model	Insert	Model No.
LT16R-3.0	16ER	2995-0400
LT16L-3.0	16IR	2995-0402
LT22R-4B	22ER	2995-0404
LT22L-4B	22IR	2995-0406



Indexable Turning Tool Holder

ADJUSTABLE BLADES FOR SELF-LOCK CUT-OFF INSERTS

- Adjustable Blades.
- Double ended.
- Inserts Not Included.



Imperial

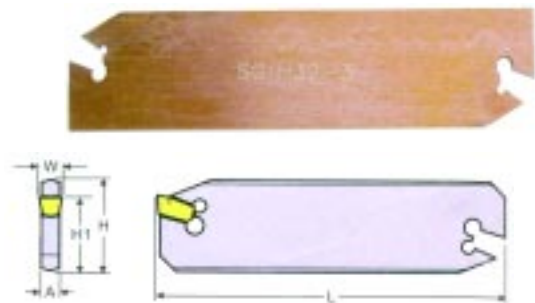
Blade #	Insert Width	Max. work Diameter	A	L	H1	H	Model No.
SGIH19-2	.087 & .094	1-1/2	.063	3.38	.62	.75	2401-0002
SGIH26-2	.087 & .094	3	.063	4.33	.84	1.02	2401-0004
SGIH26-3	.120	3	.094	4.33	.84	1.02	2401-0006
SGIH26-4	.160	3	.125	4.33	.84	1.02	2401-0008
SGIH26-5	.187 & .200	4	.156	4.33	.84	1.02	2401-0010
SGIH26-6	.250	4	.203	4.33	.84	1.05	2401-0012
SGIH32-3	.120	4	.094	5.90	.98	1.25	2401-0014
SGIH32-4	.160	4	.125	5.90	.98	1.25	2401-0016
SGIH32-5	.187 & .200	5	.156	5.90	.98	1.25	2401-0018
SGIH32-6	.250	5	.203	5.90	.98	1.25	2401-0020

Metric

Blade #	Insert Width	Max. work Diameter	A	L	H1	H	Model No.
SLIH19-2	2.2	40	1.6	86	15.5	19	2401-1002
SLIH26-2	2.2	75	1.6	110	21	26	2401-1004
SLIH26-3	3.1	75	2.4	110	21	26	2401-1006
SLIH26-4	4.1	75	3.2	110	21	26	2401-1008
SLIH26-5	5.1	75	4.0	110	21	26	2401-1010
SLIH26-6	6.4	75	5.2	110	21	26	2401-1012
SLIH32-3	3.1	100	2.4	150	25	32	2401-1014
SLIH32-4	4.1	100	3.2	150	25	32	2401-1016
SLIH32-5	5.1	127	4.0	150	25	32	2401-1018
SLIH32-6	6.4	127	5.2	150	25	32	2401-1020

ADJUSTABLE BLADES FOR SELF-LOCK CUT-OFF INSERTS

- Adjustable Cut-Off & grooving stop blades.
- Designed for use with standard Cut-Off inserts.
- They feature a "Positive Stop" to prevent insert drift and the blade pocket from spreading once the insert is set firmly in place.
- The inser's cutting edge location repeats accurately as a result of this.
- Prevents insert splitting under heavy feed and shock loads.
- The blade and insert geometry permits free chip flow, minimizing insert breakage due to chip build-up.
- Inserts Not Included.
- Prevents Inserts Drift.



Imperial

Blade #	Insert Width	Max. work Diameter	A	L	H1	H	Model No.
NCIH19-2	.087 & .094	1-1/2	.063	3.38	.62	.75	2402-0002
NCIH26-2	.087 & .094	3	.063	4.33	.84	1.02	2402-0004
NCIH26-3	.120	3	.094	4.33	.84	1.02	2402-0006
NCIH26-4	.160	3	.125	4.33	.84	1.02	2402-0008
NCIH26-5	.187 & .200	4	.156	4.33	.84	1.02	2402-0010
NCIH26-6	.250	4	.203	4.33	.84	1.05	2402-0012
NCIH32-3	.120	4	.094	5.90	.98	1.25	2402-0014
NCIH32-4	.160	4	.125	5.90	.98	1.25	2402-0016
NCIH32-5	.187 & .200	5	.156	5.90	.98	1.25	2402-0018
NCIH32-6	.250	5	.203	5.90	.98	1.25	2402-0020

Metric

Blade #	Insert Width	Max. work Diameter	A	L	H1	H	Model No.
NCIH19-2	2.2	40	1.6	86	15.5	19	2402-1002
NCIH26-2	2.2	75	1.6	110	21	26	2402-1004
NCIH26-3	3.1	75	2.4	110	21	26	2402-1006
NCIH26-4	4.1	75	3.2	110	21	26	2402-1008
NCIH26-5	5.1	75	4.0	110	21	26	2402-1010
NCIH26-6	6.4	75	5.2	110	21	26	2402-1012
NCIH32-3	3.1	100	2.4	150	25	32	2402-1014
NCIH32-4	4.1	100	3.2	150	25	32	2402-1016
NCIH32-5	5.1	127	4.0	150	25	32	2402-1018
NCIH32-6	6.4	127	5.2	150	25	32	2402-1020

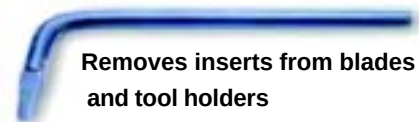
CARBIDE CUT OFF INSERTS AND EXTRACTOR

"T" Type



Carbide inserts

Insert #	Insert Width	Model No.	Tin-Coated Model No.
GTN-3	3.1	2403-1004	2403-2004
GTN-4	4.1	2403-1006	2403-2006
GTN-5	5.1	2403-1008	2403-2008
GTN-6	6.1	2403-1010	2403-2010



Removes inserts from blades and tool holders

Model: CT001

Model No.:2404-0001

Indexable Turning Tool Holder

TOOL BLOCKS FOR SELF-LOCK CUT OFF BLADES

- Blades and inserts not included

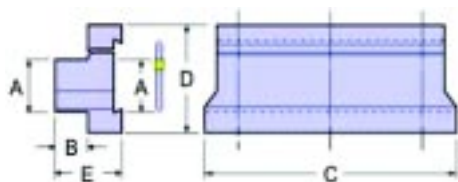


Imperial

Tool Block	Accerts Blade	A	B	C	D	E	Model No.
SLTBN16-2	SLIH,NCIH19-2	5/8	5/8	3-7/16	1-3/16	1-1/64	2405-0002
SLTBN16-5	SLIH,NCIH26-2,3,4,5,6	5/8	5/8	3-7/16	1-1/2	1-5/16	2405-0004
SLTBN19-5	SLIH,NCIH26-2,3,4,5,6	3/4	3/4	3-7/16	1-1/2	1-7/16	2405-0006
SLTBN19-6	SLIH,NCIH32-3,4,5,6	3/4	3/4	3-15/16	1-7/8	1-3/8	2405-0008
SLTBN25-6	SLIH,NCIH32-3,4,5,6	1"	25/32	4-5/16	1-7/8	1-15/32	2405-0010
SLTBN25-4-6	SLIH,NCIH32-3,4,5,6	1"	7/8	4-1/2	1-7/8	1-17/32	2405-0012
SLTBN32-6	SLIH,NCIH32-3,4,5,6	1-1/4	1-1/8	4-5/16	1-7/8	1-13/16	2405-0014

Metric

Tool Block	Accerts Blade	A	B	C	D	E	Model No.
SLTBN16-02	SLIH,NCIH19-2	16	16	76	30	26	2406-0002
SLTBN16-05	SLIH,NCIH26-2,3,4,5,6	16	16	87	38	33	2406-0004
SLTBN19-05	SLIH,NCIH26-2,3,4,5,6	20	20	87	38	36	2406-0006
SLTBN19-06	SLIH,NCIH32-3,4,5,6	20	20	100	48	36	2406-0008
SLTBN25-06	SLIH,NCIH32-3,4,5,6	25	20	110	48	37	2406-0010
SLTBN32-06	SLIH,NCIH32-3,4,5,6	32	25	110	48	46	2406-0012



SELF-LOCK CARBIDE CUT OFF TOOLS SETS



Imperial Model

- 1pc SLTBN 19-5 tool block
- 1pc SLIH 26-3 adjustable block,.120" insert width
- 1pc SLIH 26-4 adjustable block,.160" insert width
- 5pcs GTN-3 carbide inserts,.120" width
- 5pcs GTN-4 carbide inserts,.160" width
- Insert holder & wrench
- Complete with fitted wooden case

Model No. 2410-0013

- 1pc SLTBN 16-5 tool block
- 1pc SLIH 26-3 adjustable block,.120" insert width
- 10pcs GTN-3 carbide inserts,.120" width
- Insert holder & wrench
- Complete with fitted wooden case

Model No. 2410-0015

Metric Model

- 1pc SLTBN 19-5 tool block
- 1pc SGIH 26-3 adjustable block,3mm insert width
- 2pcs GTN-3 carbide inserts,3mm width
- Insert holder & wrench
- Complete with fitted wooden case

Model No. 2410-0016

- 1pc SLTBN 25-6 tool block
- 1pc SGIH 32-3 adjustable block,3mm insert width
- 2pcs GTN-3 carbide inserts,3mm width
- Insert holder & wrench
- Complete with fitted wooden case

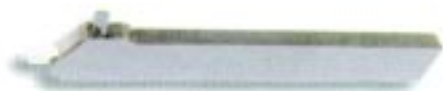
Model No. 2410-0017

- 1pc SLTBN 25-6 tool block
- 2pc SLIH 32-3 adjustable block,3mm insert width
- 2pc SLIH 32-4 adjustable block,4mm insert width
- 2pc SLIH 32-5 adjustable block,5mm insert width
- 4pcs GTN-3 carbide inserts,3mm width
- 4pcs GTN-4 carbide inserts,4mm width
- 4pcs GTN-5 carbide inserts,5mm width
- Insert holder & wrench
- Complete with fitted wooden case

Model No. 2410-0019

TURNING AND CUT-OFF TOOLHOLDERS

- For use with H.S.S tool bits.
- HSS Tool Bits NOT Included.



Imperial

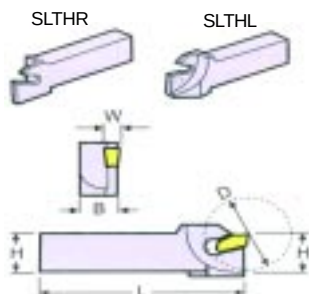
HOLDER	TOOL BIT	HEIGHT FROM BOTTOM OF SHANK TO BLADE Pt.	STAIGHT Model #	LEFT Model #	RIGHT Model #
5/16x3/4x4-1/2	3/16	3/16	2412-0020	2412-1020	2412-2020
3/8x7/8x5	1/4	13/16	2412-0022	2412-1022	2412-2022
1/2x1-1/8x6	5/16	1-1/16	2412-0024	2412-1024	2412-2024
5/8x1-3/8x7	3/8	1-1/4	2412-0026	2412-1026	2412-2026
3/4x1-5/8x8	7/16	1-15/32	2412-0028	2412-1028	2412-2028
7/8x1-3/4x9	1/2	1-21/32	2412-0030	2412-1030	2412-2030
1x2x11	5/8	2	2412-0032	2412-1032	2412-2032

Tool Holders

TOOL HOLDERS FOR SELF-LOCK CUT-OFF INSERTS

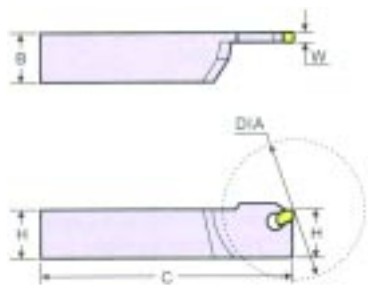
Adjustable Blades Not Required:

- Inserts not included.



Imperial F-Cut SGTFR/L

Not including inserts with "F" type



Imperial T-Cut SGTHR/L

Not including inserts with "F" type



Imperial

TOOL HOLDER	INSERT WIDTH	H	B	L	MAX.WORK DIAMETER	LEFT Model #	RIGHT Model #
SLTH9.5-2	.087&.094	3/8	3/8	3.38"	1-7/64	2408-0002	2408-1002
SLTH9.5-3	.120	3/8	3/8	3.38	1-7/64	2408-0004	2408-1004
SLTH10-2	.087&.094	25/64	3/8	4.33	1-7/64	2408-0006	2408-1006
SLTH12.7-2	.087&.094	1/2	25/64	4.33	1-11/64	2408-0008	2408-1008
SLTH12.7-3	.120	1/2	25/64	4.33	1-17/64	2408-0010	2408-1010
SLTH16-2	.087&.094	5/8	25/64	4.33	1-11/64	2408-0012	2408-1012
SLTH16-3	.120	5/8	15/32	4.33	1-17/64	2408-0014	2408-1014
SLTH16-4	.160	5/8	15/32	4.33	1-21/64	2408-0016	2408-1016
SLTH19-2	.087&.094	3/4	15/32	4.33	1-17/64	2408-0018	2408-1018
SLTH19-3	.120	3/4	15/32	4.33	1-13/32	2408-0020	2408-1020
SLTH19-4	.160	3/4	15/32	4.33	1-17/32	2408-0022	2408-1022
SLTH19-5	.187&.200	3/4	15/32	4.33	1-17/32	2408-0024	2408-1024
SLTH25.4-3	.120	1	63/64	4.33	2-1/16	2408-0026	2408-1026
SLTH25.4-4	.160	1	63/64	4.33	2-1/2	2408-0028	2408-1028
SLTH25.4-5	.187&.200	1	63/64	4.33	3	2408-0030	2408-1030

Metric

TOOL HOLDER	INSERT WIDTH	H	B	L	MAX.WORK DIAMETER	LEFT Model #	RIGHT Model #
SLTH10-2	2.2~2.4	10	9.5	86	28	2409-0002	2409-1002
SLTH12-2	2.2~2.4	10	10	110	30	2409-0004	2409-1004
SLTH12-3	3.1	12	10	110	32	2409-0006	2409-1006
SLTH16-2	2.2~2.4	12	10	110	30	2409-0008	2409-1008
SLTH16-3	3.1	16	12	110	32	2409-0010	2409-1010
SLTH16-4	4.1	16	12	110	34	2409-0012	2409-1012
SLTH20-2	2.2~2.4	16	12	110	32	2409-0014	2409-1014
SLTH20-3	3.1	20	12	110	36	2409-0016	2409-1016
SLTH20-4	4.1	20	12	110	39	2409-0018	2409-1018
SLTH20-5	5.1	20	12	110	39	2409-0020	2409-1020

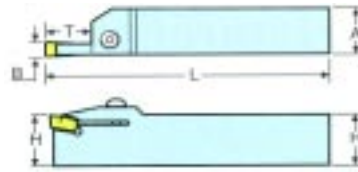
TOOL HOLDER	INSERT WIDTH	H	B	L	MAX.WORK DIAMETER	LEFT Model #	RIGHT Model #
SGTF 9.5~2	.087&.094	3/8	3/8	3.00"	1.13"	2409-5002	2409-6002
SGTF12.7~2	.087&.094	1/2	1/2	4.3	1.25	2409-5004	2409-6004
SGTF12.7~3	.120	1/2	1/2	4.3	1.25	2409-5006	2409-6006
SGTF16~2	.087	5/8	5/8	4.5	1.25	2409-5008	2409-6008
SGTF16~3	.120	5/8	5/8	4.5	1.38	2409-5010	2409-6010
SGTF16~4	.160	5/8	5/8	4.5	1.50	2409-5012	2409-6012
SGTF19~2	.087&.094	3/4	3/4	4.5	1.38	2409-5014	2409-6014
SGTF19~3	.120	3/4	3/4	4.5	1.75	2409-5016	2409-6016
SGTF19~4	.160	3/4	3/4	4.5	2.00	2409-5018	2409-6018
SGTF19-5	.187&.200	3/4	3/4	4.5	2.00	2409-5020	2409-6020
SGTF25.4-3	.120	1	1	5.9	2.25	2409-5022	2409-6022
SGTF25.4-4	.160	1	1	5.9	2.50	2409-5024	2409-6024
SGTF25.4-5	.187&.200	1	1	5.9	3.00	2409-5026	2409-6026
SGTF25.4-6	.250	1	1	5.9	3.00	2409-5028	2409-6028

TOOL HOLDER	INSERT WIDTH	H	B	L	MAX.WORK DIAMETER	LEFT Model #	RIGHT Model #
SGTH9.5-2	.087&.094	.375	.375	3.38"	1.10"	2409-5032	2409-6032
SGTH9.5-3	.120	.375	.375	3.38	1.10	2409-5034	2409-6034
SGTH12-2	.087&.094	.472	.394	4.33	1.18	2409-5036	2409-6036
SGTH12-3	.120	.472	.394	4.33	1.26	2409-5038	2409-6038
SGTH12.7-2	.087&.094	.500	.375	4.33	1.18	2409-5040	2409-6040
SGTH12.7-3	.120	.500	.375	4.33	1.26	2409-5042	2409-6042
SGTH16-2	.087&.094	.625	.394	4.33	1.18	2409-5044	2409-6044
SGTH16-3	.120	.625	.472	4.33	1.26	2409-5046	2409-6046
SGTH16-4	.160	.625	.472	4.33	1.34	2409-5048	2409-6048
SGTH19-2	.084&.094	.750	.500	4.33	1.38	2409-5050	2409-6050
SGTH19-3	.120	.750	.500	4.33	1.38	2409-5052	2409-6052
SGTH19-4	.160	.750	.500	5.33	1.38	2409-5054	2409-6054
SGTH19-5	.187&.200	.750	.500	5.33	1.38	2409-5056	2409-6056
SGTH25.4-3	.120	1	1	5.90	2.05	2409-5058	2409-6058
SGTH25.4-4	.160	1	1	5.90	2.44	2409-5060	2409-6060
SGTH25.4-5	.187&.200	1	1	5.90	2.95	2409-5062	2409-6062

Tool Holders

GOOVING INTERGRAL SHANK TOOL HOLDERS

- Inserts not included.



Metric

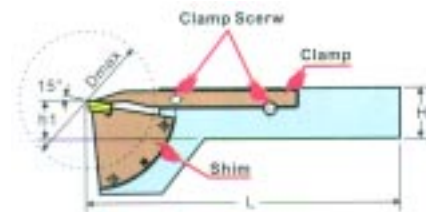
MODEL	A	H	L	B	T	INSERTS	LEFT Model #	RIGHT Model #
QA1616R03	16	16	100	3	20	GTN-3	2415-0020	2415-1020
QA2020R03	20	20	125	3	20	GTN-3	2415-0022	2415-1022
QA2525R03	25	25	150	3	20	GTN-3	2415-0024	2415-1024
QA3225R03	25	32	170	3	38	GTN-3	2415-0026	2415-1026
QA1616R04	16	16	100	4	20	GTN-4	2415-0028	2415-1028
QA2020R04	20	20	125	4	20	GTN-4	2415-0030	2415-1030
QA2525R04	25	25	150	4	20	GTN-4	2415-0032	2415-1032
QA3225R04	25	32	170	4	38	GTN-4	2415-0034	2415-1034
QA2525R05	25	25	150	5	32	GTN-5	2415-0036	2415-1036
QA3225R05	25	32	170	5	32	GTN-5	2415-0038	2415-1038
QA2525R06	25	25	150	6	32	GTN-6	2415-0040	2415-1040
QA3225R06	25	32	170	6	48	GTN-6	2415-0042	2415-1042

Imperial

MODEL	A	H	L	B	T	MAX.DEPTH	LEFT Model #	RIGHT Model #
QA08R/L-25	.500	.500	4.5	.133	.79		2415-5024	2415-6024
QA10R/L-25	.625	.625	4.5	.133	.79		2415-5026	2415-6026
QA12R/L-25	.750	.750	5.0	.133	.79		2415-5028	2415-6028
QA12R/L-30	.750	.750	5.0	.118-.163	.79		2415-5030	2415-6030
QA16R/L-30	1.00	1.00	6.0	.118-.163	.79		2415-5032	2415-6032
QA12R/L-40	.750	.750	5.0	.156-.203	.98		2415-5034	2415-6034
QA16R/L-40	1.00	1.00	6.0	.156-.203	.98		2415-5036	2415-6036
QA20R/L-40	1.25	1.25	6.0	.156-.203	.98		2415-5038	2415-6038
QA16R/L-50	1.00	1.00	6.0	.197-.250	1.26		2415-5040	2415-6040
QA16R/L-60	1.00	1.00	6.0	.236-.315	1.26		2415-5042	2415-6042
QA20R/L-60	1.25	1.25	6.0	.236-.315	1.26		2415-5044	2415-6044
QA24R/L-80	1.50	1.50	8.75	.315-.394	1.50		2415-5046	2415-6046

Q TYPT CUT-OFF TOOL HOLDERS

- Factory standard.
- Low cost



Inserts

Insert	Model No.	Tin-Coated
Q3	2414-1020	2414-1026
Q4	2414-1022	2414-1028
Q5	2414-1024	2414-1030

Model	B	H	h1	L	W	Dmax	INSERT	Model #	Shim	Clamp	Clamp Screw
3Q16	20	21	16	125	3	40	Q3	2414-0020	Q6-1	Q3-1	Q5-1
3Q20	20	25	20	125	3	40	Q3	2414-0022	Q6-1	Q3-1	Q5-1
4Q20	20	25	20	125	4	40	Q4	2414-0024	Q6-2	Q3-2	Q5-2
4Q25	25	32	25	150	4	60	Q4	2414-0026	Q6-3	Q3-3	Q5-3
5Q25	25	32	25	150	5	60	Q5	2414-0028	Q6-4	Q3-4	Q5-4
5Q32	32	40	32	180	5	90	Q5	2414-0030	Q6-5	Q3-5	Q5-5

Shim	Model No.	Clamp	Model No.	Clamp Screw	Model No.
Q6-1	2414-0501	Q3-1	2414-0521	Q5-1	2414-0531
Q6-2	2414-0502	Q3-2	2414-0522	Q5-1	2414-0532
Q6-3	2414-0503	Q3-3	2414-0523	Q5-2	2414-0533
Q6-4	2414-0504	Q3-4	2414-0524	Q5-2	2414-0534
Q6-5	2414-0505	Q3-5	2414-0525	Q5-3	2414-0535

HEAVY-DUTY CUT-OFF

- Furnished with HSS Cut-Off Blade and Wrench.
- HSS Cut-Off Blade NOT Included



Imperial

HOLDER	BLADE	Left Model #	Right Model #	Straight Model #	HSS BLADE Model #
5/16x3/4x4-1/2	3/32x1/2x4-1/2	2411-1002	2411-2002	2411-3002	2411-8001
3/8x7/8x5	3/32x5/8x5	2411-1004	2411-2004	2411-3004	2411-8002
1/2x1-1/8x6	1/8x3/4x5	2411-1006	2411-2006	2411-3006	2411-8003
5/8x1-3/8x7	1/8x7/8x6	2411-1008	2411-2008	2411-3008	2411-8004
3/4x1-5/8x8	3/16x1x6-1/2	2411-1010	2411-2010	2411-3010	2411-8005
7/8x1-3/4x9	3/16x1-1/8x7	2411-1012	2411-2012	2411-3012	2411-8006

Boring Bar Tool Holders

S-SCL.R.L INDEXABLE BORING BARS

Features:

- Able to both bore and face the bottom of a hole.
- Uses torx screw to secure insert.
- To be with insert styles CPMT, CCMT
- Boring and facing.
- Two ToolHolders SCLP,SCLC



Metric

Model #	DIMENSIONS				INSERT SIZE	S-SCLP		S-SCLC	
	D	F	L	MIN BORE		RIGHT HAND Model #	LEFT HAND Model #	RIGHT HAND Model #	LEFT HAND Model #
S08H-SCL.R/L06	8	6	100	11	C.MT0602.	2601-0006	2601-1006	2601-2006	2601-3006
S10K-SCL.R/L06	10	7	125	13	C.MT0602.	2601-0008	2601-1008	2601-2008	2601-3008
S12M-SCL.R/L06	12	9	150	16	C.MT0602.	2601-0010	2601-1010	2601-2010	2601-3010
S16R-SCL.R/L09	16	11	200	20	C.MT09T3.	2601-0012	2601-1012	2601-2012	2601-3012
S20S-SCL.R/L09	20	13	250	25	C.MT09T3.	2601-0014	2601-1014	2601-2014	2601-3014
S25T-SCL.R/L12	25	17	300	32	C.MT1204.	2601-0016	2601-1016	2601-2016	2601-3016
S32U-SCL.R/L12	32	22	350	40	C.MT1204.	2601-0018	2601-1018	2601-2018	2601-3018
S40U-SCL.R/L12	40	27	350	50	C.MT1204.	2601-0020	2601-1020	2601-2020	2601-3020

Imperial

Model #	DIMENSIONS				INSERT SIZE	S-SCLP		S-SCLC	
	D	F	L	MIN BORE		RIGHT HAND Model #	LEFT HAND Model #	RIGHT HAND Model #	LEFT HAND Model #
S05H-SCL.R/L2	.3125	.250	4.00	.4375	C.MT21.51	2601-6006	2601-7006	2601-8006	2601-9006
S06M-SCL.R/L2	.375	.250	6.00	.500	C.MT21.51	2601-6008	2601-7008	2601-8008	2601-9008
S08R-SCL.R/L2	.500	.312	8.00	.625	C.MT21.51	2601-6010	2601-7010	2601-8010	2601-9010
S10S-SCL.R/L3	.625	.406	10.0	.812	C.MT32.52	2601-6012	2601-7012	2601-8012	2601-9012
S12S-SCL.R/L3	.750	.500	10.0	1.00	C.MT32.52	2601-6014	2601-7014	2601-8014	2601-9014
S16T-SCL.R/L4	1.00	.651	12.0	1.25	C.MT432	2601-6016	2601-7016	2601-8016	2601-9016
S20U-SCL.R/L4	1.25	.875	14.0	1.50	C.MT432	2601-6018	2601-7018	2601-8018	2601-9018
S24V-SCL.R/L4	1.50	1.062	16.0	2.00	C.MT432	2601-6020	2601-7020	2601-8020	2601-9020

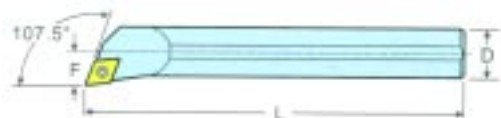
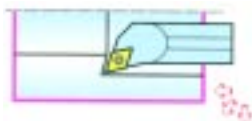
S-SDQCR.L INDEXABLE BORING BARS

Features:

- Able to both bore and face the bottom of a hole.
- Uses torx screw to secure insert.
- To be with insert styles DCMT

Features:

- Boring and facing.



Metric

Model #	DIMENSIONS				Insert Size	Right Hand Model No.	Left Hand Model No.
	D	F	L	Min Bore			
S08H-SDQCR/L07	8	6	100	11	D.MT0702.	2602-0006	2602-1006
S10K-SDQCR/L07	10	7	125	13	D.MT0702.	2602-0008	2602-1008
S12M-SDQCR/L07	12	9	150	16	D.MT0702.	2602-0010	2602-1010
S16R-SDQCR/L07	16	11	200	20	D.MT0702.	2602-0012	2602-1012
S20S-SDQCR/L11	20	13	250	25	D.MT11T3.	2602-0014	2602-1014
S25T-SDQCR/L11	25	17	300	32	D.MT11T3.	2602-0016	2602-1016
S32U-SDQCR/L11	32	22	350	40	D.MT11T3.	2602-0018	2602-1018
S40V-SDQCR/L11	40	27	400	50	D.MT11T3.	2602-0020	2602-1020
S50W-SDQCR/L11	50	35	500	63	D.MT11T3.	2602-0022	2602-1022

Imperial

Model #	DIMENSIONS				Insert Size	Right Hand Model No.	Left Hand Model No.
	D	F	L	Min Bore			
S05H-SDQCR/L1.8	.3125	.25	4.0	.4375	D.MT21.51	2602-6006	2602-7006
S06K-SDQCR/L1.8	.375	.28	5.0	.50	D.MT21.51	2602-6008	2602-7008
S08N-SDQCR/L1.8	.50	.375	6.0	.625	D.MT21.51	2602-6010	2602-7010
S10R-SDQCR/L2	.625	.4375	8.0	.75	D.MT32.52	2602-6012	2602-7012
S12S-SDQCR/L2	.75	.50	10.0	1.00	D.MT32.52	2602-6014	2602-7014
S16T-SDQCR/L2	1.00	.651	12.0	1.25	D.MT32.52	2602-6016	2602-7016
S20U-SDQCR/L2	1.25	.875	14.0	1.50	D.MT32.52	2602-6018	2602-7018
S24V-SDQCR/L2	1.5	1.062	16.0	2.00	D.MT32.52	2602-6020	2602-7020
S32W-SDQCR/L2	2	1.375	18.0	2.468	D.MT32.52	2602-6022	2602-7022

Boring Bar Tool Holders

S-SDU.R.L INDEXABLE BORING BARS

Features:

- Able to both bore and face the bottom of a hole.
- Uses torx screw to secure insert.
- To be with insert styles DCMT,DPMT

Features:

- Boring and facing.
- Two ToolHolders SDUP,SDUC



Metric

Model #	DIMENSIONS				Insert Size	S-SDUP		S-SDUC	
	D	F	L	Min Bore		Right Hand Model No.	Left Hand Model No.	Right Hand Model No.	Left Hand Model No.
S10K-SDU.R/L07	10	7	125	13	D.MT0702.	2603-0008	2603-1008	2603-2008	2603-3008
S12M-SDU.R/L07	12	9	150	16	D.MT0702.	2603-0010	2603-1010	2603-2010	2603-3010
S16R-SDU.R/L07	16	11	200	20	D.MT07T3.	2603-0012	2603-1012	2603-2012	2603-3012
S20S-SDU.R/L11	20	13	250	25	D.MT11T3.	2603-0014	2603-1014	2603-2014	2603-3014
S25T-SDU.R/L11	25	17	300	32	D.MT11T3.	2603-0016	2603-1016	2603-2016	2603-3016
S32U-SDU.R/L11	32	22	350	40	D.MT11T3.	2603-0018	2603-1018	2603-2018	2603-3018
S40U-SDU.R/L11	40	27	350	50	D.MT11T3.	2603-0020	2603-1020	2603-2020	2603-3020

Imperial

Model #	DIMENSIONS				Insert Size	S-SDUP		S-SDUC	
	D	F	L	Min Bore		Right Hand Model No.	Left Hand Model No.	Right Hand Model No.	Left Hand Model No.
S06M-SDU.R/L2	.375	.250	6.00	.500	D.MT21.51	2600-6008	2600-7008	2600-8008	2600-9008
S08R-SDU.R/L2	.500	.312	8.00	.625	D.MT21.51	2600-6010	2600-7010	2600-8010	2600-9010
S10S-SDU.R/L2	.625	.406	10.0	.812	D.MT21.51	2600-6012	2600-7012	2600-8012	2600-9012
S12S-SDU.R/L3	.750	.500	10.0	1.00	D.MT32.52	2600-6014	2600-7014	2600-8014	2600-9014

55° Diamond Steel Shank:

- Negative Rake 3°
- End Cutting Edge Angle.
- To be used with DCMT inserts.



SDJCR.L INDEXABLE BORING BARS

Imperial

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND		LEFT HAND	
	D	F	L	MIN BORE		Model #	Model #	Model #	Model #
SDJCR/L8-2	1/2	.437	8.00	.780	DCMT21.52	2600-4008	2600-5008	2600-6008	2600-7008
SDJCR/L10-2	5/8	.500	10.0	.840	DCMT21.52	2600-4010	2600-5010	2600-6010	2600-7010
SDJCR/L12-3	3/4	.562	10.0	1.125	DCMT32.52	2600-4012	2600-5012	2600-6012	2600-7012
SDJCR/L16-3	1	.750	12.0	1.500	DCMT32.52	2600-4014	2600-5014	2600-6014	2600-7014

S-STF.R.L INDEXABLE BORING BARS

Features:

- Able to both bore and face the bottom of a hole.
- Uses torx screw to secure insert.
- To be with insert styles TCMT,TPMT
- Boring and facing.

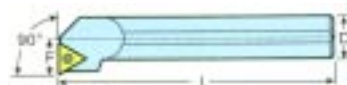


Metric

Model #	DIMENSIONS				INSERT SIZE	S-SSTP		S-SSTC	
	D	F	L	MIN BORE		Right Hand Model #	Left Hand Model #	Right Hand Model #	Left Hand Model #
S08H-STF.R/L09	8	6	100	11	T.MT0902.	2605-0006	2605-1006	2605-2006	2605-3006
S10K-STF.R/L11	10	7	125	13	T.MT1102.	2605-0008	2605-1008	2605-2008	2605-3008
S12M-STF.R/L11	12	9	150	16	T.MT1102.	2605-0010	2605-1010	2605-2010	2605-3010
S16R-STF.R/L11	16	11	200	20	T.MT1102.	2605-0012	2605-1012	2605-2012	2605-3012
S20S-STF.R/L16	20	13	250	25	T.MT16T3.	2605-0014	2605-1014	2605-2014	2605-3014
S25T-STF.R/L16	25	17	300	32	T.MT16T3.	2605-0016	2605-1016	2605-2016	2605-3016
S32U-STF.R/L16	32	22	350	40	T.MT16T3.	2605-0018	2605-1018	2605-2018	2605-3018
S40U-STF.R/L16	40	27	350	50	T.MT16T3.	2605-0020	2605-1020	2605-2020	2605-3020

Imperial

Model #	DIMENSIONS				INSERT SIZE	S-SSTP		S-SSTC	
	D	F	L	MIN BORE		Right Hand Model #	Left Hand Model #	Right Hand Model #	Left Hand Model #
S06M-STF.R/L2	.375	.250	6.00	.500	T.MT21.51	2605-6008	2605-7008	2605-8008	2605-9008
S08R-STF.R/L2	.500	.312	8.00	.625	T.MT21.51	2605-6010	2605-7010	2605-8010	2605-9010
S10S-STF.R/L2	.625	.406	10.0	.812	T.MT21.51	2605-6012	2605-7012	2605-8012	2605-9012
S12S-STF.R/L3	.750	.500	10.0	1.00	T.MT32.52	2605-6014	2605-7014	2605-8014	2605-9014
S16T-STF.R/L3	1.00	.625	12.0	1.19	T.MT32.52	2605-6016	2605-7016	2605-8016	2605-9016
S20U-STF.R/L3	1.25	.765	14.0	1.53	T.MT32.52	2605-6018	2605-7018	2605-8018	2605-9018
S24U-STF.R/L3	1.50	.890	14.0	1.78	T.MT32.52	2605-6020	2605-7020	2605-8020	2605-9020

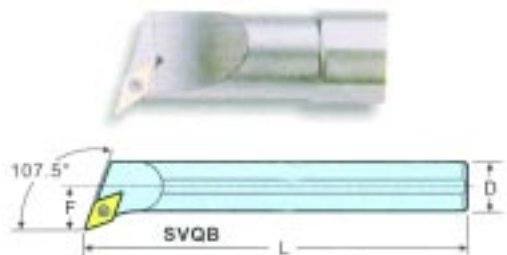


Boring Bar Tool Holders

S-SVQBR.L INDEXABLE BORING BARS

Features:

- Able to both bore and face the bottom of a hole.
- Uses torx screw to secure insert.
- To be with insert styles VBMT
- Boring and facing.



Metric

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND	LEFT HAND
	D	F	L	MIN BORE		Model #	Model #
S16R-SVQBR/L11	16	13	200	22	VBMT1102.	2606-0008	2606-1008
S20S-SVQBR/L11	20	15	250	27	VBMT1102.	2606-0010	2606-1010
S25T-SVQBR/L11	25	18	300	33	VBMT1102.	2606-0012	2606-1012
S25U-SVQBR/L16	25	18	300	33	VBMT1604.	2606-0014	2606-1014
S32U-SVQBR/L16	32	22	350	40	VBMT1604.	2606-0016	2606-1016
S40V-SVQBR/L16	40	27	400	50	VBMT1604.	2606-0018	2606-1018

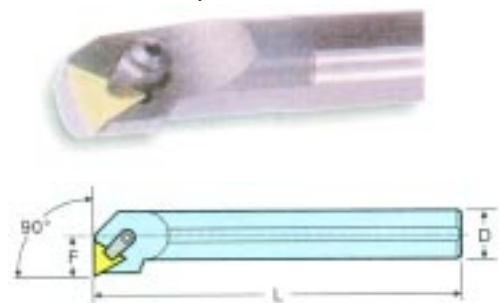
Imperial

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND	LEFT HAND
	D	F	L	MIN BORE		Model #	Model #
S16T-SVQBR/L3	1.00	.750	12.0	1.375	VBMT332.	2606-6020	2606-7020
S20U-SVQBR/L3	1.25	.875	14.0	1.625	VBMT332.	2606-6022	2606-7022
S24U-SVQBR/L3	1.50	1.063	14.0	2.000	VBMT332.	2606-6024	2606-7024

S-CTFPR.L INDEXABLE BORING BARS

Features:

- Boring, I.D. turning & facing
- Positive rake
- 0° end cutting edge angle
- To be with insert style TPG



Metric

Model #	DIMENSIONS				Insert Size	Right Hand	Left Hand
	D	F	L	Min Bore		Model No.	Model No.
S12M-CTFPR/L11	12	9	150	16	TPG1103.	2610-0010	2610-1010
S16Q-CTFPR/L11	16	11	180	20	TPG1103.	2610-0012	2610-1012
S20R-CTFPR/L16	20	13	200	25	TPG1603.	2610-0014	2610-1014
S25S-CTFPR/L16	25	17	250	32	TPG1603.	2610-0016	2610-1016
S32T-CTFPR/L16	32	22	300	40	TPG1603.	2610-0018	2610-1018

Imperial

Model #	DIMENSIONS				Insert Size	Right Hand	Left Hand
	D	F	L	Min Bore		Model No.	Model No.
S12S-CTFPR/L3	.75	.500	10.0	1.00	TPG32.	2610-2010	2610-3010
S16T-CTFPR/L3	1.00	.5625	12.0	1.22	TPG32.	2610-2012	2610-3012
S20U-CTFPR/L3	1.25	.7656	14.0	1.60	TPG32.	2610-2014	2610-3014
S24U-CTFPR/L3	1.50	.8906	14.0	1.84	TPG32.	2610-2016	2610-3016
S24U-CTFPR/L4	1.50	1.031	14.0	2.12	TPG43.	2610-2018	2610-3018
S28U-CTFPR/L3	1.75	1.015	14.0	2.10	TPG32.	2610-2020	2610-3020
S28U-CTFPR/L4	1.75	1.156	14.0	2.38	TPG43.	2610-2022	2610-3022
S32T-CTFPR/L4	2.00	1.281	16.0	2.62	TPG43.	2610-2024	2610-3024

MTFNR.L INDEXABLE BORING BARS



Features:

- Boring, I.D. turning & facing
- Positive rake
- Reg. 5° end cutting edge angle
- To be with insert style TNMG.TNMM.TNMA



Metric

Model #	DIMENSIONS				Insert Size	Right Hand	Left Hand
	D	F	L	Min Bore		Model No.	Model No.
S25R-MTFNR/L16	25	17	200	32	TN..1604.	2614-0010	2614-1010
S32S-MTFNR/L16	32	22	250	40	TN..1604.	2614-0012	2614-1012
S40T-MTFNR/L16	40	27	300	50	TN..1604.	2614-0014	2614-1014
S50U-MTFNR/L22	50	35	350	63	TN..2204.	2614-0016	2614-1016

Imperial

Model #	DIMENSIONS				Insert Size	Right Hand	Left Hand
	D	F	L	Min Bore		Model No.	Model No.
S16S-MTFNR/L3	1.00	.640	10	1.28	TN..33.	2614-2010	2614-3010
S20T-MTFNR/L3	1.25	.765	12	1.53	TN..33.	2614-2012	2614-3012
S24U-MTFNR/L3	1.50	.890	14	1.78	TN..33.	2614-2014	2614-3014
S24U-MTFNR/L4	1.50	1.031	14	2.062	TN..43.	2614-2016	2614-3016
S28U-MTFNR/L3	1.75	1.015	14	2.030	TN..33.	2614-2018	2614-3018
S28U-MTFNR/L4	1.75	1.156	14	2.312	TN..43.	2614-2020	2614-3020
S32U-MTFNR/L4	2.00	1.281	14	2.562	TN..43.	2614-2022	2614-3022

Imperial

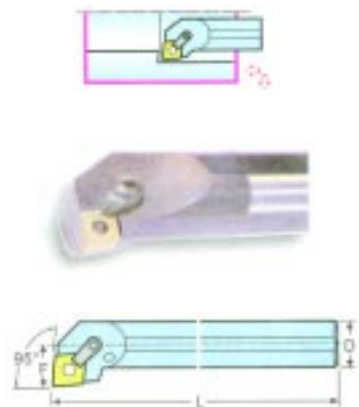
Model #	DIMENSIONS				Insert Size	Right Hand	Left Hand
	D	F	L	Min Bore		Model No.	Model No.
MTFNR/L12-3	3/4	.500	10	1.00	TN..332.	2614-2030	2614-3030
MTFNR/L16-3	1"	.640	12	1.28	TN..332.	2614-2032	2614-3032
MTFNR/L20-3	1-1/4	.765	14	1.53	TN..332.	2614-2034	2614-3034
MTFNR/L24-4	1-1/2	.980	14	1.78	TN..432.	2614-2036	2614-3036

Boring Bar Tool Holders

MCLNR.L INDEXABLE BORING BARS

Features:

- Boring, I.D. turning & facing
- Positive rake
- Reg. 5° End cutting edge angle
- To be with insert style CNMG, CNMM, CNMA



Metric

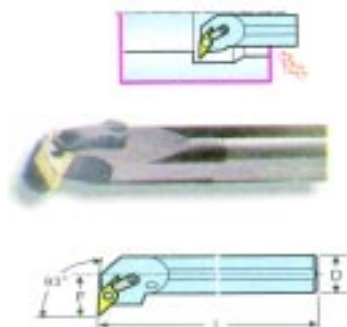
Model #	DIMENSIONS				Insert Size	Right Hand Model No.	Left Hand Model No.
	D	F	L	Min Bore			
S25R-MCLNR/L09	25	17	200	32	CN..0903.	2613-0010	2613-1010
S32S-MCLNR/L09	32	22	250	40	CN..0903.	2613-0012	2613-1012
S25R-MCLNR/L12	25	17	200	32	CN..1204.	2613-0014	2613-1014
S32S-MCLNR/L12	32	22	250	40	CN..1204.	2613-0016	2613-1016
S40T-MCLNR/L12	40	27	300	50	CN..1204.	2613-0018	2613-1018
S50U-MCLNR/L12	50	35	350	63	CN..1204.	2613-0020	2613-1020
S40T-MCLNR/L16	40	27	300	50	CN..1606.	2613-0022	2613-1022
S50U-MCLNR/L16	50	35	350	63	CN..1606.	2613-0024	2613-1024
S50U-MCLNR/L19	50	35	350	63	CN..1906.	2613-0026	2613-1026

Imperial

Model #	DIMENSIONS				Insert Size	Right Hand Model No.	Left Hand Model No.
	D	F	L	Min Bore			
S20T-MCLNR/L4	1.25	.765	12.0	1.53	CN..43.	2613-2010	2613-3010
S24U-MCLNR/L4	1.50	.890	14.0	1.78	CN..43.	2613-2012	2613-3012
S28U-MCLNR/L4	1.75	1.015	14.0	2.03	CN..43.	2613-2014	2613-3014
S32U-MCLNR/L6	2.00	1.281	14.0	2.562	CN..64.	2613-2016	2613-3016

MVUR.L INDEXABLE BORING BARS

- Boring, I.D. Turning & Facing
- Positive Rake
- Reg. 5° End Cutting Edge Angle
- To be with insert styles VNMG, VNMM, VNMA, VBMT



Metric

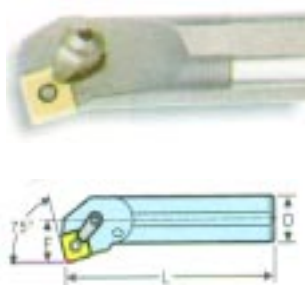
Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND Model #	LEFT HAND Model #
	D	F	L	MIN BORE			
S25R-MVUNR/L16	25	22	200	37	VN..1604..	2615-0010	2615-1010
S32S-MVUNR/L16	32	22	250	40	VN..1604..	2615-0012	2615-1012

Imperial

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND Model #	LEFT HAND Model #
	D	F	L	MIN BORE			
S16T-MVUNR/L3	1.00	1.00	12.0	2.00	VN..33.	2615-2010	2615-3010
S20U-MVUNR/L3	1.25	1.125	14.0	2.25	VN..33.	2615-2012	2615-3012
S24U-MVUNR/L3	1.50	1.25	14.0	2.50	VN..33.	2615-2014	2615-3014
S28U-MVUNR/L4	1.75	1.50	14.0	3.00	VN..43.	2615-2016	2615-3016
S32V-MVUNR/L4	2.00	1.625	16.0	3.25	VN..43.	2615-2018	2615-3018

MSKNR.L INDEXABLE BORING BARS

- Boring, I.D. Turning & Facing
- Positive Rake
- 15° End Cutting Edge Angle
- To be with insert styles SNMG, SNMA



Metric

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND Model #	LEFT HAND Model #
	D	F	L	MIN BORE			
S25R-MSKNR/L12	25	17	200	32	CN..1204.	2616-0010	2616-1010
S32S-MSKNR/L12	32	22	250	40	CN..1204.	2616-0012	2616-1012
S40T-MSKNR/L12	40	27	300	50	CN..1204.	2616-0014	2616-1014
S40T-MSKNR/L15	40	27	300	40	CN..1506.	2616-0016	2616-1016
S50U-MSKNR/L19	50	35	350	50	CN..1906.	2616-0018	2616-1018

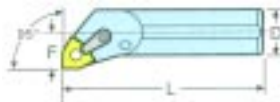
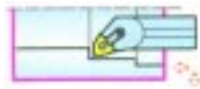
Imperial

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND Model #	LEFT HAND Model #
	D	F	L	MIN BORE			
S20T-MSKNR/L4	1.25	.765	12.0	1.53	CN..43.	2616-2010	2616-3010
S24U-MSKNR/L4	1.50	.890	14.0	1.78	CN..43.	2616-2012	2616-3012
S28U-MSKNR/L4	1.75	1.015	14.0	2.03	CN..43.	2616-2014	2616-3014
S32U-MSKNR/L6	2.00	1.281	14.0	2.562	CN..64.	2616-2016	2616-3016

Boring Bar Tool Holders

MSKNR.L INDEXABLE BORING BARS

- Boring, I.D. Turning & Facing
- Positive Rake
- Neg.5° End Cutting Edge Angle
- To be with insert styles WNMG,WNMA



Metric

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND		LEFT HAND
	D	F	L	MIN BORE		Model #	Model #	
S25R-MWLN/L06	25	17	200	32	WN..0604	2617-0010		2617-1010
S32S-MWLN/L06	32	22	250	40	WN..0604	2617-0012		2617-1012
S25R-MWLN/L08	25	17	200	32	WN..0806	2617-0014		2617-1014
S32S-MWLN/L08	32	22	250	40	WN..0806	2617-0016		2617-1016
S40T-MWLN/L08	40	27	300	50	WN..0806	2617-0018		2617-1018

Imperial

Model #	DIMENSIONS				INSERT SIZE	RIGHT HAND		LEFT HAND
	D	F	L	MIN BORE		Model #	Model #	
S12S-MWLN/L3	0.75	0.50	10.0	.98	WN..33	2617-2012		2617-3012
S16T-MWLN/L3	1.00	0.64	12.0	1.20	WN..33	2617-2014		2617-3014
S16T-MWLN/L4	1.00	1.00	12.0	2.00	WN..43	2617-2016		2617-3015
S20U-MWLN/L3	1.25	0.765	14.0	1.47	WN..33	2617-2018		2617-3018
S20U-MWLN/L4	1.25	1.125	14.0	2.25	WN..43	2617-2020		2617-3020
S24U-MWLN/L4	1.50	1.25	14.0	2.50	WN..43	2617-2022		2617-3022

Applications:

TPGB

For machining short chip materials without chip breaker

TPGC

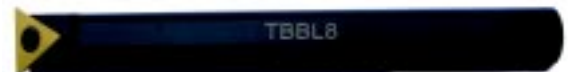
Ground chip breaker to optimize chip control

- Inserts NOT Included

MODEL #		RADIUS		Model #		TIN-COATED Model #	
TPGB221	1/64	2157-0020	2157-1020				
TPGB222	1/32	2157-0022	2157-1022				
TPGC221	1/64	2158-0020	2158-1020				
TPGC222	1/32	2158-0022	2158-1022				
TPGB321	1/64	2157-0024	2157-1024				
TPGB322	1/32	2157-0026	2157-1026				
TPGC321	1/64	2158-0024	2158-1024				
TPGC322	1/32	2158-0026	2158-1026				



TBB INDEXABLE BORING BARS



MODEL #	BORE		SHANK OVERALL LENGTH	INSERT I.C.	INSERT USED	ANGLE ENTER 15°	TIN-COATED Model #	Model #
	MIN. DIA.	SHANK DIA.						
TBBS6-2	.430	1/2	5	1/4	TPG.22	91°	2625-0020	2625-1020
TBBN6-2	.430	1/2	5	1/4	TPG.22	95°	2625-0022	2625-1022
TBBS8	.700	1/2	6	3/8	TPG.32	91°	2625-0024	2625-1024
TBBL8	.700	1/2	6	3/8	TPG.32	85°	2625-0026	2625-1026
TBBN8	.700	1/2	6	3/8	TPG.32	95°	2625-0028	2625-1028
TBBS10	.710	5/8	7	3/8	TPG.32	91°	2625-0030	2625-1030
TBBL10	.710	5/8	7	3/8	TPG.32	85°	2625-0032	2625-1032
TBBN10	.710	5/8	7	3/8	TPG.32	95°	2625-0034	2625-1034
TBBS12-3	.845	3/4	10	3/8	TPG.32	91°	2625-0036	2625-1036
TBBN12-3	.845	3/4	10	3/8	TPG.32	95°	2625-0038	2625-1038

SCREW ON TYPE BORING BARS AND SETS

Features:

- Small Hole Capacity to a minimum of .430"
- HighTech-High tech insert pocket has been scientifically designed to eliminate vibration and maximize the depth of cut.
- Rigidity-Bar made of heat treated, precision ground alloy steel.
- Insert Locking The insert is securely held with the Torx screw to reduce tool slipping.
- Better finish-Clearance angle of the insert, in relation to cutting edge, gives best micro finish.
- Fast material removal The positive insert with advanced chip breaker design allows for heavier cuts.
- Inserts NOT Included

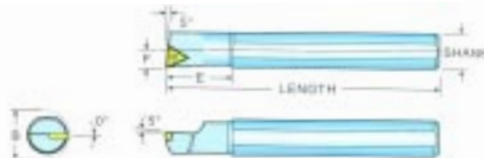
SET INCLUDES:

31PCS/SET

- 10pcs TPGH 21.51 Inserts.
- 10pcs TPGH 321 Inserts.
- 4pcs Torx Screws.
- 2pcs Torx Keys.
- 4pcs Boring Bars: TPBN06-2 TPBN08-2 TPBN10-2 TPBN12-3
- With wooden box case.
- Model No. 2626-9031
- Model No. 2626-9131(Inserts TIN Coated)

27PCS/SET

- 8pcs Inserts.
- 8pcs Torx Screws.
- 3pcs Torx Keys.
- 8pcs Boring Bars: TPBN06-2 TPBN08-2 TPBN10-2 TPBN12-3
- With wooden box case.
- Model No. 2626-9027
- Model No. 2626-9127(Inserts TIN Coated)



INSERT #	I.C.	TIN-COATED	
		Model #	Model #
TPGB21.51	1/4	2626-0502	2626-1502
TPGB21.52	1/4	2626-0504	2626-1504
TPGB321	3/8	2626-0506	2626-1506
TPGB322	3/8	2626-0508	2626-1508
TPGB431	1/2	2626-0510	2626-1510
TPGB432	1/2	2626-0512	2626-1512

BORING BAR#	SHANK		E	F	B	TPGB.TPGH	
	DIA	LENGTH				INSERT	Model #
TPBN06-2	1/2	5	1	.208	.430	21.5	2626-0020
TPBN08-2	1/2	6	1	.287	.590	21.5	2626-0022
TPBN10-2	5/8	8	1-1/2	.350	.682	21.5	2626-0024
TPBN12-3	3/4	10	1-3/4	.422	.845	32	2626-0026
TPBN16-3	1	12	2	.555	1.115	32	2626-0028
TPBN20-3	1-1/4	12	2-1/2	.628	1.370	32	2626-0030
TPBN20-4	1-1/2	12	2-1/2	.628	1.370	43	2626-0032
TPBN24-4	1-1/2	12	2-1/2	.840	1.680	43	2626-0034

Boring Bar Tool Holders

INDEXABLE INSERT BORING BARS SETS

Set Includes:

- Boring Bars.
S08H-SCLCR06,S05H-SCLCR2
S10K-SCLCR06,S06M-SCLCR2
S12M-SCLCR06,S08R-SCLCR2
S16R-SCLCR09,S10S-SCLCR3
S20S-SCLCR09,S12S-SCLCR3
- Insert CNMM,CHINA,CNMG.
- Torx Screw.
- Torx keys.
- With wooden box case.



S-SCLCR

S-SCLCR SETS

Model	Pieces	Shank		Model No.	Tin-Coated Model No.
		Size			
SCLC-03S	3	10,12,16mm		2601-5004	2601-5104
SCLC-04S	4	8,10,12,16mm		2601-5006	2601-5106
SCLC-05S	5	8,10,12,16,20mm		2601-5008	2601-5108
SCLC-3S	3	5/16,3/8,1/2		2601-5094	2601-5194
SCLC-31S	3	1/2,5/8,3/4		2601-5102	2601-5202
SCLC-4S	4	5/16,3/8,1/2,5/8		2601-5096	2601-5196
SCLC-41S	4	3/8,1/2,5/8,3/4		2601-5100	2601-5200
SCLC-5S	5	5/16,3/8,1/2,5/8,3/4		2601-5098	2601-5198

Set Includes:

- Boring Bars.
S08H-STFCR09,S05H-STFCR2
S10K-STFCR11,S06M-STFCR2
S12M-STFCR11,S08R-STFCR2
S16R-STFCR11,S10S-STFCR2
S20S-STFCR16,S12S-STFCR3
- Insert TNMM,TNMA,TNMG.
- Torx Screw.
- Torx keys.
- With wooden box case.



S-STFCR

S-STFCR SETS

Model	Pieces	Shank		Model No.	Tin-Coated Model No.
		Size			
STFC-03S	3	10,12,16mm		2605-5004	2605-5104
STFC-04S	4	8,10,12,16mm		2605-5006	2605-5106
STFC-05S	5	8,10,12,16,20mm		2605-5008	2605-5108
STFC-3S	3	5/16,3/8,1/2		2605-5094	2605-5194
STFC-31S	3	1/2,5/8,3/4		2605-5102	2605-5202
STFC-4S	4	5/16,3/8,1/2,5/8		2605-5096	2605-5196
STFC-41S	4	3/8,1/2,5/8,3/4		2605-5100	2605-5200
STFC-5S	5	5/16,3/8,1/2,5/8,3/4		2605-5098	2605-5198

INDEXABLE STUBBY LENGTH BORING BARS SETS



Model #	Shank Dia	Min Bore	Max Bore	Dims			Insert	Model No.	Tin-Coated Model No.
				OAL	Over Flats				
TAS-500BTX	1/2	1/2	13/16	2-5/32	7/16		TPGT21.51	2631-0010	2631-1010
TAS-500DTX	3/4	1/2	1-5/16	2-15/16	41/64		TPGT21.51	2631-0012	2631-1012
TAS-750DTX	3/4	3/4	1-17/32	3-5/32	41/64		TPGT32.51	2631-0014	2631-1014
TAS-1000DTX	3/4	1	1-3/4	3-3/8	41/64		TPGT32.51	2631-0016	2631-1016
TAS-1250DTX	3/4	1-1/4	1-31/32	3-19/32	41/64		TPGT32.51	2631-0018	2631-1018
TAS-500ETX	1	1/2	1-5/16	2-15/16	55/64		TPGT21.51	2631-0020	2631-1020
TAS-750ETX	1	3/8	1-17/32	3-5/32	55/64		TPGT32.51	2631-0022	2631-1022
TAS-1000ETX	1	1	1-3/4	3-3/8	55/64		TPGT32.51	2631-0024	2631-1024
TAS-1250ETX	1	1-1/4	1-31/32	3-19/32	55/64		TPGT32.51	2631-0026	2631-1026



Carbide inserts

Insert #	Radius	Tin-Coated	
		Model No.	Model No.
TPGT21.51	.015	2127-0200	2127-1200
TPGT32.51	.015	2127-0202	2127-1202

Set Includes:

- 4pcs Boring Bars.
- TPGT Insert.
- 1pcs Torx keys.
- With wooden box case.

Stubby Length Sets:

3/4 Shank	1" Shank
TAS-500DTX	TAS-500ETX
TAS-750DTX	TAS-750ETX
TAX-1000DTX	TAX-1000ETX
TAX-1250DTX	TAX-1250ETX
Model:TA-3/4	Model:TA-1
Model No:2631-0200	Model No:2631-0210
Model No(TIN):2631-0201(TIN)	Model No:2631-0211(TIN)

Boring Bar tool Holder

TBB. INDEXABLE INSERT BORING BARS SETS

Includes:

- Boring Bars-1 each of:
TBBN-6-1/2 shank x5" length.
TBBN-8-1/2 shank x6" length.
TBBN-10-5/8 shank x7" length.
TBBN12-3-3/4 shank x10" length.
- 10pcs TPGB321 inserts.
- 5pcs TPGB221 inserts
- 3pcs Torx Screws.
- 1pcs Torx Key.
- With wooden box case.



Model: TBB4

Model No.:2625-9001

Model No.:2625-9002(Inserts TIN-COATED)

ROUND SHANK INDEXABLE INSERT BORING BARS AND SETS

- Screw Down Style
- Positive Rake 90° lead

Shank Dia	Length	Bore Depth	Min Bore	Insert Size	Model No.	TIN Model No.
1/2	2-3/4	1-1/4	7/16	TCMT21.51	2627-0020	2627-3020
1/2	3-5/8	2-1/8	7/16	TCMT21.51	2627-0022	2627-3022
1/2	3	1-1/2	1/2	TCMT21.51	2627-0024	2627-3024
1/2	4	2-1/2	1/2	TCMT21.51	2627-0026	2627-3026
5/8	3	1-1/4	7/16	TCMT21.51	2627-0028	2627-3028
5/8	3-7/8	2-1/8	7/16	TCMT21.51	2627-0030	2627-3030
5/8	3-1/4	1-1/2	1/2	TCMT21.51	2627-0032	2627-3032
5/8	4-1/4	2-1/2	1/2	TCMT21.51	2627-0034	2627-3034
5/8	3-1/2	1-3/4	9/16	TCMT221	2627-0036	2627-3036
5/8	4-5/8	2-7/8	9/16	TCMT221	2627-0038	2627-3038
3/4	3-3/8	1-3/8	7/16	TCMT21.51	2627-0040	2627-3040
3/4	4-1/4	2-1/4	7/16	TCMT21.51	2627-0042	2627-3042
3/4	3-5/8	1-5/8	1/2	TCMT21.51	2627-0044	2627-3044
3/4	4-5/8	2-5/8	1/2	TCMT21.51	2627-0046	2627-3046
3/4	3-7/8	1-7/8	9/16	TCMT221	2627-0048	2627-3048
3/4	5	3	9/16	TCMT221	2627-0050	2627-3050
3/4	4-1/4	2-1/4	11/16	TCMT221	2627-0052	2627-3052
3/4	5-1/2	3-1/2	11/16	TCMT221	2627-0054	2627-3054

Set Includes:

- Inserts.
- Torx Screws.
- Torx Keys.
- Boring Bars.
- With wooden box case.



Sets

Model	Shank Size	Pieces	Tin-Coated Model No.
RS4	1/2	4	2627-9004 2627-9104
RS6	5/8	6	2627-9006 2627-9106
RS8	3/4	8	2627-9008 2627-9108

Carbide inserts

Insert #	Radius	Model No.	Tin-Coated Model No.
TCMT21.51	.015	2124-0028	2124-1028
TCMT221	.015	2124-0030	2124-1030

POSITIVE RAKE INSERT BORING BARS



SETS INCLUDES:

- 4 Holder styles, BBS8, BBN10, BBN6-2, and BBN12-3.
- Standard Indexable Carbide inserts 1/4", 3/8" I.C.
- Inserts 10PCS. TPGB 321 and 5 PCS TPGB221.
- 3PCS torx screws and wrench KEY.
- With wooden case.

Model: BB-4S

Order No. 2634-0900

Order No. 2634-0910(Inserts Tin-Coated)

Carbide inserts

INSERT #	I.C.	RADIUS	Model #	TIN-COATED Model #
TPGB321	3/8	1/64	2157-0024	2157-1024
TPGB322	3/8	1/32	2157-0026	2157-1026
TPGB221	1/4	1/64	2157-0020	2157-1020
TPGB222	1/4	1/32	2157-0022	2157-1022
TPGC321	3/8	1/64	2158-0024	2158-1024
TPGC322	3/8	1/32	2158-0026	2158-1026
TPGC221	1/4	1/64	2158-0020	2158-1020
TPGC222	1/4	1/32	2158-0022	2158-1022

MODEL #	SHANK DIA	MIN BORE	LEAD Angle	CENTER OAL	Height	Inserts	Model #	TIN-COATED Model #
BBS8	1/2	.700	-1	6	.034	TP..32.	2634-0002	2634-1002
BBL8	1/2	.700	+5	6	.034	TP..32.	2634-0004	2634-1004
BBN8	1/2	.700	-5	6	.034	TP..32.	2634-0006	2634-1006
BBS10	5/8	.710	-1	7	.034	TP..32.	2634-0008	2634-1008
BBL10	5/8	.710	+5	7	.034	TP..32.	2634-0010	2634-1010
BBN10	5/8	.710	-5	7	.034	TP..32.	2634-0012	2634-1012
BBN6-2	1/2	.430	-5	5	.032	TP..22.	2634-0014	2634-1014
BBS6-2	1/2	.430	-1	5	.032	TP..22.	2634-0016	2634-1016
BBN8-2	1/2	.700	-5	6	.032	TP..22.	2634-0018	2634-1018
BBS8-2	1/2	.700	-1	6	.032	TP..22.	2634-0020	2634-1020
BBN10-2	5/8	.710	-5	8	.024	TP..22.	2634-0022	2634-1022
BBS10-2	5/8	.710	-1	8	.024	TP..22.	2634-0024	2634-1024
BBN12-3	3/4	.845	-5	10	.020	TP..32.	2634-0026	2634-1026
BBN12-3	3/4	.845	-1	10	.020	TP..32.	2634-0028	2634-1028

Boring Bar tools

CARBIDE TIPPED BORING BARS

- Tool life is extended because each bar has far more steel behind the cutting edge for heavier chatter free cut. Deeper bore and more precise work.
- The same bar can bore flat bottom hole or face. Grind bar on cutting end for special tools such as grooving, threading, or automatic operations.
- Up to 100% longer tool life.
- All shanks are ground to +0-0.005".
- All 1/2", 3/4" and 1" shanks fit most boring and facing heads.



C2-Cast Iron C6-Steel

"A" Shank Dia.	"B" Length	"C" Bore Depth	"D" Min. bore	Tool No.	C2 Model No.	C6 Model No.	C2 Set Model No.	C6 Set Model No.	Stand Material
3/8"	2"	3/4"	5/16"	A5S	375-1012	375-1016	9Pcs Set	9Pcs Set	Wooden Plastic
3/8"	2-3/8"	1-1/8"	5/16"	A5M	375-1022	375-1026	375-1002	375-1006	
3/8"	2-3/4"	1-1/2"	5/16"	A5L	375-1032	375-1036	375-1102	375-1106	
3/8"	2-3/16"	15/16"	3/8"	A3S	375-1042	375-1046			
3/8"	2-21/32"	1-13/32"	3/8"	A3M	375-1052	375-1056			
3/8"	3-1/8"	1-7/8"	3/8"	A3L	375-1062	375-1066			
3/8"	2-3/8"	1-1/8"	7/16"	A7S	375-1072	375-1076			
3/8"	3-15/16"	1-11/16"	7/16"	A7M	375-1082	375-1086			
3/8"	3-1/2"	2-1/4"	7/16"	A7L	375-1092	375-1096			
1/2"	2-1/4"	3/4"	5/16"	B5S	375-1212	375-1216	9Pcs Set	9Pcs Set	Wooden Plastic
1/2"	2-5/8"	1-1/8"	5/16"	B5M	375-1222	375-1226	375-1202	375-1206	
1/2"	3"	1-1/2"	5/16"	B5L	375-1232	375-1236	375-1302	375-1306	
1/2"	2-5/8"	1-1/8"	7/16"	B7S	375-1242	375-1246			
1/2"	3-3/16"	1-11/16"	7/16"	B7M	375-1252	375-1256			
1/2"	3-3/4"	2-1/4"	7/16"	B7L	375-1262	375-1266			
1/2"	3"	1-1/2"	9/16"	B9S	375-1272	375-1276			
1/2"	3-3/4"	2-1/4"	9/16"	B9M	375-1282	375-1286			
1/2"	4-1/2"	3"	9/16"	B9L	375-1292	375-1296			
5/8"	2-1/4"	3/4"	5/16"	D5S	375-1412	375-1416	12Pcs	12Pcs	Wooden Plastic
5/8"	2-5/8"	1-1/8"	5/16"	D5M	375-1422	375-1426	375-1402	375-1406	
5/8"	3"	1-1/2"	5/16"	D5L	375-1432	375-1436	375-1532	375-1536	
5/8"	2-5/8"	1-1/8"	7/16"	D7S	375-1442	375-1446			
5/8"	3-3/16"	1-11/16"	7/16"	D7M	375-1452	375-1456			
5/8"	3-3/4"	2-1/4"	7/16"	D7L	375-1462	375-1466			
5/8"	3"	1-1/2"	9/16"	D9S	375-1472	375-1476			
5/8"	3-3/4"	2-1/4"	9/16"	D9M	375-1482	375-1486			
5/8"	4-1/2"	3"	9/16"	D9L	375-1492	375-1496			
5/8"	3-3/8"	1-7/8"	11/16"	D11S	375-1502	375-1506			
5/8"	4-5/16"	2-13/16"	11/16"	D11M	375-1512	375-1516			
5/8"	5-1/4"	3-3/4"	11/16"	D11L	375-1522	375-1526			
3/4"	3-1/8"	1-1/8"	7/16"	C7S	375-1612	375-1616	12Pcs	12Pcs	Wooden Plastic
3/4"	3-11/16"	1-11/16"	7/16"	C7M	375-1622	375-1626	375-1602	375-1606	
3/4"	4-1/4"	2-1/4"	7/16"	C7L	375-1632	375-1636	375-1732	375-1736	
3/4"	3-1/2"	1-1/2"	9/16"	C9S	375-1642	375-1646			
3/4"	4-1/4"	2-1/4"	9/16"	C9M	375-1652	375-1656			
3/4"	5"	3"	9/16"	C9L	375-1662	375-1666			
3/4"	3-7/8"	1-7/8"	11/16"	C11S	375-1672	375-1676			
3/4"	4-13/16"	2-13/16"	11/16"	C11M	375-1682	375-1686			
3/4"	5-3/4"	3-3/4"	11/16"	C11L	375-1692	375-1696			
3/4"	4-1/4"	2-1/4"	13/16"	C13S	375-1702	375-1706			
3/4"	5-3/8"	3-3/8"	13/16"	C13M	375-1712	375-1716			
3/4"	6-1/2"	4-1/2"	13/16"	C13L	375-1722	375-1726			
1"	5.0"	3.0"	9/16"	E9L	375-1812	375-1816	7Pcs	7Pcs	Wooden
1"	5-3/4"	3-3/4"	11/16"	E11L	375-1822	375-1826	375-1802	375-1806	
1"	6-1/2"	4-1/2"	7/8"	E14L	375-1832	375-1836			
1"	6-1/2"	4-1/2"	1-1/16"	E18L	375-1842	375-1846			
1"	7-3/4"	5-3/4"	1-1/4"	E20L	375-1852	375-1856			
1"	8-1/4"	6-1/4"	1-1/2"	E24L	375-1862	375-1866			
1"	9-1/2"	7-1/2"	1-5/8"	E26L	375-1872	375-1876			

Boring Bar tools

CARBIDE TIPPED METRIC BORING BARS

- Up to 100% longer tool life.
- All shanks are ground to +0-0.01mm.
- Tool life is extended because each bar has far more steel behind the cutting edge for heavier chatter free cut. Deeper bore and more precise work.
- The same bar can bore flat bottom hole or face. Grind bar on cutting end for special tools such as grooving, threading. Or automatic operations.

ISOK20-For Cast iron

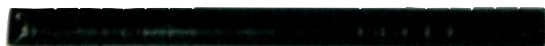
ISOP20-For Steel



"A" Shank Dia.	"B" Length	"C" Bore Depth	"D" Min. Bore	ISOK20 Model No	ISOP20 Model No	ISOK20 Model No	ISOP20 Model No	Stand Material
10mm	50.8	19	7.9	375-3012	375-3016	9Pcs Set	9Pcs Set	Wooden Plastic
10mm	60.3	28.5	7.9	375-3022	375-3026	375-3002	375-3006	
10mm	69.8	38.1	7.9	375-3032	375-3036	375-3102	375-3106	
10mm	55.5	23.8	9.5	375-3042	375-3046			
10mm	67.46	35.71	9.5	375-3052	375-3056			
10mm	79.3	47.6	9.5	375-3062	375-3066			
10mm	60.3	28.5	11.1	375-3072	375-3076			
10mm	100	42.8	11.1	375-3082	375-3086			
10mm	88.9	57.1	11.1	375-3092	375-3096			
12mm	57.1	19	7.9	375-3212	375-3216	9Pcs Set	9Pcs Set	Wooden Plastic
12mm	66.6	28.5	7.9	375-3222	375-3226	375-3202	375-3206	
12mm	76.2	38.1	7.9	375-3232	375-3236	375-3302	375-3306	
12mm	66.6	28.5	11.1	375-3242	375-3246			
12mm	80.9	42.8	11.1	375-3252	375-3256			
12mm	95.2	57.15	11.1	375-3262	375-3266			
12mm	76.2	38.1	13	375-3272	375-3276			
12mm	95.2	57.1	13	375-3282	375-3286			
12mm	114.3	76.2	13	375-3292	375-3296			
16mm	57.1	19	7.9	375-3412	375-3416	12Pcs	12Pcs	Wooden Plastic
16mm	66.6	28.5	7.9	375-3422	375-3426	375-3402	375-3406	
16mm	76.2	38.1	7.9	375-3432	375-3436	375-3532	375-3536	
16mm	66.6	28.5	11.1	375-3442	375-3446			
16mm	80.9	42.8	11.1	375-3452	375-3456			
16mm	95.2	57.1	11.1	375-3462	375-3466			
16mm	76.2	38.1	14.2	375-3472	375-3476			
16mm	95.2	57.1	14.2	375-3482	375-3486			
16mm	114.3	76.2	14.2	375-3492	375-3496			
16mm	85.7	47.6	17	375-3502	375-3506			
16mm	109.5	71.4	17	375-3512	375-3516			
16mm	133.3	95.2	17	375-3522	375-3526			
20mm	79.3	28.5	11.1	375-3612	375-3616	12Pcs	12Pcs	Wooden Plastic
20mm	93.6	42.8	11.1	375-3622	375-3626	375-3602	375-3606	
20mm	107.9	57.1	11.1	375-3632	375-3636	375-3732	375-3736	
20mm	88.9	38.1	14.2	375-3642	375-3646			
20mm	107.9	57.1	14.2	375-3652	375-3656			
20mm	127	76.2	14.2	375-3662	375-3666			
20mm	98.4	47.6	17.4	375-3672	375-3676			
20mm	122.2	71.4	17.4	375-3682	375-3686			
20mm	146	95.2	17.4	375-3692	375-3696			
20mm	107.9	57.1	20.6	375-3702	375-3706			
20mm	136.5	85.7	20.6	375-3712	375-3716			
20mm	165.1	114.3	20.6	375-3722	375-3726			

Boring Bar tools

DOUBLE END CALIBRATED BORING BARS



Diameter Of Bar	Overall Length	Tool Bit Size	Model No.
3/8	6"	3/16" round tool bits	378-4302
1/2	6"	3/16" square tool bits	378-4304
1/2	9"	3/16" square tool bits	378-4306
5/8	10"	3/16" square tool bits	378-4308
3/4	12"	1/4" square tool bits	378-4310
1	12"	1/4" square tool bits	378-4312
1-1/4	16"	3/8" square tool bits	378-4314
1-1/2	18"	3/8" square tool bits	378-4316

SINGLE END BORING BARS

45 & 90°



Model No. 378-4240

4pcs set (1/4, 3/8, 1/2, 5/8") 90 deg.

Model No. 378-4140

4pcs set (1/4, 3/8, 1/2, 5/8") 45 deg.



Diameter of Bar	Overall Length	Bit Size	45 Degree Model No.	90 Degree Model No.
1/4	2-1/2"	5/32" round tool bits	378-4102	378-4202
5/16	2-1/2"	3/16" round tool bits	378-4104	378-4204
3/8	3"	3/16" round tool bits	378-4106	378-4206
1/2	3"	3/16" square tool bits	378-4108	378-4208
9/16	4-12"	3/16" square tool bits	378-4110	378-4210
5/8	5"	1/4" square tool bits	378-4112	378-4212
3/4	6"	1/4" square tool bits	378-4114	378-4214
1"	6"	5/16" square tool bits	378-4116	378-4216
1"	6"	3/8" square tool bits	378-4118	378-4218
1-1/8	7"	7/16" square tool bits	378-4120	378-4220
1-1/4	8"	1/2" square tool bits	378-4122	378-4222
1-1/2	9"	1/2" square tool bits	378-4124	378-4224

DOUBLE END BORING BARS

45 & 90°



Model No. 378-4000

5-pc double end set (1/4, 3/8, 1/2, 5/8, 3/4, one of each)

Model No. 378-4001

5-pc double end set (3/8, 1/2, 5/8, 3/4, 1" one of each)

Model No. 378-4030

4pc set (1/2x6x1/4", 9/16x6-1/2x1/4", 5/8x10x1/4", 3/4x12x1/4")

Model No. 378-4031

4pcs set (1/4, 5/16, 3/8, 1/2")



Size	Tool Bit Size	Model No.
1/4x5"	5/32" round toolbits	378-4002
5/16x5"	3/16" round toolbits	378-4004
3/8x6"	3/16" round toolbits	378-4006
1/2x6"	3/16" square toolbits	378-4008
1/2x6"	1/4" square toolbits	378-4009
1/2x9"	1/4" square toolbits	378-4010
5/8x10"	1/4" square toolbits	378-4012
3/4x12"	1/4" square toolbits	378-4014
1x12"	1/4" square toolbits	378-4015
1x12"	5/16" square toolbits	378-4016
1-1/4x16"	1/2" square toolbits	378-4018
1-1/2x18"	1/2" square toolbits	378-4020
9/16x6-1/2"	1/4" square toolbits	378-4021

MINI BORE TOOLS AND SETS



All mini bore tools, carbide and HSS, fit any of the Mini Tools Holders

Shank Holder	Model No.
3/8	375-3001
1/2	375-3005
5/8	375-3003
3/4	375-3004

- Ease and precision in small hole boring
- All tools ground from the solid
- Holders are available in four standard shank sizes

Shank Dia.	Min bore Dia.	Max. bore Depth	OAL	C2 Grade Model No.	C6 Grade Model No.
1/4	1/16	5/16	2"	375-3201	375-3101
1/4	3/32	15/32	2"	375-3207	375-3107
1/4	1/8	5/8	2"	375-3203	375-3103
1/4	5/32	25/32	2"	375-3204	375-3104
1/4	3/16	15/16	2"	375-3205	375-3105
1/4	1/4	1-1/4	2"	375-3208	375-3108

Boring Bar tools

ULTRABOR ADJUSTABLE LENGTH BORING TOOLS



Ultrabore Holders

Shank Dia.	Hole Size	OAL	C6 Grade Model No.
3/8	3/32	2-1/2	379-0001
1/2	3/32	2-1/2	379-0002
5/8	3/32	2-1/2	379-0003
3/4	3/32	2-1/2	379-0004
3/8	1/8	2-1/2	379-1005
1/2	1/8	2-1/2	379-1006
5/8	1/8	2-1/2	379-1007
3/4	1/8	2-1/2	379-1008
1/2	3/16	3"	379-1009
5/8	3/16	3"	379-1010
3/4	3/16	3"	379-1011
1/2	1/4	3"	379-1012
5/8	1/4	3"	379-1013
3/4	1/4	3"	379-1014
1/2	5/16	3"	379-1015
5/8	5/16	3"	379-1016
3/4	5/16	3"	379-1017

Ultrabore's adjustable length allows use of only the neck length necessary... assuring maximum rigidity with finer finishes and straighter, truer holes... eliminating chatter and increasing tool life.

Available in five minimum bore sizes with a full range of holders, adaptable to any standard holder or boring head.

All holders are tool steel, hardened and ground for long, lifiting use.

STOCKED IN TWO GRADES:

C-2: General purpose for cast iron and non-ferrous materials

C-6: General purpose for steel and steel alloys

Ultrabore carbide boring tools

Shank Dia.	Min bore Dia.	OAL	C6 Grade Model No.	C2 Grade Model No.
3/32	1/8	2-5/8	379-2000	379-3000
1/8	3/16	2-11/16	379-2100	379-3100
3/16	1/4	3-1/4	379-2200	379-3200
1/4	3/8	3-3/8	379-2300	379-3300
5/16	1/2	3-3/4	379-2400	379-3400

BRAZED BORING BARS



HELPFUL HINT:

When boring and tools do not meet your expectations, simply grind 5-10 degrees positive top rake, radius nose .010" to .020" and lightly hone cutting edge

Shank Dia.	Length	Right Hand Model No.	Left hand Model No.
1/4	4"	379-4001	379-4101
5/16	5"	379-4003	379-4103
3/8	6"	379-4005	379-4105
1/2	7"	379-4007	379-4107
5/8	8"	379-4009	379-4109
3/4	9"	379-4011	379-4111
1"	10"	379-4013	379-4113

5-Pc.

Boring Bar Sets

Five Boring Bars

1/4", 3/8", 1/2", 5/8", & 3/4"

Right Hand Set

Model No. 379-4000

Left Hand Set

Model No. 389-4100

45° & 90° DOUBLE-END BORING BAR



Bar Size	Holder Size	Bit Size	Model No.
3/8x4-1/2	2-1/4x1-1/2	1/8	379-4200
9/16x6-3/4	3"x5/8	1/4	379-4205
3/4x9-1/4	3-3/4x7/8	5/16	379-4210
7/8x11-1/2	4-1/2x1-1/4	3/8	379-4215

MINI BORE TOOLS AND SETS

Include 45° and 90° angles

Made from tool seteel, with bright finish.

Supplied complete with screws and hex keys



Dia. of bar	Hold size Square	Tool bit size	OAL	Length	Model No.
3/8	1/2	1/8	4-1/2	2-1/4	261-1001
7/16	1/2	3/16	5-1/4	2-1/4	261-1003
9/16	5/8	1/4	6-3/4	3"	261-1005
3/4	7/8	5/16	9-1/4	3-3/4	261-1007
7/8	1-1/8	3/8	11-1/2	4-1/2	261-1009
1-1/8	1-1/2	7/16	13-1/2	5-1/4	261-1011
1-3/16	1-3/4	1/2	15-1/2	6"	261-1013

Cutter Tools

HOLE CUTTER SET

Set contains 1 piece each: 1/2", 5/8", 3/4", 1" with 1/2" Shanks
and 1/4" Pilot Drills
Supplied in wood block



Model No. 367-1690

HOLE CUTTERS

These Hole Cutters are recommended for use in hand held air or electric drill motors as light drill press applications in sheet metal, thin wall tubing, steel plate or any other larger diameter shallow hole cutting.

This tool centers quickly and is held securely in position after the pilot drill has entered the work piece. The cutter body then cuts a clean, burr-free hole faster than conventional twist drills or hole saws.

With normal care, tool life is significantly longer than other hole cutting tools. Inexpensive resharpening will allow repeated use.



		3/8" Shank
		3/16" Pilot
Size	No. of flute	Model No.
1/2	4	367-8032
9/16	4	367-8036
5/8	4	367-8040

		1/2" Shank
		1/4" Pilot
Size	No. of flute	Model No.
1/2	4	367-5032
9/16	4	367-5036
5/8	4	367-5040
11/16	4	367-5044
3/4	4	367-5048
13/16	4	367-5052
7/8	4	367-5056
29/32	4	367-5058

		1/2" Shank
		1/4" Pilot
Size	No. of flute	Model No.
15/16	5	367-5060
1"	5	367-5100
1-1/16	5	367-5104
1-1/8	5	367-5108
1-3/16	5	367-5112
1-1/4	5	367-5116
1-5/16	5	367-5120
1-3/8	5	367-5124
1-1/2	5	367-5132
1-5/8	6	367-5140
1-3/4	6	367-5148
1-7/8	6	367-5156
2"	6	367-5200

WOOD CUT-OFF BROACHES



Boring bar		
Shank	Length(mm)	Model No.
MT2	70,120,170	367-6002
MT3	70,120,170	367-6003

WOOD CUT-OFF TOOLS



Shank	Capacity	Model No.
1/4	7/8-4"	367-6101
3/8	1"-6"	367-6103
1/2	1-3/8-8"	367-6105

FLYING CUTTER SET



Model No. 367-6200

Each set including

Dia. of shank	Body size	Tool bit size	Model No.
10mm	14.5mm	625xmm	367-6201
10mm	19mm	830xmm	367-6203

FLY-TOOL CUTTER HOLDERS & SETS

STRAIGHT SHANK

Counter balanced tap get smoother finished. Hardened steel, machines up to 6" wide surface with stand tool bit. Tool bit replaces end mill and resharpening. Sets come complete with wooden stand.



Inch Size

Head Diameter	Shank Size	Tool Bit Size	Model No.	Sets Model No.
3/4"	1/2"	3/16"	225-3031	225-3030
1-1/8"	1/2"	1/4"	225-3032	
1-1/2"	1/2"	5/16"	225-3033	
1-1/2"	3/4"	5/16"	225-3041	225-3040
2"	3/4"	5/16"	225-3042	
2-1/2"	3/4"	5/16"	225-3043	

Metric Size

Head Diameter	Shank Size	Tool Bit Size	Model No.	Sets Model No.
19mm	12.7mm	4.7x27mm	225-3131	225-3130
27mm	12.7mm	6.3x27mm	225-3132	
35mm	12.7mm	8x40mm	225-3133	

Face Mills

90° CLAMP STYLE SQUARE SHOULDER FACE MILLS

Features:

- This 90° major cutting edge angle square shoulder milling cutter is fitted with strong 11° positive triangular inserts allowing high depth of cut and feed per tooth.
- The clamping system (screw) makes quick and easy insert mounting (indexing) and removal.

Inclination angle (axial) $\gamma_p = +6^\circ$ (except 1-3/4" $\gamma_p = 0^\circ$), rake angle (radial) $\gamma_f = +1^\circ$

SCREW		
USED	MODEL #	
MS6075	2995-0067	
MS810	2995-0081	

END MILLS

MODEL	CUTTER HOLE				No.OF FLUTES	INSERTS	SCREW	TIN	
	D	B	H	E				Model #	Model #
STP1-1/2	1-1/2	.50	1.57	.511	3	TP..322	MS6075	2524-0010	2524-1010
STP2	2	.75	1.57	.511	3	TP..322	MS6075	2524-0015	2524-1015
STP2-1/2	2-1/2	.75	1.57	.511	4	TP..322	MS6075	2524-0020	2524-1020
STP3	3	1.00	1.97	.511	5	TP..322	MS6075	2524-0025	2524-1025
STP4	4	1.50	1.97	.700	5	TP..432	MS810	2524-0030	2524-1030
STP5	5	1.50	2.48	.700	6	TP..432	MS810	2524-0035	2524-1035
STP6	6	2.00	2.48	.700	7	TP..432	MS810	2524-0040	2524-1040

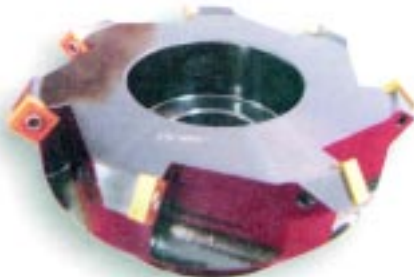
FACE MILLS

MODEL	CUTTER HOLE				No.OF FLUTES	INSERTS	SCREW	TIN	
	D	B	H	E				Model #	Model #
STP40	40	16	42	14.5	3	TP..1603	MS6075	2524-3015	2524-4015
STP50	50	22	45	14.5	4	TP..1603	MS6075	2524-3020	2524-4020
STP63	63	27	48	14.5	4	TP..1603	MS6075	2524-3025	2524-4025
STP80	80	27	48	14.5	5	TP..1603	MS6075	2524-3030	2524-4030
STP100	100	32	48	18	5	TP..2204	MS810	2524-3035	2524-4035
STP125	125	40	50	18	6	TP..2204	MS810	2524-3040	2524-4040
STP160	160	40	50	18	7	TP..2204	MS810	2524-3045	2524-4045

45° CARBIDE INDEXABLE FACE MILLS

Features:

- This positive cutter, 45° major cutting edge angle, is fitted with strong 7° positive square inserts.
- A Torx screw fastens the 3/16" thick insert which keeps the upper face free to allow a good chip flow and make the insert setting easy.



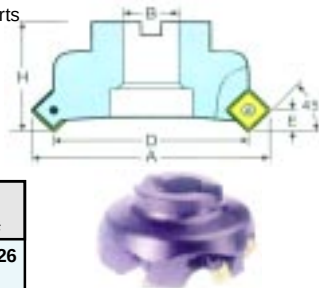
Features:

- The close pitch, super positive, 45° major cutting edge angle, milling cutter reduces cutting forces and permits high cutting speeds with limited power machines.
- The clamping system (screw + washer) allows a quick and easy insert mounting (indexing) and removal.
- Each insert pocket is optimized to reduce run-out which improves insert life and reduces noise level.
- The body is fitted with shims to protect it in case of insert breakage.
- 20° High Positive Square Inserts

Inserts SCREW
MODEL: CT095-2/1

Carbide inserts

TIN		
INSERTS	MODEL #	Model #
SEKN1203 (1203)	2151-0026	2151-1026



INCH

CUTTING BORE				No.OF		TIN	
D	B	H	A	E	Insert	INSERTS	Model #
2	3/4	1.57	2.46	.236	4	SCMT432	2510-0010
3	1	1.97	3.65	.236	6	SCMT432	2510-0012
3-1/2	1	1.97	4.00	.236	6	SCMT432	2510-0014
4	1-1/2	1.97	4.43	.236	6	SCMT432	2510-0016
5	1-1/2	2.48	5.42	.236	7	SCMT432	2510-0018

METRIC

CUTTING BORE				No.OF		TIN	
D	B	H	A	E	Insert	INSERTS	Model #
50	22	45	66	6	4	SCMT1204	2510-3010
63	27	50	79	6	5	SCMT1204	2510-3012
80	32	60	96	6	6	SCMT1204	2510-3014
100	40	70	116	6	7	SCMT1204	2510-3016

FACE MILLS

CUTTING BORE				No.OF		TIN	
D	B	H	A	E	FLUTES	INSERTS	Model #
2	.75	1.57	2.46	.236	4	SE..42	2525-0015
2-1/2	.75	1.57	2.98	.236	5	SE..42	2525-0020
3	1.00	1.97	3.65	.236	6	SE..42	2525-0025
4	1.50	1.97	4.43	.236	6	SE..42	2525-0030
5	1.50	2.48	5.42	.236	7	SE..42	2525-0035

FACE MILLS

CUTTING BORE				No.OF		TIN	
D	B	H	A	E	FLUTES	INSERTS	Model #
50	22	45	63	6	4	SE..1203	2525-3015
63	22	48	76	6	5	SE..1203	2525-3020
80	27	48	93	6	6	SE..1203	2525-3025
100	32	48	113	6	6	SE..1203	2525-3030
125	40	50	138	6	7	SE..1203	2525-3035
160	40	50	173	6	8	SE..1203	2525-3040

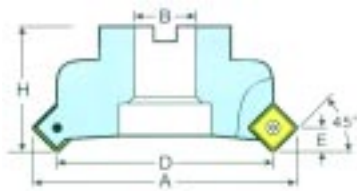
Face Mills

45° INDEXABLE FACE MILLS

Features:

- The close pitch, super positive, 45° major cutting edge angle, milling cutter reduces cutting forces and permits high cutting speeds with limited power machines.
- Each insert pocket is optimized to reduce run-out which improves insert life and reduces noise level.
- The 3/16" thick insert is set with a screw which keeps the upper face free to allow a good swarf flow and makes easy insert indexing.

Square Inserts-SEHT 432(SEHT 120408)
Model No. 2150-0018 (Tin-Coated: 2150-1018)



ICHN

CUTTING BORE					No.OF			
D	B	H	A	E	Insert	INSERTS	Model #	Model #
2	3/4	1.57	2.46	.236	4	SE..432	2511-0010	2511-1010
2-1/2	3/4	1.57	2.98	.236	5	SE..432	2511-0012	2511-1012
3	1	1.97	3.65	.236	6	SE..432	2511-0014	2511-1014
4	1-1/2	1.97	4.43	.236	6	SE..432	2511-0016	2511-1016
5	1-1/2	2.48	5.42	.236	7	SE..432	2511-0018	2511-1018

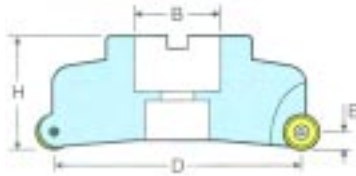
METRIC

CUTTING BORE					No.OF		TIN	
D	B	H	A	E	Insert	INSERTS	Model #	Model #
50	22	50	62	6	4	SE..1204	2511-3010	2511-4010
63	22	50	75	6	5	SE..1204	2511-3012	2511-4012
80	27	50	92	6	6	SE..1204	2511-3014	2511-4014
100	32	50	112	6	6	SE..1204	2511-3016	2511-4016

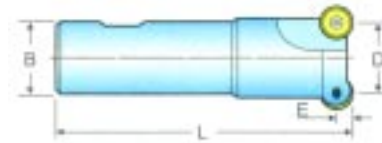
SCREW TYPE END MILLS & FACE MILLS

Features:

- This multi-purpose milling cutter is fitted with strong round 11° positive inserts allowing high depth of out. Compared to the body using 7° positive inserts, this cutter body has a bigger clearance during profiling operations.
- A Torx screw fastens the 3/16" thick insert which keeps the upper face free to allow a good chip flow and make the insert setting easy.
- Each pocket is optimized to reduce run-out which improves insert life and reduces noise level.



FACE MILLS



END MILLS

END MILLS

CUTTING BORE				No.OF		TIN	
D	B	L	E	FLUTES	INSERTS	Model #	Model #
1-1/4	1.25	6.00	.236	2	RC..43	2523-0010	2523-1010
1-1/2	1.50	6.25	.236	3	RC..43	2523-0012	2523-1012
2	2.00	4.00	.236	4	RC..43	2523-0014	2523-1014
25mm	25mm	96mm	6mm	2	RCMT1204	2523-0030	2523-1030
32mm	32mm	100mm	6mm	3	RCMT1204	2523-0032	2523-1032
40mm	32mm	110mm	6mm	4	RCMT1204	2523-0034	2523-1034

FACE MILLS

CUTTING BORE				No.OF		TIN	
D	B	H	E	FLUTES	INSERTS	Model #	Model #
2	.75	1.97	.236	4	RC..43	2523-3010	2523-4010
3	1.00	1.97	.236	6	RC..43	2523-3012	2523-4012
4	1.50	1.97	.236	7	RC..43	2523-3014	2523-4014
5	1.50	2.48	.236	7	RC..43	2523-3016	2523-4016
50mm	22mm	45mm	6mm	4	RCMT1204	2523-3032	2523-4032
63mm	27mm	50mm	6mm	5	RCMT1204	2523-3034	2523-4034
80mm	32mm	60mm	6mm	6	RCMT1204	2523-3036	2523-4036



Chucking Reamer

STRAIGHT SHANK CHUCKING REAMER

Wire Gage Sizes



Size	Model No.	Size	Model No.	Size	Model No.	Size	Model No.
No.1 1-1/2x6"	331-0201	No.16 1-1/8x4-1/2"	331-0216	No.31 7/8x3-1/2"	331-0231	No.46 3/4x3"	331-0246
No.2 1-1/2x6"	331-0202	No.17 1-1/8x4-1/2"	331-0217	No.32 7/8x3-1/2"	331-0232	No.47 3/4x3"	331-0247
No.3 1-1/4x5"	331-0203	No.18 1-1/8x4-1/2"	331-0218	No.33 7/8x3-1/2"	331-0233	No.48 3/4x3"	331-0248
No.4 1-1/4x5"	331-0204	No.19 1-1/8x4-1/2"	331-0219	No.34 7/8x3-1/2"	331-0234	No.49 3/4x3"	331-0249
No.5 1-1/4x5"	331-0205	No.20 1-1/8x4-1/2"	331-0220	No.35 7/8x3-1/2"	331-0235	No.50 3/4x3"	331-0250
No.6 1-1/4x5"	331-0206	No.21 1-1/8x4-1/2"	331-0221	No.36 7/8x3-1/2"	331-0236	No.51 3/4x3"	331-0251
No.7 1-1/4x5"	331-0207	No.22 1x4"	331-0222	No.37 7/8x3-1/2"	331-0237	No.52 1/2x2-1/2"	331-0252
No.8 1-1/4x5"	331-0208	No.23 1x4"	331-0223	No.38 7/8x3-1/2"	331-0238	No.53 1/2x2-1/2"	331-0253
No.9 1-1/4x5"	331-0209	No.24 1x4"	331-0224	No.39 7/8x3-1/2"	331-0239	No.54 1/2x2-1/2"	331-0254
No.10 1-1/4x5"	331-0210	No.25 1x4"	331-0225	No.40 7/8x3-1/2"	331-0240	No.55 1/2x2-1/2"	331-0255
No.11 1-1/4x5"	331-0211	No.26 1x4"	331-0226	No.41 7/8x3-1/2"	331-0241	No.56 1/2x2-1/2"	331-0256
No.12 1-1/8x4-1/2"	331-0212	No.27 1x4"	331-0227	No.42 3/4x3"	331-0242	No.57 1/2x2-1/2"	331-0257
No.13 1-1/8x4-1/2"	331-0213	No.28 1x4"	331-0228	No.43 3/4x3"	331-0243	No.58 1/2x2-1/2"	331-0258
No.14 1-1/8x4-1/2"	331-0214	No.29 1x4"	331-0229	No.44 3/4x3"	331-0244	No.59 1/2x2-1/2"	331-0259
No.15 1-1/8x4-1/2"	331-0215	No.30 7/8x3-1/2"	331-0230	No.45 3/4x3"	331-0245	No.60 1/2x2-1/2"	331-0260

Fractional Sizes

Size	Flute Length	Overall Length	Model No.	Size	Flute Length	Overall Length	Model No.	Size	Flute Length	Overall Length	Model No.
3/64"	1/2	2-1/2"	331-1003	29/64"	1-3/4	7"	331-1029	55/64"	2-5/8	9-1/2"	331-1055
1/16"	1/2	2-1/2"	331-1004	15/32"	1-3/4	7"	331-1030	7/8"	2-5/8	10"	331-1056
5/64"	3/4	3"	331-1005	31/64"	2	8"	331-1031	57/64"	2-5/8	10"	331-1057
3/32"	3/4	3"	331-1006	1/2"	2	8"	331-1032	29/32"	2-5/8	10"	331-1058
7/64"	7/8	3-1/2"	331-1007	33/64"	2	8"	331-1033	59/64"	2-5/8	10"	331-1059
1/8"	7/8	3-1/2"	331-1008	17/32"	2	8"	331-1034	15/16"	2-5/8	10"	331-1060
9/64"	1	4"	331-1009	35/64"	2	8"	331-1035	61/64"	2-5/8	10"	331-1061
5/32"	1	4"	331-1010	9/16"	2	8"	331-1036	31/32"	2-5/8	10"	331-1062
11/64"	1-1/8	4-1/2"	331-1011	37/64"	2	8"	331-1037	63/64"	2-3/4	10"	331-1063
3/16"	1-1/8	4-1/2"	331-1012	19/32"	2	8"	331-1038	1"	2-3/4	10-1/2"	331-1100
13/64"	1-1/4	5"	331-1013	39/64"	2-1/4	9"	331-1039	1-1/32"	2-3/4	10-1/2"	331-1102
7/32"	1-1/4	5"	331-1014	5/8"	2-1/4	9"	331-1040	1-1/16"	2-3/4	10-1/2"	331-1104
15/64"	1-1/2	6"	331-1015	41/64"	2-1/4	9"	331-1041	1-3/32"	2-7/8	10-1/2"	331-1106
1/4"	1-1/2	6"	331-1016	21/32"	2-1/4	9"	331-1042	1-1/8"	2-7/8	11"	331-1108
17/64"	1-1/2	6"	331-1017	43/64"	2-1/4	9"	331-1043	1-5/32"	2-7/8	11"	331-1110
9/32"	1-1/2	6"	331-1018	11/16"	2-1/4	9"	331-1044	1-3/16"	2-7/8	11"	331-1112
19/64"	1-1/2	6"	331-1019	45/64"	2-1/4	9"	331-1045	1-7/32"	2-7/8	11"	331-1114
5/16"	1-1/2	6"	331-1020	23/32"	2-1/4	9"	331-1046	1-1/4"	3	11-1/2"	331-1116
21/64"	1-1/2	6"	331-1021	47/64"	2-1/2	9-1/2"	331-1047	1-5/16"	3	11-1/2"	331-1120
11/32"	1-1/2	6"	331-1022	3/4"	2-1/2	9-1/2"	331-1048	1-3/8"	3-1/4	12"	331-1124
23/64"	1-3/4	7"	331-1023	49/64"	2-1/2	9-1/2"	331-1049	1-7/16"	3-1/2	12-1/2"	331-1128
3/8"	1-3/4	7"	331-1024	25/32"	2-1/2	9-1/2"	331-1050	1-1/2"	3-1/2	12-1/2"	331-1132
25/64"	1-3/4	7"	331-1025	51/64"	2-1/2	9-1/2"	331-1051	1-9/16"	3-1/2	12-1/2"	331-1136
13/32"	1-3/4	7"	331-1026	13/16"	2-1/2	9-1/2"	331-1052	1-5/8"	3-1/2	13"	331-1140
27/64"	1-3/4	7"	331-1027	53/64"	2-1/2	9-1/2"	331-1053	1-11/16"	3-1/2	13"	331-1144
7/16"	1-3/4	7"	331-1028	27/32"	2-1/2	9-1/2"	331-1054	1-3/4"	4	13-1/2"	331-1148
								1-7/8"	4	14"	331-1156
								2"	4	14"	331-1200

Letter Sizes

Size	Flute Length	Overall Length	Model No.	Size	Flute Length	Overall Length	Model No.	Size	Flute Length	Overall Length	Model No.
A	1-1/2	6"	331-0001	J	1-1/2	6"	331-0010	S	1-3/4	7"	331-0019
B	1-1/2	6"	331-0002	K	1-1/2	6"	331-0011	T	1-3/4	7"	331-0020
C	1-1/2	6"	331-0003	L	1-1/2	6"	331-0012	U	1-3/4	7"	331-0021
D	1-1/2	6"	331-0004	M	1-1/2	6"	331-0013	V	1-3/4	7"	331-0022
E	1-1/2	6"	331-0005	N	1-1/2	6"	331-0014	W	1-3/4	7"	331-0023
F	1-1/2	6"	331-0006	O	1-1/2	6"	331-0015	X	1-3/4	7"	331-0024
G	1-1/2	6"	331-0007	P	1-1/2	6"	331-0016	Y	1-3/4	7"	331-0025
H	1-1/2	6"	331-0008	Q	1-1/2	6"	331-0017	Z	1-3/4	7"	331-0026
I	1-1/2	6"	331-0009	R	1-1/2	6"	331-0018				

Chucking Reamer

STRAIGHT SHANK CHUCKING REAMER

Decimal Sizes

Size	Decimal Equiv.	Flute Length	Overall Length	No. Of Flute	Model No.	Size	Decimal Equiv.	Flute Length	Overall Length	No. Of Flute	Model No.
.1230DP	.1230	7/8	3-1/2"	4	331-7005	.3740	.3740	1-3/4	7"	6	331-7090
.1240	.1240	7/8	3-1/2"	4	331-7010	.3745DP	.3745	1-3/4	7"	6	331-7095
.1247DP	.1247	7/8	3-1/2"	4	331-7015	.3760	.3760	1-3/4	7"	6	331-7100
.1260	.1260	7/8	3-1/2"	4	331-7020	.4355DP	.4355	1-3/4	7"	6	331-7105
.1855DP	.1855	1-1/8	4-1/2"	6	331-7025	.4365	.4365	1-3/4	7"	6	331-7110
.1865	.1865	1-1/8	4-1/2"	6	331-7030	.4370DP	.4370	1-3/4	7"	6	331-7115
.1870DP	.1870	1-1/8	4-1/2"	6	331-7035	.4385	.4385	1-3/4	7"	6	331-7120
.1885	.1885	1-1/8	4-1/2"	6	331-7040	.4980DP	.4980	2	8"	6	331-7125
.2480DP	.2480	1-1/2	6"	6	331-7045	.4990	.4990	2	8"	6	331-7130
.2490	.2490	1-1/2	6"	6	331-7050	.4995DP	.4995	2	8"	6	331-7135
.2495DP	.2495	1-1/2	6"	6	331-7055	.5010	.5010	2	8"	6	331-7140
.2510	.2510	1-1/2	6"	6	331-7060	.6240	.6240	2-1/4	9"	6	331-7150
.3105DP	.3105	1-1/2	6"	6	331-7065	.6260	.6260	2-1/4	9"	8	331-7160
.3115	.3115	1-1/2	6"	6	331-7070	.7490	.7490	2-1/4	9"	8	331-7170
.3120DP	.3120	1-1/2	6"	6	331-7075	.7510	.7510	2-1/2	9-1/2"	8	331-7180
.3135	.3135	1-1/2	6"	6	331-7080	.8740	.8740	2-1/2	9-1/2"	8	331-7190
.3730DP	.3730	1-3/4	7"	6	331-7085	.8760	.8760	2-5/8	10"	8	331-7200

STRAIGHT SHANK CHUCKING REAMER SETS



1/16" to 1/2" by 64th 29 piece

Model No. 331-1000

A to Z 26 piece

Model No. 331-0000

No.1-60 60piece

Model No. 331-0200

1/8 to 1/2 14 piece

Include 1/8,3/16,1/4,5/16,3/8,7/16,1/2

Model No. 331-1001

SPIRAL FLUTE CHUCKING REAMERS

- Right hand spiral-right hand cut
- Use for difficult-to-reamer materials
- Best choice for interrupted cuts such as keyway or cross holes
- Provides better surface finish than straight flute reamers
- Spiral flutes pull chips away from parts, providing excellent chip removal, especially in blind holes

Size	Decimal Equiv.	Flute Length	Overall Length	No. Of Flute	Model No.	Size	Decimal Equiv.	Flute Length	Overall Length	No. Of Flute	Model No.
1/8	.1250"	7/8	3-1/2"	4	331-0302	35/64	.5469"	2"	8"	6	331-0356
9/64	.1406	7/8	4"	4	331-0304	9/16	.5625	2"	8"	6	331-0358
5/32	.1562	7/8	4"	4	331-0306	37/64	.5781	2"	8"	6	331-0360
11/64	.1719	7/8	4-1/2"	6	331-0308	19/32	.5938	2"	8"	6	331-0362
3/16	.1875	1-1/8	4-1/2"	6	331-0310	39/64	.6094	2-1/4	9"	8	331-0364
13/64	.2031	1-1/8	5"	6	331-0312	5/8	.6250	2-1/4	9"	8	331-0366
7/32	.2188	1-1/8	5"	6	331-0314	41/64	.6406	2-1/4	9"	8	331-0368
15/64	.2344	1-1/8	6"	6	331-0316	21/32	.6562	2-1/4	9"	8	331-0370
1/4	.2500	1-1/2	6"	6	331-0318	11/16	.6875	2-1/4	9"	8	331-0372
17/64	.2656	1-1/2	6"	6	331-0320	23/32	.7188	2-1/4	9"	8	331-0374
9/32	.2812	1-1/2	6"	6	331-0322	3/4	.7500	2-1/2	9-1/2"	8	331-0376
19/64	.2969	1-1/2	6"	6	331-0324	25/32	.7812	2-1/2	9-1/2"	8	331-0378
5/16	.3125	1-1/2	6"	6	331-0326	13/16	.8125	2-1/2	9-1/2"	8	331-0380
21/64	.3281	1-1/2	6"	6	331-0328	27/32	.8438	2-1/2	9-1/2"	8	331-0382
11/32	.3438	1-1/2	6"	6	331-0330	7/8	.8750	2-5/8	10"	8	331-0384
23/64	.3594	1-1/2	7"	6	331-0332	29/32	.9062	2-5/8	10"	8	331-0386
3/8	.3750	1-3/4	7"	6	331-0334	15/16	.9375	2-5/8	10"	8	331-0388
25/64	.3906	1-3/4	7"	6	331-0336	31/32	.9688	2-5/8	10"	8	331-0390
13/32	.4062	1-3/4	7"	6	331-0338	1"	1.0000	2-3/4	10-1/2"	8	331-0392
27/64	.4219	1-3/4	7"	6	331-0340	1-1/16	1.0625	2-3/4	10-1/2"	10	331-0394
7/16	.3745	1-3/4	7"	6	331-0342	1-1/8	1.1250	2-7/8	11"	10	331-0396
29/64	.4531	1-3/4	7"	6	331-0344	1-3/16	1.1875	2-7/8	11"	10	331-0398
15/32	.4688	1-3/4	7"	6	331-0346	1-1/4	1.2500	3"	11-1/2"	10	331-0400
31/64	.4844	2"	8"	6	331-0348	1-5/16	1.3125	3-1/4	12"	10	331-0402
1/2	.5000	2"	8"	6	331-0350	1-3/8	1.3750	3-1/4	12"	12	331-0404
33/64	.5156	2"	8"	6	331-0352	1-7/16	1.4375	3-1/2	12-1/2"	12	331-0406
17/32	.5312	2"	8"	6	331-0354	1-1/2	1.5000	3-1/2	12-1/2"	12	331-0408

Chucking Reamer

METRIC CHUCKING REAMERS

DIN212/A, Straight Flute, Straight Shank
High Speed Steel



Size(mm)	Flute Length	Overall Length	Shank Dia.	No. Of Flute	Model No.	Size(mm)	Flute Length	Overall Length	Shank Dia.	No. Of Flute	Model No.
1.0	8	30	2	4	331-0502	13.5	44	151	10	6	331-0556
1.5	8	30	2	4	331-0504	14.0	47	160	12.5	6	331-0558
2.0	11	49	2	4	331-0506	14.5	50	162	12.5	6	331-0560
2.5	14	57	2.5	4	331-0508	15.0	50	162	12.5	6	331-0562
3.0	15	61	3	6	331-0510	15.5	52	170	12.5	8	331-0564
3.5	18	70	3.5	6	331-0512	16.0	52	170	12.5	8	331-0566
4.0	19	75	4	6	331-0514	16.5	54	175	14	8	331-0568
4.5	21	80	4.5	6	331-0516	17.0	54	175	14	8	331-0570
5.0	23	86	5	6	331-0518	17.5	56	182	14	8	331-0572
5.5	26	93	5.6	6	331-0520	18.0	56	182	14	8	331-0574
6.0	26	93	5.6	6	331-0522	18.5	58	189	16	8	331-0576
6.5	28	101	6.3	6	331-0524	19.0	58	189	16	8	331-0578
7.0	31	109	7.1	6	331-0526	19.5	60	195	16	8	331-0580
7.5	31	109	7.1	6	331-0528	20.0	60	195	16	8	331-0582
8.0	33	117	8	6	331-0530	20.5	60	215	18	8	331-0584
8.5	33	117	8	6	331-0532	21.0	60	215	18	8	331-0586
9.0	36	125	9	6	331-0534	21.5	60	225	18	8	331-0588
9.5	36	125	9	6	331-0536	22.0	60	225	18	8	331-0590
10.0	38	133	10	6	331-0538	22.5	60	230	18	8	331-0592
10.5	38	133	10	6	331-0540	23.0	60	230	18	8	331-0594
11.0	41	142	10	6	331-0542	23.5	60	240	20	8	331-0596
11.5	41	142	10	6	331-0544	24.0	60	240	20	8	331-0598
12.0	44	151	10	6	331-0546	24.5	60	245	20	8	331-0600
12.5	44	151	10	6	331-0548	25.0	60	245	20	8	331-0602
13.0	44	151	10	6	331-0550						

TAPER SHANK CHUCKING REAMERS

Straight Flute/Spiral Fluted

High Speed Steel



Size	M.T. Taper Shank	Flute Length	Overall Length	Model No.	
				Straight Flute	Spiral Flute
1/4	1	1-1/2	6"	331-2400	331-2401
9/32	1	1-1/2	6"	331-2402	331-2403
5/16	1	1-1/2	6"	331-2404	331-2405
11/32	1	1-1/2	6"	331-2406	331-2407
3/8	1	1-3/4	7"	331-2408	331-2409
13/32	1	1-3/4	7"	331-2410	331-2411
7/16	1	1-3/4	7"	331-2412	331-2413
15/32	1	1-3/4	7"	331-2414	331-2415
1/2	1	2	8"	331-2416	331-2417
17/32	1	2	8"	331-2418	331-2419
9/16	1	2	8"	331-2420	331-2421
19/32	1	2	8"	331-2422	331-2423
5/8	2	2-1/4	9"	331-2424	331-2425
21/32	2	2-1/4	9"	331-2426	331-2427
11/16	2	2-1/4	9"	331-2428	331-2429

Size	M.T. Taper Shank	Flute Length	Overall Length	Model No.	
				Straight Flute	Spiral Flute
23/32	2	2-1/4	9"	331-2430	331-2431
3/4	2	2-1/2	9-1/2	331-2432	331-2433
25/32	2	2-1/2	9-1/2	331-2434	331-2435
13/16	2	2-1/2	9-1/2	331-2436	331-2437
27/32	2	2-1/2	9-1/2	331-2438	331-2439
7/8	2	2-5/8	10"	331-2440	331-2441
29/32	2	2-5/8	10"	331-2442	331-2443
15/16	3	2-5/8	10"	331-2444	331-2445
31/32	3	2-5/8	10"	331-2446	331-2447
1	3	2-3/4	10-1/2	331-2448	331-2449
1-1/32	3	2-3/4	10-1/2	331-2450	331-2451
1-1/16	3	2-3/4	10-1/2	331-2452	331-2453
1-1/8	3	2-7/8	11"	331-2454	331-2455
1-3/16	3	2-7/8	11"	331-2456	331-2457
1-1/4	4	3	11-1/2	331-2458	331-2459
1-5/16	4	3	11-1/2	331-2460	331-2461
1-3/8	4	3-1/4	12"	331-2462	331-2463
1-7/16	4	3-1/4	12"	331-2464	331-2465
1-1/2	4	3-1/2	12-1/2	331-2466	331-2467
1-9/16	4	3-1/2	12-1/2	331-2468	331-2469
1-5/8	4	3-1/2	13"	331-2470	331-2471
1-11/16	4	4	13-1/2	331-2472	331-2473
1-3/4	4	4	13-1/2	331-2474	331-2475
2	4	4	14-1/2	331-2476	331-2477

Chucking Reamer

METRIC TAPER SHANK CHUCKING REAMERS

DIN208/A, H.S.S, Straight Flute



Size (mm)	M.T. Taper Shank	Flute Length (mm)	Overall Length (mm)	Model No.
5	1	23	133	331-0701
6	1	26	138	331-0703
7	1	31	150	331-0705
8	1	33	156	331-0707
9	1	36	162	331-0709
10	1	38	168	331-0711
11	1	41	175	331-0713
12	1	44	185	331-0715
13	1	44	182	331-0717
14	1	47	189	331-0719
15	2	50	204	331-0721
16	2	52	210	331-0723
17	2	54	214	331-0725
18	2	56	219	331-0727
19	2	58	223	331-0729
20	2	60	228	331-0731
21	2	62	232	331-0733
22	2	64	237	331-0735

Size (mm)	M.T. Taper Shank	Flute Length (mm)	Overall Length (mm)	Model No.
23	2	66	241	331-0737
24	3	68	268	331-0739
25	3	68	268	331-0741
26	3	70	273	331-0743
27	3	71	277	331-0745
28	3	71	277	331-0747
29	3	73	281	331-0749
30	3	73	281	331-0751
31	3	75	285	331-0753
32	4	77	317	331-0755
33	4	77	317	331-0757
34	4	78	321	331-0759
35	4	78	321	331-0761
36	4	79	325	331-0763
37	4	79	325	331-0765
38	4	81	329	331-0767
40	4	81	329	331-0769

TAPER SHANK JOBBERS LENGTH REAMERS

Straight Flute

High Speed Steel



Size	M.T. Shank	Flute Length	Overall Length	Model No.
1/4	1	2	5-3/16	331-2600
9/32	1	2	5-3/16	331-2602
5/16	1	2-1/4	5-1/2	331-2604
11/32	1	2-1/4	5-1/2	331-2606
3/8	1	2-1/2	5-13/16	331-2608
13/32	1	2-1/2	5-13/16	331-2610
7/16	1	2-3/4	6-1/8	331-2612
15/32	1	2-3/4	6-1/8	331-2614
1/2	1	3	6-7/16	331-2616
17/32	1	3	6-7/16	331-2618
9/16	1	3-1/4	6-3/4	331-2620
19/32	1	3-1/4	6-3/4	331-2622
5/8	2	3-1/2	7-9/16	331-2624
21/32	2	3-1/2	7-9/16	331-2626
11/16	2	3-7/8	8	331-2628

Size	M.T. Shank	Flute Length	Overall Length	Model No.
23/32	2	3-7/8	8	331-2630
3/4	2	4-3/16	8-3/8	331-2632
13/16	2	4-9/16	8-13/16	331-2634
7/8	2	4-7/8	9-3/16	331-2636
15/16	3	5-1/8	10	331-2638
1	3	5-7/16	10-3/8	331-2640
1-1/16	3	5-5/8	10-5/8	331-2642
1-1/8	3	5-13/16	10-7/8	331-2644
1-3/16	3	6	11-1/8	331-2646
1-1/4	4	6-1/8	12-9/16	331-2648
1-5/16	4	6-1/4	12-11/16	331-2650
1-3/8	4	6-5/16	12-13/16	331-2652
1-7/16	4	6-7/16	13	331-2654
1-1/2	4	6-1/2	13-1/8	331-2656

MORSE TAPER HAND REAMERS

Straight Shank, High Speed Steel



Size	Diameter		Shank	Flute Length	Overall Length	Model No.	
	Small End	Large End				Roughing	Finishing
0	.2503	.3673	5/16	2-1/4	3-3/4	331-2800	331-2801
1	.3674	.5170	7/16	3	5	331-2802	331-2803
2	.5696	.7444	5/8	3-1/2	6	331-2804	331-2805
3	.7748	.9881	7/8	4-1/4	7-1/4	331-2806	331-2807
4	1.0167	1.2893	1-1/4	5-1/4	8-1/4	331-2808	331-2809
5	1.4717	1.8005	1-1/2	6-1/4	9-3/4	331-2810	331-2811
6	2.1120	2.5550	2	8-1/2	12-1/4	331-2812	331-2813

MORSE TAPER MACHINE REAMERS

Taper Shank, High Speed Steel



Size	Diameter		Flute Length	Overall Length	Model No.	
	Small End	Large End			Roughing	Finishing
0	.2503	.3673	2-1/4	5-11/32	331-2900	331-2901
1	.3674	.5170	3	6-5/16	331-2902	331-2903
2	.5696	.7444	3-1/2	7-3/8	331-2904	331-2905
3	.7748	.9881	4-1/4	8-7/8	331-2906	331-2907
4	1.0167	1.2893	5-1/4	10-7/8	331-2928	331-2909
5	1.4717	1.8005	6-1/4	13-1/4	331-2910	331-2911
6	2.1120	2.5550	8-1/2	17-13/16	331-2912	331-2913

Chucking Reamer

TAPER SHANK BRIDGE REAMERS

High Speed Steel

- Featured two flute type: straight and spiral flute
- Spiral flute reamers with left hand spiral flute and right hand cut



Size	M.T. Taper Shank	Flute Length	Overall Length	Model No.	
				Straight Flute	Spiral Flute
7/64	1	2-3/4	5-1/2	331-3301	331-3401
19/64	1	2"	5-1/4	331-3302	331-3402
5/16	1	4-3/8	8-1/4	331-3303	331-3403
11/32	2	4"	7-1/4	331-3304	331-3404
3/8	2	4-3/8	8-1/4	331-3305	331-3405
13/32	2	4-3/8	8-1/4	331-3306	331-3406
27/64	2	4-3/8	8-1/4	331-3307	331-3407
7/16	2	4-3/8	8-1/4	331-3308	331-3408
15/32	2	5-1/8	9"	331-3309	331-3409
1/2	2	5-1/8	9"	331-3310	331-3410
17/32	2	5-1/8	9"	331-3311	331-3411
9/16	2	5-1/8	9"	331-3312	331-3412
19/32	2	6-1/8	10-7/8	331-3313	331-3413
5/8	2	6-1/8	10"	331-3314	331-3414
21/32	2	7"	12"	331-3315	331-3415
11/16	2	7-1/8	11-3/4	331-3316	331-3416
11/16	3	7-1/8	11-3/4	331-3317	331-3417
23/32	3	7-1/8	11-3/4	331-3318	331-3418
3/4	3	7-3/8	12"	331-3319	331-3419
25/32	3	7-3/8	12"	331-3320	331-3420
13/16	3	7-3/8	12"	331-3321	331-3421
7/8	3	7-3/8	12"	331-3322	331-3422

Size	M.T. Taper Shank	Flute Length	Overall Length	Model No.	
				Straight Flute	Spiral Flute
15/16	3	7-3/8	12"	331-3323	331-3423
1"	3	7-3/8	12"	331-3324	331-3424
1-1/32	3	7-1/2	12-1/14	331-3325	331-3425
1-1/16	3	7-3/8	12"	331-3326	331-3426
1-3/32	3	6-13/16	11-1/2	331-3327	331-3427
1-1/8	3	7-3/8	12"	331-3328	331-3428
1-5/32	3	7-1/2	11-1/2	331-3329	331-3429
1-3/16	3	7-3/8	12"	331-3330	331-3430
1-1/4	4	7-3/8	13"	331-3331	331-3431
1-5/16	4	7-3/8	13"	331-3332	331-3432
1-3/8	4	7-3/8	13"	331-3333	331-3433
1-7/16	4	6-7/8	13"	331-3334	331-3434
1-15/32	4	7-3/8	13"	331-3335	331-3435
1-1/2	4	7-3/8	13"	331-3336	331-3436
1-9/16	4	7-3/8	13"	331-3337	331-3437
1-5/8	4	7-3/8	13"	331-3338	331-3438
1-11/16	4	7-3/8	13"	331-3339	331-3439
1-3/4	4	7-3/8	13"	331-3340	331-3440
1-13/16	4	7-3/8	13"	331-3341	331-3441
1-7/8	4	7-3/8	13"	331-3342	331-3442
1-15/16	4	7-3/8	13"	331-3343	331-3443
2"	4	7-3/8	13"	331-3344	331-3444

METRIC TAPER SHANK BRIDGE REAMERS

High Speed Steel, Spiral Flute



Size (mm)	M.T. Taper Shank	Flute Length (mm)	Overall Length (mm)	Model No.
6.4	1	75	151	331-3601
7.4	1	80	156	331-3602
8	1	85	161	331-3603
8.4	1	85	161	331-3604
9	1	90	166	331-3605
9.5	1	90	166	331-3606
10	1	95	171	331-3607
11	1	100	176	331-3608
12	2	105	199	331-3609
13	2	105	199	331-3610
14	2	115	209	331-3611
15	2	125	219	331-3612
16	2	135	229	331-3613
17	3	135	251	331-3614
18	3	145	261	331-3615
19	3	145	261	331-3616
20	3	155	271	331-3617
21	3	155	271	331-3618
22	3	165	281	331-3619

Size (mm)	M.T. Taper Shank	Flute Length (mm)	Overall Length (mm)	Model No.
23	3	165	281	331-3620
24	3	180	296	331-3621
25	3	180	296	331-3622
26	3	180	296	331-3623
27	3	195	311	331-3624
28	3	195	311	331-3625
29	3	195	311	331-3626
30	3	195	311	331-3627
31	3	210	326	331-3628
32	4	210	354	331-3629
33	4	210	354	331-3630
34	4	220	364	331-3631
35	4	220	364	331-3632
36	4	220	364	331-3633
37	4	220	364	331-3634
38	4	230	374	331-3635
39	4	230	374	331-3636
40	4	230	374	331-3637

Chucking Reamer

HAND REAMERS

High Speed Steel, Right hand, Spiral & Straight Flute, Straight Shank

- Straight flute for most jobs
- Spiral flute for holes with keyways or other interruptions



Size	Flute Length	Overall Length	Model No.	
			Straight Flute	Spiral Flute
1/8	1-1/2	3"	331-3701	331-3801
9/64	1-5/8	3-1/4	331-3702	331-3802
5/32	1-5/8	3-1/4	331-3703	331-3803
11/64	1-3/4	3-1/2	331-3704	331-3804
3/16	1-3/4	3-1/2	331-3705	331-3805
7/32	1-7/8	3-3/4	331-3706	331-3806
1/4	2"	4"	331-3707	331-3807
9/32	2-1/8	4-1/4	331-3708	331-3808
5/16	2-1/4	4-1/2	331-3709	331-3809
11/32	2-3/8	4-3/4	331-3710	331-3810
3/8	2-1/2	5"	331-3711	331-3811
25/64	2-1/2	4-3/4	331-3712	331-3812
13/32	2-5/8	5-1/4	331-3713	331-3813
7/16	2-3/4	5-1/2	331-3714	331-3814
15/32	2-7/8	5-3/4	331-3715	331-3815
31/64	3"	6"	331-3716	331-3816
1/2	3"	6"	331-3717	331-3817
17/32	3-1/8	6-1/4	331-3718	331-3818
9/16	3-1/4	6-1/2	331-3719	331-3819
19/32	3-3/8	6-3/4	331-3720	331-3820
5/8	3-1/2	7"	331-3721	331-3821

Size	Flute Length	Overall Length	Model No.	
			Straight Flute	Spiral Flute
21/32	3-11/16	7-3/8	331-3722	331-3822
11/16	3-7/8	7-3/4	331-3723	331-3823
23/32	4-1/16	8-1/8	331-3724	331-3824
3/4	4-3/16	8-3/8	331-3725	331-3825
25/32	4-3/8	8-3/4	331-3726	331-3826
13/16	4-9/16	9-1/8	331-3727	331-3827
27/32	4-11/16	9-3/8	331-3728	331-3828
7/8	4-7/8	9-3/4	331-3729	331-3829
29/32	5"	10"	331-3730	331-3830
15/16	5-1/8	10-1/4	331-3731	331-3831
31/32	5-5/16	10-5/8	331-3732	331-3832
1"	5-7/16	10-7/8	331-3733	331-3833
1-1/16	5-5/8	11-1/4	331-3734	331-3834
1-1/8	5-13/16	11-5/8	331-3735	331-3835
1-3/16	6"	12"	331-3736	331-3836
1-1/4	6-1/8	12-1/4	331-3737	331-3837
1-5/16	6-1/4	12-1/2	331-3738	331-3838
1-3/8	6-5/16	12-5/8	331-3739	331-3839
1-7/16	6-7/16	12-7/8	331-3740	331-3840
1-1/2	6-1/2	13"	331-3741	331-3841

METRIC HAND REAMERS

DIN 206A & 206B

High Speed Steel, Right hand, Spiral & Straight Flute, Straight Shank



Size (mm)	Flute Length (mm)	Overall Length (mm)	Model No.	
			DIN206/A Straight Flute	DIN206/B Spiral Flute
3.0	31	62	331-4401	331-4501
3.2	33	66	331-4402	331-4502
3.5	35	71	331-4403	331-4503
4.0	38	76	331-4404	331-4504
4.5	41	81	331-4405	331-4505
5.0	44	87	331-4406	331-4506
5.5	47	93	331-4407	331-4507
6.0	47	93	331-4408	331-4508
6.5	50	100	331-4409	331-4509
7.0	54	107	331-4410	331-4510
7.5	54	107	331-4411	331-4511
8.0	58	115	331-4412	331-4512
8.5	58	115	331-4413	331-4513
9.0	62	124	331-4414	331-4514
9.5	62	124	331-4415	331-4515
10.0	66	133	331-4416	331-4516
10.5	66	133	331-4417	331-4517
11.0	71	142	331-4418	331-4518

Size (mm)	Flute Length (mm)	Overall Length (mm)	Model No.	
			DIN206/A Straight Flute	DIN206/B Spiral Flute
11.5	71	142	331-4419	331-4519
12.0	76	152	331-4420	331-4520
12.5	76	152	331-4421	331-4521
13.0	76	152	331-4422	331-4522
13.5	81	163	331-4423	331-4523
14.0	81	163	331-4424	331-4524
14.5	81	163	331-4425	331-4525
15.0	81	163	331-4426	331-4526
15.5	87	175	331-4427	331-4527
16.0	87	175	331-4428	331-4528
16.5	87	175	331-4429	331-4529
17.0	87	175	331-4430	331-4530
17.5	93	188	331-4431	331-4531
18.0	93	188	331-4432	331-4532
18.5	93	188	331-4433	331-4533
19.0	93	188	331-4434	331-4534
19.5	100	201	331-4435	331-4535
20.0	100	201	331-4436	331-4536

HEX SHANK TAPER CAR REAMERS

High Speed Steel, 5 Flute, Left Hand Spiral, Right Hand Cut

Size	Hex Shank Size	Flute Length	Overall Length	Model No.
11/16	1-1/16	4-1/2	6-1/2	331-4601
13/16	1-1/4	5"	7"	331-4602
15/16	1-7/16	5"	7"	331-4603
1-1/16	1-5/8	5"	7"	331-4604



Chucking Reamer

TAPER CAR REAMERS



Taper Shank

Size	Shank Taper	Flute Length	Overall Length	Model No.
5/16	MT1	2-3/4	5-11/16	331-4701
3/8	MT1	2-3/4	5-11/16	331-4702
7/16	MT2	3-1/2	6-15/16	331-4703
1/2	MT2	4"	7-9/16	331-4704
9/16	MT2	4"	7-9/16	331-4705
5/8	MT2	4-1/2	8-1/16	331-4706
11/16	MT3	4-1/2	8-13/16	331-4707
3/4	MT3	5"	9-1/2	331-4708
13/16	MT3	5"	9-1/2	331-4709
15/16	MT3	5"	9-1/2	331-4710
1"	MT3	5"	9-1/2	331-4711
1-1/16	MT3	5"	9-1/2	331-4712



3 Equal-Flat Straight Shank

Size	Flute Length	Overall Length	Shank Dia.	Shank Length	Model No.
5/16	2-3/4	4-5/8	5/16	1-1/2	331-4801
3/8	2-3/4	4-5/8	3/8	1-1/2	331-4802
7/16	3-1/2	5-3/8	7/16	1-1/2	331-4803
1/2	4"	5-7/8	1/2	1-1/2	331-4804
9/16	4"	5-7/8	1/2	1-1/2	331-4805
5/8	4-1/2	6-3/8	1/2	1-1/2	331-4806
11/16	4-1/2	6-3/8	1/2	1-1/2	331-4807
3/4	5"	6-7/8	1/2	1-1/2	331-4808
13/16	5"	6-7/8	1/2	1-1/2	331-4809
7/8	5"	6-7/8	1/2	1-1/2	331-4810
15/16	5"	6-7/8	1/2	1-1/2	331-4811
1"	5"	6-7/8	1/2	1-1/2	331-4812
1-1/16	5"	6-7/8	1/2	1-1/2	331-4813

EXPANSION CHUCKING REAMERS

High Speed Steel / Straight Flute

Taper Shank



Size	M.T. Taper Shank	Flute Length	Overall Length	ModelNo.	
				Straight Shank	Taper Shank
3/8	1	3/4	7	331-1500	331-1501
13/32	1	3/4	7	331-1502	331-1503
7/16	1	7/8	7	331-1504	331-1505
15/32	1	7/8	7	331-1506	331-1507
1/2	1	1	8	331-1508	331-1509
17/32	1	1	8	331-1510	331-1511
9/16	1	1-1/8	8	331-1512	331-1513
19/32	1	1-1/8	8	331-1514	331-1515
5/8	2	1-1/4	9	331-1516	331-1517
21/32	2	1-1/4	9	331-1518	331-1519
11/16	2	1-1/4	9	331-1520	331-1521
23/32	2	1-1/4	9	331-1522	331-1523
3/4	2	1-3/8	9-1/2	331-1524	331-1525
25/32	2	1-3/8	9-1/2	331-1526	331-1527
13/16	2	1-3/8	9-1/2	331-1528	331-1529
27/32	2	1-3/8	9-1/2	331-1530	331-1531
7/8	2	1-1/2	10	331-1532	331-1533
29/32	2	1-1/2	10	331-1534	331-1535

Straight Shank



Size	M.T. Taper Shank	Flute Length	Overall Length	ModelNo.	
				Straight Shank	Taper Shank
15/16	3	1-1/2	10	331-1536	331-1537
31/32	3	1-1/2	10	331-1538	331-1539
1	3	1-5/8	10-1/2	331-1540	331-1541
1-1/32	3	1-5/8	10-1/2	331-1542	331-1543
1-1/16	3	1-5/8	10-1/2	331-1544	331-1545
1-3/32	3	1-5/8	10-1/2	331-1546	331-1547
1-1/8	3	1-3/4	11	331-1548	331-1549
1-5/32	3	1-3/4	11	331-1550	331-1551
1-3/16	3	1-3/4	11	331-1552	331-1553
1-7/32	4	1-3/4	11	331-1554	331-1555
1-1/4	4	1-7/8	11-1/2	331-1556	331-1557
1-5/16	4	1-7/8	11-1/2	331-1558	331-1559
1-3/8	4	2	12	331-1560	331-1561
1-7/16	4	2	12	331-1562	331-1563
1-1/2	4	2-1/8	12-1/2	331-1564	331-1565
1-9/16	4	2-1/8	12-1/2	331-1566	331-1567
1-5/8	4	2-1/4	13	331-1568	331-1569
1-11/16	4	2-1/4	13	331-1570	331-1571
1-3/4	5	2-3/8	13-1/2	331-1572	331-1573
1-13/16	5	2-3/8	13-1/2	331-1574	331-1575
1-7/8	5	2-1/2	14	331-1576	331-1577
1-15/16	5	2-1/2	14	331-1578	331-1579
2	5	2-1/2	14	331-1580	331-1581

METRIC EXPANSION HAND REAMERS

DIN859, High Speed Steel, Spiral Flute



Size (mm)	Flute Length (mm)	Overall Length (mm)	Square Size (mm)	No. of Flute	Model No.
6	47	93	7	6	331-4901
7	54	107	8	9	331-4902
8	58	115	9	9	331-4903
9	62	124	10	9	331-4904
10	66	133	11	9	331-4905
11	71	142	12	9	331-4906
12	76	152	13	9	331-4907
13	76	152	13	9	331-4908
14	81	163	14	9	331-4909
15	81	163	15	9	331-4910
16	87	175	16	9	331-4911

Size (mm)	Flute Length (mm)	Overall Length (mm)	Square Size (mm)	No. of Flute	Model No.
17	87	175	16	9	331-4912
18	93	188	18	9	331-4913
19	93	188	18	9	331-4914
20	100	201	20	12	331-4915
21	100	201	20	12	331-4916
22	107	201	22	12	331-4917
23	107	201	22	12	331-4918
24	115	231	24	12	331-4919
25	115	231	24	12	331-4920
30	124	247	26	12	331-4921

Chucking Reamer

EXPANSION HAND REAMERS

Expansion Limits

High Speed Steel / Right Hand

- Straight flute for most jobs
- Spiral flute for holes with keyways or other interruptions

1/4-15/32	.006"
1/2-31/32	.010"
1"-1-1/2	.012"
1-1/2-2"	.015"



Size	Flute Length	Overall Length	No. of Flute	Model No.	
				Straight Flute	Spiral Flute
1/4	1-7/16	3-7/8	6	331-5301	331-5401
9/32	1-3/4	4"	6	331-5302	331-5402
5/16	1-3/4	4"	6	331-5303	331-5403
3/8	2"	5"	6	331-5304	331-5404
13/32	2"	5"	6	331-5305	331-5405
7/16	2"	5"	6	331-5306	331-5406
15/32	2"	5"	6	331-5307	331-5407
1/2	2"	5-1/2	6	331-5308	331-5408
17/32	2"	5-1/2	6	331-5309	331-5409
9/16	2-1/2	6"	6	331-5310	331-5410
19/32	2-1/2	6"	6	331-5311	331-5411
5/8	3"	7"	6	331-5312	331-5412
21/32	3"	7"	6	331-5313	331-5413
11/16	3"	7"	6	331-5314	331-5414
23/32	3"	7"	6	331-5315	331-5415
3/4	3-1/2"	8"	8	331-5316	331-5416
25/32	3-1/2"	8"	8	331-5317	331-5417
13/16	3-1/2"	8"	8	331-5318	331-5418

Size	Flute Length	Overall Length	No. of Flute	Model No.	
				Straight Flute	Spiral Flute
27/32	3-1/2	8"	8	331-5319	331-5419
7/8	4"	9"	8	331-5320	331-5420
29/32	4"	9"	8	331-5321	331-5421
15/16	4"	9"	8	331-5322	331-5422
31/32	4"	9"	8	331-5323	331-5423
1"	4-1/2	10"	8	331-5324	331-5424
1-1/16	4-1/2	10"	8	331-5325	331-5425
1-1/8	4-3/4	10-1/2	8	331-5326	331-5426
1-3/16	4-3/4	10-1/2	8	331-5327	331-5427
1-1/4	5"	11"	8	331-5328	331-5428
1-5/16	5"	11"	10	331-5329	331-5429
1-3/8	5-1/4	11-1/2	10	331-5330	331-5430
1-7/16	5-1/4	11-1/2	10	331-5331	331-5431
1-1/2	5-1/2	12"	10	331-5332	331-5432
1-3/4	5-1/2	12-3/8	12	331-5333	331-5433
1-7/8	5-1/2	12-3/8	12	331-5334	331-5434
2"	5-1/2	13-1/8	12	331-5335	331-5435

ADJUSTABLE BLADE REAMERS

High Speed Steel

- Reamer size can be achieved by loosening or tightening two adjustable nuts
- Featured replaceable and regroundable reamer blades



Size	Size Range	Overall Length	Model No.
8/A	1/4-9/32	3-1/2	331-5501
7/A	9/32-5/16	3-3/4	331-5502
6/A	5/16-11/32	4"	331-5503
5/A	11/32-3/8	4-1/4	331-5504
4/A	3/8-13/32	4-1/2	331-5505
3/A	13/32-7/16	4-3/4	331-5506
2/A	7/16-15/32	5"	331-5507
A	15/32-17/32	5-1/4	331-5508
B	17/32-19/32	5-3/4	331-5509
C	19/32-21/32	6-1/4	331-5510
D	21/32-23/32	6-3/4	331-5511

Size	Size Range	Overall Length	Model No.
E	23/32-25/32	7-1/4	331-5512
F	25/32-27/32	7-3/4	331-5513
G	27/32-15/16	8-1/4	331-5514
H	15/16-1-1/16	8-3/4	331-5515
I	1-1/16-1-3/16	10"	331-5516
J	1-3/16-1-11/32	11"	331-5517
K	1-11/32-1-1/2	12"	331-5518
L	1-1/2-1-13/16	13"	331-5519
M	1-13/16-2-7/32	15"	331-5520
N	2-7/32-2-3/4	17"	331-5521
O	2-3/4-3-11/32	19"	331-5522

METRIC ADJUSTABLE BLADE REAMERS

High Speed Steel



Size Range (mm)	Flute Length (mm)	Overall Length (mm)	Model No.
6.50-7.00	35	85	331-5601
7.00-7.75	35	90	331-5602
7.75-8.50	38	100	331-5603
9.25-10.00	38	115	331-5604
10.00-10.75	38	125	331-5605
10.75-11.75	38	130	331-5606
11.75-12.75	44	135	331-5607
12.75-13.75	48	145	331-5608
13.75-15.25	52	150	331-5609
15.25-17.00	55	165	331-5610
17.00-19.00	60	170	331-5611

Size Range (mm)	Flute Length (mm)	Overall Length (mm)	Model No.
19.00-21.00	60	180	331-5612
21.00-23.00	65	195	331-5613
23.00-26.00	72	215	331-5614
26.00-29.50	80	240	331-5615
29.50-33.50	85	270	331-5616
33.50-38.00	95	310	331-5617
38.00-44.00	105	350	331-5618
44.00-54.00	120	400	331-5619
54.00-64.00	120	460	331-5620
64.00-74.00	135	510	331-5621
74.00-84.00	135	510	331-5622

Chucking Reamer

REPAIRMAN'S TAPER REAMER

Crabon Steel

- Removes burrs from small holes.
- Enlarges and countersinks holes in soft metals.
- Range: 1/8-1/2

Range	Model No.
1/8-1/2	331-0100
1/8-5/8	331-0110



TAPER PIPE REAMERS

High Speed Steel

Straight Flute



Spiral Flute



Size	Diameter		Flute Length	Overall Length	ModelNo.	
	Small End	Large End			Roughing	Finishing
1/8	.316	.362	3/4	2-1/8	331-1400	331-1401
1/4	.406	.472	1-1/16	2-7/16	331-1402	331-1403
3/8	.540	.606	1-1/16	2-9/16	331-1404	331-1405
1/2	.665	.751	1-3/8	3-1/8	331-1406	331-1407
3/4	.876	.962	1-3/8	3-1/4	331-1408	331-1409
1	1.103	1.212	1-3/4	3-3/4	331-1410	331-1411
1-1/4	1.444	1.553	1-3/4	4	331-1412	331-1413
1-1/2	1.684	1.793	1-3/4	4-1/4	331-1414	331-1415
2	2.519	2.268	1-3/4	4-1/2	331-1416	331-1417

CARBIDE TIPED CHUCKING REAMER

C2 Grade, Straight Shank



Straight Shank



Taper Shank

Size	Flute Length	Overall Length	Model No.	Size	Flute Length	Overall Length	Model No.
3/16	1-1/18	4-1/2	241-1012	23/32	2-1/4	9	241-1046
7/32	1-1/4	5	241-1014	3/4	2-1/2	9-1/2	241-1048
1/4	1-1/2	6	241-1016	25/32	2-1/2	9-1/2	241-1050
9/32	1-1/2	6	241-1018	13/16	2-1/2	9-1/2	241-1052
5/16	1-1/2	6	241-1020	27/32	2-1/2	9-1/2	241-1054
11/32	1-1/2	6	241-1022	7/8	2-5/8	10	241-1056
3/8	1-3/4	7	241-1024	29/32	2-5/8	10	241-1058
13/32	1-3/4	7	241-1026	15/16	2-5/8	10	241-1060
7/16	1-3/4	7	241-1028	31/32	2-5/8	10	241-1062
15/32	1-3/4	7	241-1030	1	2-3/4	10-1/2	241-1064
1/2	2	8	241-1032	1-1/16	2-3/4	10-1/2	241-1068
17/32	2	8	241-1034	1-1/8	2-7/8	11	241-1072
9/16	2	8	241-1036	1-3/16	2-7/8	11	241-1076
19/32	2	8	241-1038	1-1/4	3	11-1/2	241-1080
5/8	2-1/4	9	241-1040	1-5/16	3	11-1/2	241-1084
21/32	2-1/4	9	241-1042	1-3/8	3-1/4	12	241-1088
11/16	2-1/4	9	241-1044	1-7/16	3-1/4	12	241-1092
				1-1/2	3-1/2	12-1/2	241-1096

CARBIDE TIPED CHUCKING REAMER

C2 Grade, Taper Shank

Size	Flute Length	Overall Length	Morse Taper	Model No.
1/2	2	8	MT1	241-1132
9/16	2	8	MT1	241-1136
5/8	2-1/4	9	MT2	241-1140
11/16	2-1/4	9	MT2	241-1144
3/4	2-1/2	9-1/2	MT2	241-1148
13/16	2-1/2	9-1/2	MT2	241-1152
7/8	2-5/8	10	MT2	241-1156
15/16	2-5/8	10	MT3	241-1160
1	2-3/4	10-1/2	MT3	241-1164

STRAIGHT FLUTE TAPER PIN & DIE MAKER REAMER SETS

Model No. 331-8250

0-5# 6 piece in vinyl roll pouch

Model No. 331-8255

0-10# 11 piece with wooden case

SPIRAL FLUTE TAPER PIN & DIE MAKER REAMER SETS

Model No. 331-8350

0-5# 6 piece in vinyl roll pouch

Model No. 331-8355

0-10# 11 piece with wooden case

Chucking Reamer

STRAIGHT FLUTE TAPER PIN & DIE MAKER REAMER

High Speed Steel



Straight Flute

Size	Diameter of Small End	Diameter of Large End	Flute Length	Overall Length	Model No.
7/0	.0497	.0666"	13/16	1-13/16"	331-8200
6/0	.0611	.0806"	15/16	1-15/16"	331-8202
5/0	.0719	.0966"	1-3/16	2-3/16"	331-8204
4/0	.0869	.1142"	1-5/16	2-5/16"	331-8206
3/0	.1029	.1302"	1-5/16	2-5/16"	331-8208
2/0	.1137	.1462"	1-9/16	2-9/16"	331-8210
0	.1287	.1638"	1-11/16	2-15/16"	331-8212
1	.1447	.1798"	1-11/16	2-15/16"	331-8214
2	.1605	.2008"	1-15/16	3-3/16"	331-8216
3	.1813	.2294"	2-5/16	3-11/16"	331-8218
4	.2071	.2604"	2-9/16	4-1/16"	331-8220
5	.2409	.2994"	2-13/16	4-5/16"	331-8222
6	.2773	.354"	3-11/16	5-7/16"	331-8224
7	.3297	.422"	4-7/16	6-5/16"	331-8226
8	.3971	.505"	5-3/16	7-3/16"	331-8228
9	.4805	.6066"	6-1/16	8-5/16"	331-8230
10	.5799	.7216"	6-13/16	9-5/16"	331-8232
11	.7060	.8780"	8-1/4	11-1/4"	331-8234
12	.8420	1.0500	10	13-5/8"	331-8236
13	1.0090	1.2590	12	16"	331-8238
14	1.2500	1.5420	14	18-1/4"	331-8240

SPIRAL FLUTE TAPER PIN & DIE MAKER REAMER

High Speed Steel



Spiral Flute

Size	Diameter of Small End	Diameter of Large End	Flute Length	Overall Length	Model No.
7/0	.0497	.0666"	13/16	1-13/16"	331-8300
6/0	.0611	.0806"	15/16	1-15/16"	331-8302
5/0	.0719	.0966"	1-3/16	2-3/16"	331-8304
4/0	.0869	.1142"	1-5/16	2-5/16"	331-8306
3/0	.1029	.1302"	1-5/16	2-5/16"	331-8308
2/0	.1137	.1462"	1-9/16	2-9/16"	331-8310
0	.1287	.1638"	1-11/16	2-15/16"	331-8312
1	.1447	.1798"	1-11/16	2-15/16"	331-8314
2	.1605	.2008"	1-15/16	3-3/16"	331-8316
3	.1813	.2294"	2-5/16	3-11/16"	331-8318
4	.2071	.2604"	2-9/16	4-1/16"	331-8320
5	.2409	.2994"	2-13/16	4-5/16"	331-8322
6	.2773	.354"	3-11/16	5-7/16"	331-8324
7	.3297	.422"	4-7/16	6-5/16"	331-8326
8	.3971	.505"	5-3/16	7-3/16"	331-8328
9	.4805	.6066"	6-1/16	8-5/16"	331-8330
10	.5799	.7216"	6-13/16	9-5/16"	331-8332
11	.7060	.8780"	8-1/4	11-1/4"	331-8334
12	.8420	1.0500	10	13-5/8"	331-8336
13	1.0090	1.2590	12	16"	331-8338
14	1.2500	1.5420	14	18-1/4"	331-8340

INCH SHELL REAMERS

High Speed Steel, Right Hand

O.D. Tolerance

3/4-1"	+ .0005	- .0001"
Over 1"	+ .0005	- .0002"



Size	Hole Dia	Overall Length	No. of Flute	Fitting Arbor No.	Straight Flute Model No.	Spiral Flute Model No.
3/4	3/8	2-1/4	10	4	331-6501	331-6601
13/16	1/2	2-1/2	10	5	331-6502	331-6602
7/8	1/2	2-1/2	10	5	331-6503	331-6603
15/16	1/2	2-1/2	10	5	331-6504	331-6604
1"	1/2	2-1/2	10	5	331-6505	331-6605
1-1/16	5/8	2-3/4	10	6	331-6506	331-6606
1-1/8	5/8	2-3/4	10	6	331-6507	331-6607
1-3/16	5/8	2-3/4	10	6	331-6508	331-6608
1-1/4	5/8	2-3/4	12	6	331-6509	331-6609
1-5/16	3/4	3"	12	7	331-6510	331-6610
1-3/8	3/4	3"	12	7	331-6511	331-6611
1-7/16	3/4	3"	12	7	331-6512	331-6612
1-1/2	3/4	3"	12	7	331-6513	331-6613
1-9/16	3/4	3"	12	7	331-6514	331-6614
1-5/8	3/4	3"	12	7	331-6515	331-6615
1-11/16	1"	3-1/2	12	8	331-6516	331-6616
1-3/4	1"	3-1/2	12	8	331-6517	331-6617
1-13/16	1"	3-1/2	12	8	331-6518	331-6618
1-7/8	1"	3-1/2	12	8	331-6519	331-6619
1-15/16	1"	3-1/2	12	8	331-6520	331-6620
2"	1"	3-1/2	14	8	331-6521	331-6621
2-1/16	1-1/4	3-3/4	14	9	331-6522	331-6622
2-1/8	1-1/4	3-3/4	14	9	331-6523	331-6623
2-3/16	1-1/4	3-3/4	14	9	331-6524	331-6624
2-1/4	1-1/4	3-3/4	14	9	331-6525	331-6625
2-5/16	1-1/4	3-3/4	14	9	331-6526	331-6626
2-3/8	1-1/4	3-3/4	14	9	331-6527	331-6627
2-7/16	1-1/4	3-3/4	14	9		
2-1/2	1-1/4	3-3/4	14	9		
2-9/16	1-1/2	4"	16	10		
2-5/8	1-1/2	4"	16	10		
2-11/16	1-1/2	4"	16	10		
2-3/4	1-1/2	4"	16	10		
2-13/16	1-1/2	4"	16	10		
2-7/8	1-1/2	4"	16	10		
2-15/16	1-1/2	4"	16	10		
3"	1-1/2	4"	16	10		
3-1/16	1-3/4	4-1/2	18	11		
3-1/8	1-3/4	4-1/2	18	11		
3-3/16	1-3/4	4-1/2	18	11		
3-1/4	1-3/4	4-1/2	18	11		
3-5/16	1-3/4	4-1/2	18	11		
3-3/8	1-3/4	4-1/2	18	11		
3-7/16	1-3/4	4-1/2	18	11		
3-1/2	1-3/4	4-1/2	18	11		
3-9/16	2"	5"	20	12		
3-5/8	2"	5"	20	12		
3-11/16	2"	5"	20	12		
3-3/4	2"	5"	20	12		
3-13/16	2"	5"	20	12		
3-7/8	2"	5"	20	12		
3-15/16	2"	5"	20	12		
4"	2"	5"	20	12		

Chucking Reamer

M42 8% COBALT METRIC SHELL REAMERS

DIN219/DIN220, High Speed Steel

- Featured two flute types: Straight flute(DIN219) and Spiral flute(DIN220)



Size (mm)	Hole Dia(mm)	Overall Length (mm)	DIN219 Model No.	DIN220 Model No.
20	10	40	331-5701	331-5801
21	10	40	331-5702	331-5802
22	10	40	331-5703	331-5803
23	10	40	331-5704	331-5804
24	13	45	331-5705	331-5805
25	13	45	331-5706	331-5806
26	13	45	331-5707	331-5807
27	13	45	331-5708	331-5808
28	13	45	331-5709	331-5809
29	13	45	331-5710	331-5810
30	13	45	331-5711	331-5811
32	16	50	331-5712	331-5812

Size (mm)	Hole Dia(mm)	Overall Length (mm)	DIN219 Model No.	DIN220 Model No.
35	16	50	331-5713	331-5813
36	19	56	331-5714	331-5814
38	19	56	331-5715	331-5815
40	19	56	331-5716	331-5816
42	19	56	331-5717	331-5817
45	22	63	331-5718	331-5818
48	22	63	331-5719	331-5819
50	22	63	331-5720	331-5820
52	27	71	331-5721	331-5821
55	27	71	331-5722	331-5822
60	27	71	331-5723	331-5823

STRAIGHT SHANK SHELL REAMER ARBORS

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



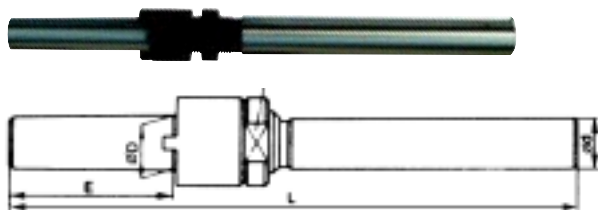
TAPER SHANK SHELL REAMER ARBORS

Size	Morse 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



E-Z EJECT SHELL REAMER ARBORS

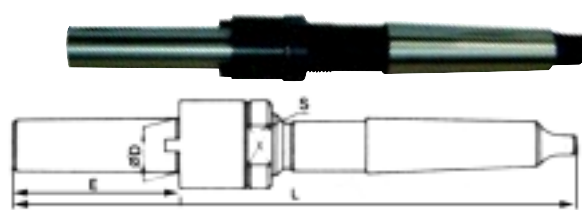
Straight Shank



Size	Shank Dia.	Fits Shell Reamer	Overall Length	Model No.
#4	1/2"	21/32"-25/32"	9"	331-2002
#5	5/8"	13/16"-1-1/32"	9-1/2"	331-2004
#6	3/4"	1-1/16"-1-9/32"	10"	331-2006
#7	7/8"	1-5/16"-1-5/8"	11"	331-2008
#8	1-1/8"	1-11/16"-2"	12"	331-2010
#9	1-3/8"	2-1/16"-2-1/2"	13"	331-2012
#10	1-5/8"	2-9/16"-3"	14"	331-2014
#11	2"	3-1/16"-3-1/2"	15"	331-2016
#12	2-1/8"	3-9/16"-4"	16"	331-2018

E-Z EJECT SHELL REAMER ARBORS

Taper Shank



Size	Morse Taper	Arbor Dia.	Fits Shell Reamer	Overall Length	Model No.
#4	MT2	3/8"	21/32"-25/32"	9"	331-2102
#5	MT2	1/2"	13/16"-1-1/32"	9-1/2"	331-2104
#6	MT3	5/8"	1-1/16"-1-9/32"	10"	331-2106
#7	MT3	3/4"	1-5/16"-1-5/8"	11"	331-2108
#8	MT4	1"	1-11/16"-2"	12"	331-2110
#9	MT4	1-1/4"	2-1/16"-2-1/2"	13"	331-2112
#10	MT5	1-1/2"	2-9/16"-3"	14"	331-2114
#11	MT5	1-3/4"	3-1/16"-3-1/2"	15"	331-2116
#12	MT5	2"	3-9/16"-4"	16"	331-2118

HSS Countersink drills

COUNTERSINKS & DEBURRING TOOLS



Pilotless-style No.1

High Speed Steel

- Use for countersinking and deburring operations in a wide range of materials in portable or machine applications
- Provides chatterless finish
- Single cutting edge for fast stock removal
- Free cutting and easy to sharpen
- Designed for 60°, 80°, 90° and 100° cutting

60° Deburring tools

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
DC-14	3/16	13/32	1/4	1-3/4	380-4001
DC-18	5/16	17/32	1/4	1-15/16	380-4002
DC-26	7/16	25/32	1/2	2-11/16	380-4003
DC-26A	7/16	25/32	1/4	2-1/8	380-4004
DC-36	11/16	1-3/32	1/2	2-7/8	380-4005

82° Countersinks

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
CS-18	3/16	17/32	1/4	1-7/8	380-4006
CS-26	.307	25/32	1/2	2-5/8	380-4007
CS-26A	.307	25/32	1/4	2-1/16	380-4008
CS-36	.431	7/8	1/2	2-13/16	380-4009
CS-48	1/2	1-5/32	1/2	3-1/2	380-4011
Model	Screw Size		Shank		Model No.
			Dia.	OAL	
CS-5S	4.5		1/4	1-1/2	380-4012
CS-6S	6		1/4	1-1/2	380-4013
CS-8S	8		1/4	1-5/8	380-4014
CS-10S	10		1/4	1-5/8	380-4016



Piloted-style No.2



Double end-style No.3

60° Deburring tools

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
DC-6	3/32	11/64	3/16	1-1/2	380-4040
DC-8	1/8	15/64	1/4	1-3/4	380-4041

Removable shank-style No.4



90° Deburring tools

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
DB-64	1-1/16	2"	-	-	380-4046
DB-96	2"	3"	-	-	380-4047

90° Deburring tools

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
DB-14	5/32	13/32	1/4	1-11/16	380-4021
DB-18	3/16	17/32	1/4	1-7/8	380-4022
DB-26	5/16	25/32	1/2	2-19/32	380-4023
DB-26A	5/16	25/32	1/4	2-1/32	380-4024
DB-36	9/16	1-3/32	1/2	2-13/16	380-4025
DB-48	1/2	1-15/32	1/2	3-1/2	380-4026

100° Countersinks

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
CSA-8	3/32	1/74	1/4	1-1/2	380-4027
CSA-14	1/8	64/27	1/4	1-11/16	380-4028
CSA-18	3/16	35/64	1/4	1-7/8	380-4029

82° Countersinks

Model	Screw Size	Polot Dia.	Shank		Model No.
			Dia.	OAL	
CS8-1	1/4	1/4	3/8	2	380-4030
CS8-2	1/4	17/64	3/8	2	380-4031
CS10-1	5/16	5/16	3/8	2-3/16	380-4032
CS10-2	5/16	21/64	3/8	2-3/16	380-4033
CS12-1	3/8	3/8	1/2	2-5/8	380-4034
CS12-2	3/8	25/64	1/2	2-5/8	380-4035
CS14-1	7/16	7/16	1/2	2-3/4	380-4036
CS14-2	37/16	29/64	1/2	2-3/4	380-4037
CS16-1	1/2	1/2	1/2	2-13/16	380-4038
CS16-2	1/2	33/64	1/2	2-13/16	380-4039

82° Countersinks

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
CS-3S	0.073	15/64	1/4	1-3/4	380-4042

90° Deburring tools

Model	Dia. of Cut		Shank		Model No.
	Min.	Max.	Dia.	OAL	
DB-4	1/64	11/64	3/16	1-1/2	380-4043
DB-6	1/16	11/64	3/16	1-1/2	380-4044
DB-8	1/8	15/64	1/4	1-3/4	380-4045

Shanks for 380-4046 and 380-4047

Model	Description		Model No.
DS-2	1/2" Straight shank	For Use with	380-4048
DS-2T	2 Morse Taper	380-4046	380-4049
DS-3	1/2" Straight shank	For Use with	380-4050
DS-3T	2 Morse Taper	380-4047	380-4051

HSS Countersink drills

COUNTERSINKS & DEBURRING TOOLS SETS

High Speed Steel



Set Style	Angle	Sets contain one of each size	Model No.
Countersink&Deburring (9pcs)	82°	CS-5S,CS-6S,CS-8S,CS-10S,CS8-2 CS10-2,CS-12-2,CS14-2,CS16-2	380-4060
Pilotless Countersink (5pcs)	82°	CS-5S,CS-6S,CS-8S,CS-10S,CS-18S	380-4061
Pilotless Countersink (4pcs)	82°	CS-6S,CS-8S,CS-10S,CS-18S	380-4062
Zero Flute Pilotless (5pcs)	82°	CS-5S,CS-6S,CS-8S,CS-10S,CS-18	380-4063
Tap, Drill & Countersinks (12pcs)	82°	Taps:6-32 thru 1/4-20 Plug Tap drill & Countersinks	380-4064
Pilotless Deburring (6pcs)	60°	DC-6,DC-8,DC-14,DC-18,DC-26,DC-36	380-4065
Pilotless Deburring (6pcs)	90°	DB-6,DB-8,DB-14,DB-18,DB-26,DB-36	380-4066
Countersink (9pcs)	82°	CS-5S,CS-6S,CS-8S,CS-10S,CS8-1, CS10-1,CS12-1,CS14-1,CS16-1	380-4067

SINGLE FLUTE COUNTERSINK

Designed for general purpose Countersinking chamfering or deburring.

- Self plotting and completely chatterless.
- No secondary burrs formed
- Easily resharpened
- Steam home surface treatment (blackening) to prolong tool life and prevent galling
- + Straight shank with tang drive



High Speed Steel

Size	Shank Dia.	OAL	60° Model No.	82° Model No.	90° Model No.	100° Model No.	120° Model No.
1/8	1/8	1-1/2	369-1001	369-1006	369-1011	369-1016	369-1021
3/16	3/16	1-1/2	369-1026	369-1031	369-1036	369-1041	369-1046
1/4	1/4	2"	369-1051	369-1056	369-1061	369-1066	369-1071
3/8	1/4	2"	369-1076	369-1081	369-1086	369-1091	369-1096
1/2	1/4	2"	369-1101	369-1106	369-1111	369-1116	369-1121
5/8	1/4	2-1/4	369-1126	369-1131	369-1136	369-1141	369-1146
3/4	1/2	2-3/4	369-1151	369-1156	369-1161	369-1166	369-1171
1"	1/2	2-3/4	369-1176	369-1181	369-1186	369-1191	369-1196
1-1/4	1/2+	3"	369-1201	369-1206	369-1211	—	—
1-1/2	3/4+	3-1/2	369-1216	369-1221	369-1226	—	—
2"	3/4+	3-3/4	369-1231	369-1236	369-1241	—	—
2-1/2	3/4+	5"	369-1246	369-1251	369-1256	—	—
3"	3/4+	5-1/4	369-1261	369-1266	369-1271	—	—
5pcs sets: 1/4,3/8,1/2,3/4,1"			380-3060	380-3082	380-3090		
9pcs sets: 3/16,1/4,5/16,3/8,1/2,5/8,3/4,7/8,1"			380-3160	380-3182	380-3190		
12pcs sets: 3/16,1/4,5/16,3/8,1/2,5/8,3/4,7/8,1",1-1/4,1-1/2,2"			380-3260	380-3282	380-3290		

3 FLUTE COUNTERSINK

High Speed Steel



Size	Shank Dia.	Shank Length	OAL	60° Model No.	82° Model No.	90° Model No.	100° Model No.
1/4	3/16	3/4	1-1/2	380-5001	380-5101	380-5201	380-5301
3/8	1/4	7/8	1-3/4	380-5003	380-5103	380-5203	380-5303
1/2	3/8	1"	2"	380-5005	380-5105	380-5205	380-5305
5/8	3/8	1"	2-1/4	380-5007	380-5107	380-5207	380-5307
3/4	1/2	1-1/4	2-5/8	380-5009	380-5109	380-5209	380-5309
1"	1/2	1-1/4	2-3/4	380-5011	380-5111	380-5211	380-5311
1-1/4	3/4	1-1/4	3"	380-5013	380-5113	380-5213	380-5313
1-1/2	3/4	1-1/4	3"	380-5015	380-5115	380-5215	380-5315
2"	3/4	1-1/4	3-1/4	380-5017	380-5117	380-5217	380-5317
5pcs sets: 1/4,3/8,1/2,3/4,1"				380-5025	380-5125	380-5225	380-5325
6pcs sets: 1/4,3/8,1/2,5/8,3/4,1"				380-5026	380-5126	380-5226	380-5326

HSS Countersink drills

4 FLUTE MACHINE COUNTERSINK

High Speed Steel



Size	Shank Dia.	Shank Length	OAL	60° Model No.	82° Model No.	90° Model No.
1/2	1/2	2-1/4	3-7/8	380-5401	380-5501	380-5601
5/8	1/2	2-1/4	4"	380-5403	380-5503	380-5603
3/4	1/2	2-1/4	4-1/8	380-5405	380-5505	380-5605
7/8	1/2	2-1/4	4-1/4	380-5407	380-5507	380-5607
1"	1/2	2-1/4	4-3/8	380-5409	380-5509	380-5609
1-1/4	1/2	2-1/4	5"	380-5411	380-5511	380-5611
1-1/2	1/2	2-1/4	5-3/8	380-5413	380-5513	380-5613

6 FLUTE CHATTERLESS COUNTERSINK



High Speed Steel

Size	Shank Dia.	OAL	60° Model No.	82° Model No.	90° Model No.
3/16	3/16	1-1/2	380-5701	380-5801	380-5901
1/4	1/4	2"	380-5703	380-5803	380-5903
5/16	1/4	2"	380-5705	380-5805	380-5905
3/8	1/4	2"	380-5707	380-5807	380-5907
1/2	1/4	2"	380-5709	380-5809	380-5909
5/8	1/2	2-3/4	380-5711	380-5811	380-5911
3/4	1/2	2-3/4	380-5713	380-5813	380-5913
7/8	1/2	2-3/4	380-5715	380-5815	380-5915
1	1/2	2-3/4	380-5717	380-5817	380-5917
1-1/4	3/4	3-3/8	380-5719	380-5819	380-5919
1-1/2	3/4	3-1/2	380-5721	380-5821	380-5921
1-3/4	1"	4-1/4	380-5723	380-5823	380-5923
2"	1"	4-3/8	380-5725	380-5825	380-5925

Cobalt M35

Size	Shank Dia.	OAL	60° Model No.	82° Model No.	90° Model No.
3/16	3/16	1-1/2	380-6001	380-6101	380-6201
1/4	1/4	2"	380-6003	380-6103	380-6203
5/16	1/4	2"	380-6005	380-6105	380-6205
3/8	1/4	2"	380-6007	380-6107	380-6207
1/2	1/4	2"	380-6009	380-6109	380-6209
5/8	1/2	2-3/4	380-6011	380-6111	380-6211
3/4	1/2	2-3/4	380-6013	380-6113	380-6213
7/8	1/2	2-3/4	380-6015	380-6115	380-6215
1	1/2	2-3/4	380-6017	380-6117	380-6217
1-1/4	3/4	3-3/8	380-6019	380-6119	380-6219
1-1/2	3/4	3-1/2	380-6021	380-6121	380-6221
1-3/4	1"	4-1/4	380-6023	380-6123	380-6223
2"	1"	4-3/8	380-6025	380-6125	380-6225



Sets with wooden stand

Pieces	Angle	Size include	M2 Model No.	M35 Model No.
8pcs	60°	1/4-1"	380-6301	380-6401
10pcs	60°	3/16-1-1/4	380-6303	380-6403
8pcs	82°	1/4-1"	380-6305	380-6405
10pcs	82°	3/16-1-1/4	380-6307	380-6407
8pcs	90°	1/4-1"	380-6309	380-6409
10pcs	90°	3/16-1-1/4	380-6311	380-6411

DIN335C 90° 3 FLUTE COUNTERSINK



Size (mm)	Shank Dia.(mm)	OAL (mm)	HSS Model No.	HSS Tin Model No.	Cobalt Model No.
4.3	4	40	381-6043	381-7043	381-8043
5.0	4	40	381-6050	381-7050	381-8050
5.3	4	40	381-6053	381-7053	381-8053
5.8	5	45	381-6058	381-7058	381-8058
6.0	5	45	381-6060	381-7060	381-8060
6.3	5	45	381-6063	381-7063	381-8063
7.0	6	50	381-6070	381-7070	381-8070
7.3	6	50	381-6073	381-7073	381-8073
8.0	6	50	381-6080	381-7080	381-8080
8.3	6	50	381-6083	381-7083	381-8083
9.4	6	50	381-6094	381-7094	381-8094
10.0	6	50	381-6100	381-7100	381-8100
10.4	6	50	381-6104	381-7104	381-8104

Size (mm)	Shank Dia.(mm)	OAL (mm)	HSS Model No.	HSS Tin Model No.	Cobalt Model No.
11.5	8	56	381-6115	381-7115	381-8115
12.4	8	56	381-6124	381-7124	381-8124
13.4	8	56	381-6134	381-7134	381-8134
15.0	10	60	381-6150	381-7150	381-8150
16.5	10	60	381-6165	381-7165	381-8165
19.0	10	63	381-6190	381-7190	381-8190
20.5	10	63	381-6205	381-7205	381-8205
23.0	10	67	381-6230	381-7230	381-8230
25.0	10	67	381-6250	381-7250	381-8250
26.0	10	67	381-6260	381-7260	381-8260
28.0	12	71	381-6280	381-7280	381-8280
30.0	12	71	381-6300	381-7300	381-8300
31.0	12	71	381-6310	381-7310	381-8310

HSS Countersink drills

DIN335C 90° 3 FLUTE COUNTERSINK SETS



Pieces	Description	HSS Model No.	HSS Tin Model No.	Cobalt Model No.
6pcs	6.3,8.3,10.4,12.4,16.5,20.5mm	381-6906	381-7906	381-8906
12pcs	5.3,5.8,6.3,7.3,8.3,9.4,10.4,12.4,13.4,16.5,20.5,25mm	381-6912	381-7912	381-8912

COUNTERSINKS & DEBURRING TOOLS

- High Speed Steel
- Inch Size
- Supplied in Set



Individual

Range	Shank Dia.	Description	60° Model No.	82° Model No.	90° 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

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

COUNTERSINKS & DEBURRING TOOLS

- High Speed Steel
- Metric Size
- Supplied In Set,



Individual

Range	Head Dia.	Shank Dia.	Length	60° Model No.	82° Model No.	90° Model No.
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

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

INDEXABLE COUNTERSINK & CHAMFERING TOOL

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

Sets

Descriptions	3PCS Model No.
60° With Stand.	380-4000
82° With Stand.	380-4100
90° With Stand.	380-4200

Individual

Cutter body	Shank	Insert	60° Model No.	82° Model No.	90° 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 Counterbore drills

A UNIQUE PILOTED COUNTERSINK



- Conical pilot supports cutting edge to assure chatter-free cut
- Will not commence cutting until the pilot or work piece has found the center of the previously drilled hole
- Rubber spring provides "pre-load" for constant pressure, thus helping to eliminate chatter
- Concentric countersinks and chamfers assured
- Replaceable high speed steel blades ground with radial relief, assure smooth cut
- Tungsten Carbide blades special order)
- Available in 60° 82° and 90° (120° special order)
- Straight shank (Morse Taper shank special order)

Capacity	Degree	Shank Size	Complete Tool Model No.	Replacement Blandes Model No.
1/4-1-1/8	60°	1/2	380-6501	380-6601
	82°		380-6503	380-6603
	90°		380-6505	380-6605
1/2-1-1/2	60°	1/2	380-6507	380-6607
	82°		380-6509	380-6609
	90°		380-6511	380-6611
5/8-2-1/2	60°	3/4	380-6513	380-6613
	82°		380-6515	380-6615
	90°		380-6517	380-6617

SOLID COUNTERBORES

2 Flute Straight Shank \ High Speed Steel
For Fillister Head Screws-Fractional Size
Machine screw size



Pilot And Cutting Size	Shank Dia	Thread Length	Model No.
1/4x13/32	3/8	3-5/8	331-1600
5/16x15/32	7/16	4	331-1602
3/8x19/32	1/2	4-3/8	331-1604
7/16x21/32	1/2	4-3/4	331-1606
1/2x25/32	3/4	5-1/8	331-1608

Size	Pilot Dia	Cutting Dia.	Overall Length	Model No.
4#	.111	.198	2-1/2	331-1750
5#	.124	.220	2-1/2	331-1751
6#	.137	.241	2-1/2	331-1752
8#	.163	.285	2-3/4	331-1753
10#	.189	.328	2-3/4	331-1754
12#	.215	.372	3"	331-1755

SOLID COUNTERBORES

3 Flute Straight Shank \ High Speed Steel
For Cup Screws-Machine Screw And Fractional Size



Size	Pilot Dia	Cutting Dia.	Shank Dia.	Overall Length	Model No.
No.5	.141	.221	3/16	3	331-1700
No.6	.150	.242	7/32	3	331-1702
No.8	11/64	19/64	1/4	3	331-1704
No.10	13/64	21/64	5/16	3-1/2	331-1706
1/4	9/32	13/32	3/8	3	331-1708
5/16	11/32	1/2	7/16	5	331-1710
3/8	13/32	19/32	1/2	6	331-1712
7/16	15/32	11/16	1/2	7	331-1714
1/2	17/32	25/32	1/2	7-1/2	331-1716
5/8	21/32	31/32	3/4	7-1/2	331-1718
3/4	13/16	1-3/16	1	8	331-1720
7/8	15/16	1-3/8	1	8	331-1722
1	1-1/16	1-9/16	1	10	331-1724

INCH INTERCHANGEABLE PILOTS COUNTERBORE SETS

39pcs 3 flute counterbore sets

Each size include"

13 Counterbores: 1/4-1" by 16ths

26 Pilots: 1/8, 5/32, 3/16, 1/4 with 3/32 Shank

3/16, 7/32, 1/4, 9/32, 5/16 with 5/32 Shank

1/4, 5/16, 3/8, 7/16, 1/2 with 3/16 Shank

5/16, 3/8, 7/16, 1/2, 9/16, 5/8 with 1/4 Shank

3/8, 7/16, 1/2, 9/16, 5/8, 3/4 with 5/16 Shank

Model No. 381-1039

Sets in wooden case



METRIC INTERCHANGEABLE PILOTS COUNTERBORE SETS

21 pcs sets

Model No. 381-1021

Each size include"

Pilots: 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9,

9.5, 10, 10.5mm

Counterbores: 8.5, 9.5, 10.5, 11.5, 13.5,

16.5mm

1 pc straight shank holder



22 pcs sets

Model No. 381-1022

Each size include"

Pilots: 12, 13, 14, 15, 16, 17, 18, 19, 20, 21,

22, 23, 24, 25mm

Counterbores: 26, 28, 30, 32, 33, 34,

36mm

1 pc MT2 Taper shank holder



HSS Counterbore drills

INTERCHANGEABLE PILOTS COUNTERBORES

HSS, Straight shank, Right Hand

Use for counter boring holes for socket heads of cap screw



Overall Size	No. of Length	Pilots Flute	Shank Hole	Shank Dia.	Shank Length	Straight Shank Model No.	Taper Shank Taper	Taper Shank Model No.
3/16	3"	3	3/32	15/64	2-3/8	381-4101	MT1	381-4301
13/64	3	3	3/32	15/64	2-3/8	381-4102	MT1	381-4302
7/32	3	3	3/32	15/64	2-3/8	381-4103	MT1	381-4303
15/64	3-13/16	3	3/32	15/64	3-1/16	381-4104	MT1	381-4304
1/4	3-13/16	3	3/32	15/64	3-1/16	381-4105	MT1	381-4305
17/64	3-13/16	3	3/32	17/64	3-1/16	381-4106	MT1	381-4306
9/32	3-13/16	3	3/32	17/64	3-1/16	381-4107	MT1	381-4307
19/64	3-13/16	3	3/32	17/64	3-1/16	381-4108	MT1	381-4308
5/16	3-13/16	3	3/32	19/64	3-1/16	381-4109	MT1	381-4309
21/64	3-13/16	3	3/32	5/16	3-1/16	381-4110	MT1	381-4310
11/32	3-13/16	3	5/32	5/16	3-1/16	381-4111	MT1	381-4311
23/64	4-1/16	3	5/32	5/16	3-1/16	381-4112	MT1	381-4312
3/8	4-1/16	3	5/32	5/16	3-1/16	381-4113	MT1	381-4313
25/64	4-1/16	3	5/32	3/8	3-1/16	381-4114	MT1	381-4314
13/32	4-1/16	3	5/32	3/8	3-1/16	381-4115	MT1	381-4315
27/64	4-1/16	3	5/32	3/8	3-1/16	381-4116	MT1	381-4316
7/16	4-1/16	3	3/16	3/8	3-1/16	381-4117	MT1	381-4317
29/64	4-5/16	3	3/16	7/16	3-1/16	381-4118	MT1	381-4318
15/32	4-5/16	3	3/16	7/16	3-1/16	381-4119	MT1	381-4319
31/64	4-5/16	3	3/16	7/16	3-1/16	381-4120	MT1	381-4320
1/2	4-5/16	3	3/16	7/16	3-1/16	381-4121	MT1	381-4321
33/64	4-5/16	3	3/16	1/2	3-1/16	381-4122	MT1	381-4322
17/32	4-5/16	3	3/16	1/2	3-1/16	381-4123	MT1	381-4323
35/64	4-5/16	3	3/16	1/2	3-1/16	381-4124	MT1	381-4324
9/16	4-5/16	3	3/16	1/2	3-1/16	381-4125	MT1	381-4325
37/64	5-1/8	3	3/16	1/2	3-7/8	381-4126	MT2	381-4326
19/32	5-1/8	3	3/16	1/2	3-7/8	381-4127	MT2	381-4327
39/64	5-1/8	3	3/16	1/2	3-7/8	381-4128	MT2	381-4328
5/8	5-1/8	3	3/16	1/2	3-7/8	381-4129	MT2	381-4329
41/64	5-1/8	3	3/16	1/2	3-7/8	381-4130	MT2	381-4330
21/32	5-1/8	3	3/16	1/2	3-7/8	381-4131	MT2	381-4331
43/64	5-1/8	3	3/16	1/2	3-7/8	381-4132	MT2	381-4332
11/16	5-1/8	3	3/16	1/2	3-7/8	381-4133	MT2	381-4333
45/64	5-3/8	3	1/4	1/2	3-7/8	381-4134	MT2	381-4334
23/32	5-3/8	3	1/4	1/2	3-7/8	381-4135	MT2	381-4335
47/64	5-3/8	3	1/4	1/2	3-7/8	381-4136	MT2	381-4336
3/4	5-3/8	3	1/4	1/2	3-7/8	381-4137	MT2	381-4337
49/64	5-3/8	3	1/4	5/8	3-7/8	381-4138	MT2	381-4338
25/32	5-3/8	3	1/4	5/8	3-7/8	381-4139	MT2	381-4339
51/64	5-3/8	3	1/4	5/8	3-7/8	381-4140	MT2	381-4340
13/16	5-3/8	3	1/4	5/8	3-7/8	381-4141	MT2	381-4341

Overall Size	No. of Length	Pilots Flute	Hole	Shank Dia.	Shank Length	Straight Shank Model No.	Taper Shank Taper	Taper Shank Model No.
53/64	5-3/8	3	1/4	3/4	3-7/8	381-4142	MT2	381-4342
27/32	5-3/8	3	1/4	3/4	3-7/8	381-4143	MT2	381-4343
55/64	5-3/8	3	1/4	3/4	3-7/8	381-4144	MT2	381-4344
7/8	5-3/8	3	1/4	3/4	3-7/8	381-4145	MT2	381-4345
57/64	6-1/8	3	1/4	3/4	4-5/8	381-4146	MT2	381-4346
29/32	6-1/8	3	1/4	3/4	4-5/8	381-4147	MT2	381-4347
59/64	6-1/8	3	1/4	3/4	4-5/8	381-4148	MT2	381-4348
15/16	6-1/8	3	1/4	3/4	4-5/8	381-4149	MT3	381-4349
61/64	6-3/8	3	1/4	3/4	4-5/8	381-4150	MT3	381-4350
31/32	6-3/8	3	5/16	3/4	4-5/8	381-4151	MT3	381-4351
63/64	6-3/8	3	5/16	3/4	4-5/8	381-4152	MT3	381-4352
1"	6-3/8	3	5/16	3/4	4-5/8	381-4153	MT3	381-4353
1-1/16	6-3/8	3	5/16	3/4	4-5/8	381-4154	MT3	381-4354
1-1/8	6-3/8	3	5/16	1"	4-5/8	381-4155	MT3	381-4355
1-3/16	6-3/8	3	5/16	1"	4-5/8	381-4156	MT3	381-4356
1-1/4	6-5/8	5	3/8	1"	4-5/8	381-4157	MT3	381-4357
1-5/16	6-5/8	5	3/8	1"	4-5/8	381-4158	MT3	381-4358
1-3/8	6-5/8	5	3/8	1"	4-5/8	381-4159	MT3	381-4359
1-7/16	7-7/8	5	3/8	1-1/4	5-7/8	381-4160	MT4	381-4360
1-1/2	7-7/8	5	3/8	1-1/4	5-7/8	381-4161	MT4	381-4361
1-9/16	8-1/8	5	7/16	1-1/4	5-7/8	381-4162	MT4	381-4362
1-5/8	8-1/8	5	7/16	1-1/4	5-7/8	381-4163	MT4	381-4363
1-11/16	8-1/8	5	7/16	1-1/4	5-7/8	381-4164	MT4	381-4364
1-3/4	8-1/8	5	7/16	1-1/4	5-7/8	381-4165	MT4	381-4365
1-13/16	8-1/8	5	7/16	1-1/2	5-7/8	381-4166	MT4	381-4366
1-7/8	8-1/8	5	7/16	1-1/2	5-7/8	381-4167	MT4	381-4367
1-15/16	8-1/8	5	7/16	1-1/2	5-7/8	381-4168	MT4	381-4368
2"	8-3/8	5	1/2	1-1/2	5-7/8	381-4169	MT4	381-4369
2-1/16	9-7/8	5	1/2	1-1/2	7-3/8	381-4170	MT5	381-4370
2-1/8	9-7/8	5	1/2	1-1/2	7-3/8	381-4171	MT5	381-4371
2-3/16	9-7/8	5	1/2	1-1/2	7-3/8	381-4172	MT5	381-4372
2-1/4	9-7/8	5	1/2	1-1/2	7-3/8	381-4173	MT5	381-4373
2-5/16	9-7/8	5	1/2	1-1/2	7-3/8	381-4174	MT5	381-4374
2-3/8	9-7/8	5	1/2	1-3/4	7-3/8	381-4175	MT5	381-4375
2-7/16	9-7/8	5	1/2	1-3/4	7-3/8	381-4176	MT5	381-4376
2-1/2	9-7/8	5	1/2	1-3/4	7-3/8	381-4177	MT5	381-4377
2-9/16	9-7/8	5	1/2	1-3/4	7-3/8	381-4178	MT5	381-4378
2-5/8	9-7/8	5	1/2	1-3/4	7-3/8	381-4179	MT5	381-4379
2-3/4	9-7/8	5	1/2	1-3/4	7-3/8	381-4180	MT5	381-4380
2-7/8	9-7/8	5	1/2	1-3/4	7-3/8	381-4181	MT5	381-4381
3"	9-7/8	5	1/2	1-3/4	7-3/8	381-4182	MT5	381-4382

HSS Counterbore drills

INTERCHANGEABLE PILOTS FOR COUNTERBORES

Shank Diameters of interchangeable pilots must be same with the pilot holes of counterbore when choosing pilots



pilots Dia.	Pilots Shank Dia.								
	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"
	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
1/8	381-5001	381-5101							
5/32	381-5003	381-5103	381-5203						
3/16	381-5005	381-5105	381-5205						
7/32	381-5007	381-5107	381-5207	381-5307					
1/4	381-5009	381-5109	381-5209	381-5309	381-5409				
9/32	381-5011	381-5111	381-5211	381-5311	381-5411				
5/16	381-5013	381-5113	381-5213	381-5313	381-5413				
11/32	381-5015	381-5115	381-5215	381-5315	381-5415				
3/8	381-5017	381-5117	381-5217	381-5317	381-5417	381-5517			
13/32		381-5119	381-5219	381-5319	381-5419	381-5519			
7/16		381-5121	381-5221	381-5321	381-5421	381-5521	381-5621	381-5721	381-5821
15/32		381-5123	381-5223	381-5323	381-5423	381-5523	381-5623	381-5723	381-5823
1/2		381-5125		381-5325	381-5425	381-5525	381-5625	381-5725	381-5825
17/32				381-5327	381-5427	381-5527	381-5627	381-5727	381-5827
9/16		381-5127		381-5329	381-5429	381-5529	381-5629	381-5729	381-5829
19/32				381-5331	381-5431	381-5531	381-5631	381-5731	381-5831
5/8				381-5333	381-5433	381-5533	381-5633	381-5733	381-5833
21/32				381-5335	381-5435	381-5535	381-5635	381-5735	381-5835
11/16				381-5337	381-5437	381-5537	381-5637	381-5737	381-5837
23/32				381-5339	381-5439	381-5539	381-5639	381-5739	381-5839
3/4				381-5341	381-5441	381-5541	381-5641	381-5741	381-5841
25/32				381-5343	381-5443	381-5543	381-5643	381-5743	381-5843
13/16				381-5345	381-5445	381-5545	381-5645	381-5745	381-5845
27/32				381-5347	381-5447	381-5547	381-5647	381-5747	381-5847
7/8				381-5349	381-5449	381-5549	381-5649	381-5749	381-5849
29/32						381-5551	381-5651	381-5751	381-5851
15/16						381-5553	381-5653	381-5753	381-5853
31/32						381-5555	381-5655	381-5755	381-5855
1"						381-5557	381-5657	381-5757	381-5857
1-1/16						381-5559	381-5659	381-5759	381-5859
1-1/8						381-5561	381-5661	381-5761	381-5861
1-3/16							381-5663	381-5763	381-5863
1-1/4							381-5665	381-5765	381-5865
1-5/16							381-5667	381-5767	381-5867
1-3/8							381-5669	381-5769	381-5869
1-7/16								381-5771	381-5871
1-1/2								381-5773	381-5873
1-9/16									381-5875
1-5/8									381-5877
1-11/16									381-5879
1-3/4									381-5881
1-13/16									381-5883
1-7/8									381-5885
1-15/16									381-5887
2"									381-5889

HSS Counterbore drills

STRAIGHT SHANK COUNTERBORES

HSS, Straight Shank



Screw Size	Pilot Dia	Cutting Dia.	Flute Length	Shank Dia.	Overall Length	Model No.
4-40	.1120	.1860	11/16	5/32	3-7/8	381-6000
4-40	.1270	.2020	11/16	5/32	3-7/8	381-6002
4-40	.1430	.1800	11/16	5/32	3-7/8	381-6004
5-40	.1250	.2050	11/16	3/16	4-1/8	381-6006
5-40	.1400	.2210	11/16	3/16	4-1/8	381-6008
5-40	.1560	.2370	11/16	3/16	4-1/8	381-6010
6-32	.1380	.2280	7/8	7/32	4-5/8	381-6012
6-32	.1530	.2440	7/8	7/32	4-5/8	381-6014
6-32	.1690	.2600	7/8	7/32	4-5/8	381-6016
8-32	.1640	.2720	15/16	1/4	5"	381-6018
8-32	.1790	.2880	15/16	1/4	5"	381-6020
8-32	.1950	.3040	15/16	1/4	5"	381-6022
10-32	.1900	.3140	1-1/8	9/32	5-1/4	381-6024
10-32	.2050	.3300	1-1/8	9/32	5-1/4	381-6026
10-32	.2210	.3460	1-1/8	9/32	5-1/4	381-6028
1/4	.2810	.4140	1-5/16	5/16	5-5/8	381-6030
1/4	.2650	.3980	1-5/16	5/16	5-5/8	381-6032
1/4	.2500	.3820	1-5/16	5/16	5-5/8	381-6034
5/16	.3120	.4750	1-5/16	3/8	6-1/8	381-6036
5/16	.3280	.4910	1-5/16	3/8	6-1/8	381-6038
5/16	.3430	.5070	1-5/16	3/8	6-1/8	381-6040
3/8	.3750	.5720	1-5/8	1/2	6-1/2	381-6042
3/8	.3900	.5880	1-5/8	1/2	6-1/2	381-6044
3/8	.4060	.6040	1-5/8	1/2	6-1/2	381-6046
7/16	.4370	.6630	1-11/16	1/2	7"	381-6048
7/16	.4520	.6790	1-11/16	1/2	7"	381-6051
7/16	.4680	.6950	1-11/16	1/2	7"	381-6052
1/2	.5000	.7570	2"	1/2	7-1/2	381-6054
1/2	.5150	.7730	2"	1/2	7-1/2	381-6056
1/2	.5310	.7890	2"	1/2	7-1/2	381-6059
5/8	.6250	.9450	2"	5/8	7-5/8	381-6061
5/8	.6400	.9610	2"	5/8	7-5/8	381-6062
5/8	.6560	.9770	2"	5/8	7-5/8	381-6064
3/4	.7500	1.1330	2-1/8	3/4	7-3/4	381-6066
3/4	.7650	1.1490	2-1/8	3/4	7-3/4	381-6068
3/4	.7810	1.1650	2-1/8	3/4	7-3/4	381-6071
7/8	.8750	1.3220	2-1/8	7/8	8-1/8	381-6072
7/8	.8910	1.3380	2-1/8	7/8	8-1/8	381-6074
7/8	.9060	1.3540	2-1/8	7/8	8-1/8	381-6076
1"	1.0000	1.5100	2-1/4	1"	8-1/2	381-6078
1"	1.0150	1.5260	2-1/4	1"	8-1/2	381-6081
1"	1.0310	1.5420	2-1/4	1"	8-1/2	381-6082

Capscrew Counterbores sets



Piece	Descriptions	Model No.
6pcs	1/4, 5/16, 3/8, 1/2, 5/8, 3/4	381-6200
7pcs	6#, 8#, 10#, 1/4, 5/16, 3/8, 1/2	381-6202
10pcs	4-40 through 1/2", 1/32" Oversized Pilots	381-6204
10pcs	4-40 through 1/2", 1/64" Oversized Pilots	381-6206
10pcs	4-40 through 1/2", Standard Oversized Pilots	381-6208

Screw Size	Pilot Dia	Cutting Dia.	Shank Dia.	Overall Length	Model No.
5#	.1410	.2210	3/16	2-3/8	381-6101
6#	.1500	.2420	7/32	2-3/8	381-6102
8#	.11/64	.19/64	1/4	2-1/2	381-6105
10#	13/64	21/64	5/16	3-1/2	381-6106
1/4	9/32	13/32	3/8	5-1/2	381-6108
5/16	11/32	1/2	7/16	6"	381-6110
3/8	13/32	19/32	1/2	6-1/2	381-6112
7/16	15/32	11/16	1/2	6-3/4	381-6114
1/2	17/32	25/32	3/4	7"	381-6116
5/8	21/32	31/32	3/4	7-1/2	381-6118
3/4	13/16	1-3/16	1"	8"	381-6120
7/8	15/16	1-3/8	1"	8"	381-6122
1"	1-1/16	1-9/16	1"	8"	381-6126



TAPER SHANK COUNTERBORES

3 Flute, HSS

Cap Screw Size	Pilot Dia	Cutting Dia.	Shank Taper	Overall Length	Model No.
1/4	9/32	13/32	MT2	5-3/4	381-6301
5/16	11/32	1/2	MT2	6"	381-6302
3/8	13/32	19/32	MT2	6-1/2	381-6304
7/16	15/32	11/16	MT2	7"	381-6306
1/2	17/32	25/32	MT2	7-1/4	381-6308
5/8	21/32	31/32	MT2	7-1/2	381-6309
5/8	1"	11/16	MT2	7-1/2	381-6312
3/4	13/16	1-3/16	MT3	9"	381-6314
7/8	15/16	1-3/8	MT3	9"	381-6316
1"	1-1/16	1-9/16	MT3	10"	381-6318

METRIC CAPSCREW COUNTERBORES

HSS

3 Flute, Straight Shank

Screw Size	Pilot Dia	Cutting Dia.	Cutting Length	Shank Taper	Model No.
M14	15	24	60.325	MT2	381-6400
M16	17	26	79.375	MT2	381-6402
M20	21	33	79.375	MT2	381-6404

Capscrew Counterbore Sets

Screw Size	Pilot Dia	Cutting Dia.	Cutting Length	Shank Taper	Model No.
M14	15	24	60.325	MT2	381-6500
M16	17	26	79.375	MT2	381-6502
M20	21	33	79.375	MT2	381-6504



3 Flute, Taper Shank

Screw Size	Pilot Dia	Cutting Dia.	Cutting Length	Shank Dia	Model No.
M3	3.4	6	25.4	5.556	381-6600
M4	4.5	8	25.4	7.938	381-6602
M5	5.5	10	31.75	9.525	381-6604
M6	6.6	11	34.925	11.112	381-6606
M8	9	15	38.894	12.7	381-6608
M10	11	18	44.45	12.7	381-6610
M12	14	20	50.8	12.7	381-6612

Carbide Burrs

CARBIDE BURRS

Shape A- Cylindrical



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SA-43	1/16	1/2	1/8"	389-0002	389-0102
SA-42	3/32	7/16	1/8"	389-0004	389-0104
SA-41	1/8	9/16	1/8"	389-0006	389-0106
SA-13	5/32	5/8	1/4"	389-0010	389-0110
SA-14	3/16	5/8	1/4"	389-0012	389-0112
SA-1	1/4	5/8	1/4"	389-0014	389-0114
SA-2	5/16	3/4	1/4"	389-0016	389-0116
SA-3	3/8	3/4	1/4"	389-0018	389-0118
SA-4	7/16	1	1/4"	389-0020	389-0120
SA-5	1/2	1	1/4"	389-0022	389-0122
SA-7	3/4	1	1/4"	389-0024	389-0124
SA-9	1	1	1/4"	389-0026	389-0126

Shape B- Cylindrical End Cut



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SB-42	3/32	7/16	1/8"	389-0504	389-0604
SB-43	1/8	9/16	1/8"	389-0506	389-0606
SB-41	1/16	1/2	1/4"	389-0510	389-0610
SB-13	5/32	5/8	1/4"	389-0512	389-0612
SB-14	3/16	5/8	1/4"	389-0514	389-0614
SB-1	1/4	5/8	1/4"	389-0516	389-0616
SB-2	5/16	3/4	1/4"	389-0518	389-0618
SB-3	3/8	3/4	1/4"	389-0520	389-0620
SB-4	7/16	1	1/4"	389-0522	389-0622
SB-5	1/2	1	1/4"	389-0524	389-0624
SB-7	3/4	1	1/4"	389-0526	389-0626
SB-9	1	1	1/4"	389-0528	389-0628

Shape C- Cylindrical Radius End



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SC-41	3/32	7/16	1/8"	389-1004	389-1104
SC-42	1/8	9/16	1/8"	389-1006	389-1106
SC-11	1/8	1/2	1/4"	389-1010	389-1110
SC-13	5/32	5/8	1/4"	389-1012	389-1112
SC-14	3/16	5/8	1/4"	389-1014	389-1114
SC-1	1/4	5/8	1/4"	389-1016	389-1116
SC-2	5/16	3/4	1/4"	389-1018	389-1118
SC-3	3/8	3/4	1/4"	389-1020	389-1120
SC-4	7/16	1	1/4"	389-1022	389-1122
SC-5	1/2	1	1/4"	389-1024	389-1124
SC-6	5/8	1	1/4"	389-1026	389-1126
SC-7	3/4	1	1/4"	389-1028	389-1128
SC-9	1	1	1/4"	389-1030	389-1130

Shape D- Ball



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SD-41	3/32	3/32	1/8"	389-1504	389-1604
SD-42	1/8	1/8	1/8"	389-1506	389-1606
SD-14	3/16	3/16	1/4"	389-1510	389-1610
SD-11	1/8	1/8	1/4"	389-1512	389-1612
SD-1	1/4	1/4	1/4"	389-1514	389-1614
SD-2	5/16	5/16	1/4"	389-1516	389-1616
SD-3	3/8	3/8	1/4"	389-1518	389-1618
SD-5	1/2	1/2	1/4"	389-1520	389-1620
SD-6	5/8	5/8	1/4"	389-1522	389-1622
SD-7	3/4	3/4	1/4"	389-1524	389-1624
SD-9	1	1	1/4"	389-1526	389-1626

Shape E- Oval



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SE-53	3/16	9/32	1/8"	389-2004	389-2104
SE-41	1/8	7/32	1/8"	389-2006	389-2106
SE-1	1/4	3/8	1/4"	389-2010	389-2110
SE-3	3/8	5/8	1/4"	389-2012	389-2112
SE-5	1/2	7/8	1/4"	389-2014	389-2114
SE-6	5/8	1	1/4"	389-2016	389-2116
SE-7	3/4	1	1/4"	389-2018	389-2118

Shape F- Three Radius End



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SF-53	3/16	1/2	1/8"	389-3002	389-3102
SF-41	1/8	1/4	1/8"	389-3004	389-3104
SF-42	1/8	1/2	1/8"	389-3006	389-3106
SF-11	1/8	1/2	1/4"	389-3010	389-3110
SF-1	1/4	5/8	1/4"	389-3012	389-3112
SF-3	3/8	3/4	1/4"	389-3014	389-3114
SF-5	1/2	1	1/4"	389-3016	389-3116
SF-6	5/8	1	1/4"	389-3018	389-3118
SF-7	3/4	1	1/4"	389-3020	389-3120

Carbide Burrs

CARBIDE BURRS

Shape G- Three Pointed End



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SG-43	1/8	3/8	1/8"	389-3502	389-3602
SG-42	1/8	5/16	1/8"	389-3504	389-3604
SG-41	1/8	1/4	1/8"	389-3506	389-3606
SG-1	1/4	5/8	1/4"	389-3510	389-3610
SG-3	3/8	3/4	1/4"	389-3512	389-3612
SG-13	1/2	3/4	1/4"	389-3514	389-3614
SG-5	1/2	1	1/4"	389-3516	389-3616
SG-6	5/8	1	1/4"	389-3518	389-3618
SG-7	3/4	1	1/4"	389-3520	389-3620

Shape H- Flame



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SH-53	3/16	3/8	1/8"	389-2504	389-2604
SH41	1/8	1/4	1/8"	389-2506	389-2606
SH-1	1/4	5/8	1/4"	389-2510	389-2610
SH-2	5/16	3/4	1/4"	389-2512	389-2612
SH-5	1/2	1-1/4	1/4"	389-2514	389-2614
SH-6	5/8	1-7/16	1/4"	389-2516	389-2616
SH-7	3/4	1-5/8	1/4"	389-2518	389-2618

Shape J- 60° Cone



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SJ-42	1/8	3/32	1/8"	389-4006	389-4106
SJ-1	1/4	3/16	1/4"	389-4010	389-4110
SJ-2	5/16	3/16	1/4"	389-4012	389-4112
SJ-3	3/8	5/16	1/4"	389-4014	389-4114
SJ-5	1/2	7/16	1/4"	389-4016	389-4116
SJ-6	5/8	9/16	1/4"	389-4018	389-4118
SJ-7	3/4	11/16	1/4"	389-4020	389-4120
SJ-9	1	15/16	1/4"	389-4022	389-4122

Shape K- 90° Cone



Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
SK-42	1/8	1/16	1/8"	389-4506	389-4606
SK-1	1/4	1/8	1/4"	389-4510	389-4610
SK-2	5/16	3/16	1/4"	389-4512	389-4612
SK-3	3/8	3/16	1/4"	389-4514	389-4614
SK-5	1/2	1/4	1/4"	389-4516	389-4616
SK-6	5/8	5/16	1/4"	389-4518	389-4618
SK-7	3/4	3/8	1/4"	389-4520	389-4620
SK-9	1	1/2	1/4"	389-4522	389-4622

Shape L- Taper or Cone Radius End



Shape	Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
8Deg. Taper	SL-53	3/16	1/2	1/8	389-5002	389-5102
8Deg. Taper	SL-42	1/8	1/2	1/8	389-5004	389-5104
8Deg. Taper	SL-41	1/8	3/8	1/8	389-5006	389-5106
14Deg. Taper	SL-1	1/4	5/8	1/4	389-5010	389-5110
14 Deg. Taper	SL-2	5/16	7/8	1/4	389-5012	389-5112
14 Deg. Taper	SL-3	3/8	1-1/16	1/4	389-5014	389-5114
14 Deg. Taper	SL-4	1/2	1-1/8	1/4	389-5016	389-5116
14 Deg. Taper	SL-5	5/8	1-3/16	1/4	389-5018	389-5118
14 Deg. Taper	SL-6	5/8	1-5/16	1/4	389-5020	389-5120
14 Deg. Taper	SL-7	3/4	1-1/2	1/4	389-5022	389-5122

Shape M- Taper or Cone Flat End



Shape	Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
16Deg. Taper	SM-53	3/16	1/2	1/8"	389-5502	389-5602
7Deg. Taper	SM-43	1/8	1/8	1/8"	389-5504	389-5604
14Deg. Taper	SM-42	1/8	7/16	1/8"	389-5506	389-5606
12Deg. Taper	SM-41	1/8	11/32	1/8"	389-5508	389-5608
22Deg. Taper	SM-1	1/4	1/2	1/4"	389-5510	389-5610
14Deg. Taper	SM-2	1/4	3/4	1/4"	389-5512	389-5612
10Deg. Taper	SM-3	1/4	1	1/4"	389-5514	389-5614
28Deg. Taper	SM-4	3/8	5/8	1/4"	389-5516	389-5616
28Deg. Taper	SM-5	1/2	5/8	1/4"	389-5518	389-5618
30Deg. Taper	SM-6	5/8	1	1/4"	389-5520	389-5620

Shape N- Inverted Cone



Shape	Style	Cutting Diameter	Cutting Length	Shank Diameter	Single Cut Model No.	Double Cut Model No.
10Deg. Taper	SN-41	3/32	1/8	1/8"	389-6002	389-6102
10Deg. Taper	SN-42	1/8	3/16	1/8"	389-6004	389-6104
10Deg. Taper	SN-53	3/16	1/4	1/8"	389-6006	389-6106
10Deg. Taper	SN-1	1/4	5/16	1/4"	389-6010	389-6110
13Deg. Taper	SN-2	3/8	3/8	1/4"	389-6012	389-6112
28Deg. Taper	SN-4	1/2	1/2	1/4"	389-6014	389-6114
18Deg. Taper	SN-6	5/8	3/4	1/4"	389-6016	389-6116
30Deg. Taper	SN-7	3/4	5/8	1/4"	389-6018	389-6118

Carbide Burrs

DIN8032 CARBIDE BURRS

6mm Shank Dia.

Carbide Burrs-ZYA (Cylindrical)



Style	Cutting Dia.	Cutting Length	Model No.
ZYA0413	4mm	13mm	489-0004
ZYA0616	6mm	16mm	489-0006
ZYA0820	8mm	20mm	489-0008
ZYA1013	10mm	13mm	489-0010
ZYA1020	10mm	20mm	489-0011
ZYA1225	12mm	25mm	489-0012
ZYA1625	16mm	25mm	489-0016

Carbide Burrs-ZYAS (Cylindrical End Cut)



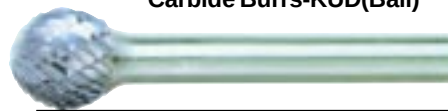
Style	Cutting Dia.	Cutting Length	Model No.
ZYAS 0413	4mm	13mm	489-0104
ZYAS 0616	6mm	16mm	489-0106
ZYAS 0820	8mm	20mm	489-0108
ZYAS 1013	10mm	13mm	489-0110
ZYAS 1020	10mm	20mm	489-0111
ZYAS 1225	12mm	25mm	489-0112
ZYAS 1625	16mm	25mm	489-0116

Carbide Burrs-WRC(Cylindrical Radius End)



Style	Cutting Dia.	Cutting Length	Model No.
WRC0413	4mm	13mm	489-0204
WRC0616	6mm	16mm	489-0206
WRC0820	8mm	20mm	489-0208
WRC1020	10mm	20mm	489-0210
WRC1225	12mm	25mm	489-0212
WRC1625	16mm	25mm	489-0216

Carbide Burrs-KUD(Ball)



Style	Cutting Dia.	Cutting Length	Model No.
KUD 0403	4mm	3.6mm	489-0304
KUD 0605	6mm	5.4mm	489-0306
KUD 0807	8mm	7.0mm	489-0308
KUD 1009	10mm	9.0mm	489-0310
KUD 1210	12mm	10.8mm	489-0312
KUD 1614	16mm	14.3mm	489-0316
KUD 1917	19mm	17.0mm	489-0320

Carbide Burrs-SPG(Three Pointed End)



Style	Cutting Dia.	Cutting Length	Model No.
SPG 0618	6mm	18mm	489-0406
SPG 1020	10mm	20mm	489-0410
SPG 1225	12mm	25mm	489-0412
SPG 1225	12mm	25mm	489-0413
SPG 1625	16mm	25mm	489-0416

Carbide Burrs-Tre(Oval)



Style	Cutting Dia.	Cutting Length	Model No.
TRE0610	6mm	10mm	489-0506
TRE0813	8mm	13mm	489-0508
TRE1016	10mm	16mm	489-0510
TRE1220	12mm	20mm	489-0512
TRE1625	16mm	25mm	489-0516

Carbide Burrs-SKM(Taper or Cone Flat End)



Style	Cutting Dia.	Cutting Length	Model No.
SKM0618 18 degree	6mm		489-0606
SKM1020 28 degree	10mm	18mm	489-0610
SKM1225 26 degree	12mm		489-0612

Carbide Burrs-KEL(Taper or Cone Radius End)



Style	Cutting Dia.	Cutting Length	Model No.
KEL1020 14 degree	10mm		489-0710
KEL1228 14 degree	12mm	28mm	489-0712
KEL1233 14 degree	12mm		489-0713
KEL1633 14 degree	16mm	33mm	489-0716

Carbide Burrs-RBF(Three Radius End)



Style	Cutting Dia.	Cutting Length	Model No.
RBF0618	6mm	18mm	489-0806
RBF0820	8mm	20mm	489-0808
RBF1020	10mm	20mm	489-0810
RBF1225	12mm	25mm	489-0812
RBF1625	16mm	25mm	489-0816

Carbide Burrs-B(Flame)



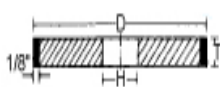
Style	Cutting Dia.	Cutting Length	Model No.
B 0820	8mm	20mm	489-0908
B 1230	12mm	30mm	489-0912
B 1635	16mm	35mm	489-0916

Diamond Wheel

DIAMOND & CBN WHEELS

MEDIUM SIZE O.D. DIAMOND & CBN WHEELS TYPE D1A1

- 150 Grit
- 100 Concentration
- 1/8" Diamond Depth
- For General Purpose



Diameter D	Thickness T	Hole Dia. H	Diamond Model No.	CBN Model No.
4"	1/16"	1-1/4"	487-2221	4870-2221
4"	1/8"	1-1/4"	487-2222	4870-2222
4"	1/4"	1-1/4"	487-2223	4870-2223
5"	1/8"	1-1/4"	487-2224	4870-2224
5"	1/4"	1-1/4"	487-2225	4870-2225
6"	1/16"	1-1/4"	487-2226	4870-2226
6"	1/8"	1-1/4"	487-2227	4870-2227
6"	1/4"	1-1/4"	487-2228	4870-2228
6"	3/8"	1-1/4"	487-2229	4870-2229
6"	1/2"	1-1/4"	487-2230	4870-2230
7"	1/4"	1-1/4"	487-2231	4870-2231
7"	3/8"	1-1/4"	487-2232	4870-2232
7"	1/2"	1-1/4"	487-2233	4870-2233
10"	1/4"	3"	487-2234	4870-2234
10"	1/2"	3"	487-2235	4870-2235
12"	1/2"	5"	487-2236	4870-2236
14"	1/2"	5"	487-2237	4870-2237

DIAMOND & CBN CUT-OFF WHEELS TYPE D1A1R

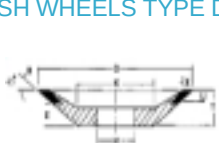
Use to cut off the damaged ends of carbide cutting tools (end mills, reamers, drills, etc.)



Diameter D	Thickness T	Hole Dia. H	Diamond Model No.	CBN Model No.
4"	0.035"	1-1/4"	487-2238	4870-2238
5"	0.035"	1-1/4"	487-2239	4870-2239
6"	0.035"	1-1/4"	487-2254	4870-2254
6"	0.045"	1-1/4"	487-2258	4870-2258
8"	0.045"	1-1/4"	487-2259	4870-2259

DIAMOND & CBN DISH WHEELS TYPE D12V9

- 100 Grit
- 75% Concentration



Diameter D	Thick T	Hole H	Depth X	Insert Length U	Diamond Model No.	CBN Model No.
4"	1/2"	1-1/4"	1/16"	1/4"	487-2248	4870-2248
4"	1/2"	1-1/4"	1/8"	1/4"	487-2249	4870-2249
6"	3/4"	1-1/4"	1/16"	1/4"	487-2250	4870-2250
6"	3/4"	1-1/4"	1/8"	1/4"	487-2251	4870-2251

DIAMOND & CBN DISH WHEELS TYPE D15V9

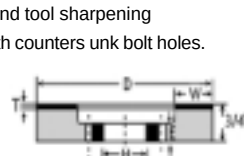
- 100 Grit
- 75% Concentration



Diameter D	Thick T	Hole H	Depth X	Insert Length U	Diamond Model No.	CBN Model No.
6"	3/4"	1-1/4"	1/16"	1/4"	487-2252	4870-2252
6"	3/4"	1-1/4"	1/8"	1/4"	487-2253	4870-2253

DIAMOND & CBN PLAIN CUP WHEEL TYPE 6A2C

- For all-around tool sharpening
- Resinoid with countersunk bolt holes.
- 150 Grit



Concen- tration	Thick T	Dia. D	Depth W	Hole H	Diamond Model No.	CBN Model No.
100%	1/8"	6"	3/4"	1-1/4"	487-2212	4870-2212
100%	1/8"	6"	1/2"	1-1/4"	487-2217	4870-2217
75%	1/16"	6"	3/4"	1-1/4"	487-2218	4870-2218
75%	1/16"	6"	1/2"	1-1/4"	487-2219	4870-2219
75%	1/16"	6"	1"	1-1/4"	487-2220	4870-2220

DIAMOND & CBN Flaring Cup Wheel Type D11V9

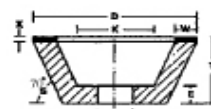
- For tool & cutter Grinding
- For all-around tool sharpening
- 150 Grit
- 100 Concentration



Diamond Depth	Dia. D	Thick T	Rim U	Depth X	Hole H	Diamond Model No.	CBN Model No.
1/8"	3-3/4"	1-1/2"	3/8"	2-1/16"	1-1/4"	487-2210	4870-2210
1/8"	5"	1-3/4"	7/16"	3-1/4"	1-1/4"	487-2211	4870-2211
1/16"	5"	1-3/4"	7/16"	3-1/4"	1-1/4"	487-2213	4870-2213

DIAMOND & CBN FLARING CUP WHEEL TYPE D11A2

- For all-around tool sharpening
- 150 Grit
- 100 Concentration
- 1/8" Diamond depth
- With Diamonds on face
- Use CBN on ferrous material.
- Use Diamond on non-ferrous material.



Dia. D	Thickness T	Rim U	Hole H	Diamond Model No.	CBN Model No.
3"	7/8"	3/8"	1-1/4"	487-2242	4870-2242
4"	1-1/4"	1/2"	1-1/4"	487-2243	4870-2243
5"	1-3/4"	3/8"	1-1/4"	487-2244	4870-2244

DIAMOND & CBN DISHWHEEL TYPE D12A2

- 150 Grit
- 100 Concentration
- 1/8" Diamond depth



Dia. D	Thickness T	Angle B	Hole H	Diamond Model No.	CBN Model No.
6"	1"	30°	1-1/4"	487-2245	4870-2245
6"	1"	30°	1-1/4"	487-2246	4870-2246
6"	1"	30°	1-1/4"	487-2247	4870-2247