



CARBIDE ROTARY FILES

Buy One or Buy Bulk & SAVE

Used for deburring and smoothing metals. All have 1/4" heat treated steel shanks except those with 3/16" and 1/4" flute diameters which are solid carbide. Each shape is available in either standard, double or aluminum cut.

Cylindrical Shape



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-60010	GAR-60012	—	3/16	5/8	1
GAR-60020	GAR-60022	GAR-60021	1/4	5/8	1
GAR-60030	GAR-60032	—	5/16	3/4	1
GAR-60040	GAR-60042	GAR-60041	3/8	3/4	1
—	GAR-60052	—	7/16	1	1
GAR-60060	GAR-60062	GAR-60061	1/2	1	1
GAR-60070	GAR-60072	GAR-60071	5/8	1	1
GAR-60080	GAR-60082	GAR-60081	3/4	1	1
GAR-60090	GAR-60092	GAR-60091	1	1	1

Cylindrical – Radius Shape



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-61010	GAR-61012	—	3/16	5/8	1
GAR-61020	GAR-61022	GAR-61021	1/4	5/8	1
GAR-61030	GAR-61032	—	5/16	3/4	1
GAR-61040	GAR-61042	GAR-61041	3/8	3/4	1
—	GAR-61052	—	7/16	1	1
GAR-61060	GAR-61062	GAR-61061	1/2	1	1
GAR-61070	GAR-61072	GAR-61071	5/8	1	1
GAR-61080	GAR-61082	GAR-61081	3/4	1	1

Ball Shape



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Pack Qty.
GAR-62010	GAR-62012	—	3/16	1
GAR-62020	GAR-62022	GAR-62021	1/4	1
GAR-62030	GAR-62032	—	5/16	1
GAR-62040	GAR-62042	GAR-62041	3/8	1
GAR-62060	GAR-62062	GAR-62061	1/2	1
—	GAR-62072	GAR-62071	5/8	1
GAR-62080	GAR-62082	—	3/4	1
GAR-62090	GAR-62092	—	1	1

Tree – Pointed Shape



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Flute Lgth.	Pack Qty.	Standard Item No.	Double Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-65010	GAR-65012	1/4	5/8	1	GAR-65040	GAR-65042	1/2	1	1
GAR-65020	GAR-65022	3/8	3/4	1	GAR-65060	GAR-65062	3/4	1	1
GAR-65030	GAR-65032	1/2	3/4	1	—	GAR-65052	5/8	1	1

Tree – Radius Shape



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Pack Qty.
GAR-64010	GAR-64012	GAR-64011	1/4	1
GAR-64020	GAR-64022	GAR-64021	3/8	1
GAR-64030	GAR-64032	GAR-64031	1/2	1
—	GAR-64042	GAR-64041	5/8	1
—	GAR-64052	—	3/4	1

Egg Shape



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-63010	GAR-63012	—	1/4	3/8	1
GAR-63020	GAR-63022	GAR-63021	3/8	5/8	1
GAR-63030	GAR-63032	GAR-63031	1/2	7/8	1
—	GAR-63042	GAR-63041	5/8	1	1
GAR-63050	GAR-63052	—	3/4	1	1



Standard Cut



Double Cut



Aluminum Cut

Cone - Radius Shape (14 Degree Included Angle)



GARR TOOL®

Standard Item No.	Double Item No.	Aluminum Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-69010	GAR-69012	—	1/4	5/8	1
GAR-69020	GAR-69022	—	5/16	7/8	1
GAR-69030	GAR-69032	GAR-69031	3/8	1 1/8	1
GAR-69040	GAR-69042	GAR-69041	1/2	1 1/8	1
—	GAR-69052	GAR-69051	5/8	1 3/8	1

Cone - Flat Shape (No Radius)



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Flute Lgth.	Included Angle Degrees	Pack Qty.
GAR-70010	GAR-70012	1/4	1/2	22	1
GAR-70020	GAR-70022	3/8	5/8	28	1
GAR-70030	GAR-70032	1/2	7/8	28	1
—	GAR-70042	5/8	1	31	1

Flame Shape



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Flute Lgth.	Pack Qty.
GAR-66010	GAR-66012	5/16	3/4	1
GAR-66020	GAR-66022	1/2	1 1/4	1
GAR-66040	—	3/4	1 3/8	1

Taper Shape (60 Degree Included Angle)



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Pack Qty.	Standard Item No.	Double Item No.	Flute Dia.	Pack Qty.
GAR-67010	GAR-67012	1/4	1	GAR-67050	—	3/4	1
GAR-67020	—	3/8	1	GAR-67060	GAR-67062	7/8	1
GAR-67030	GAR-67032	1/2	1	—	GAR-67042	5/8	1

Taper Shape (90 Degree Included Angle)



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Pack Qty.	Standard Item No.	Double Item No.	Flute Dia.	Pack Qty.
GAR-68010	GAR-68012	1/4	1	GAR-68050	GAR-68052	3/4	1
GAR-68020	GAR-68022	3/8	1	GAR-68060	GAR-68062	7/8	1
GAR-68030	GAR-68032	1/2	1	GAR-68070	GAR-68072	1	1
GAR-68040	GAR-68042	5/8	1	—	—	—	—

Inverted Cone Shape



GARR TOOL®

Standard Item No.	Double Item No.	Flute Dia.	Flute Lgth.	Included Angle Degrees	Pack Qty.
GAR-71010	GAR-71012	1/4	5/16	10	1
GAR-71020	GAR-71022	3/8	3/8	13	1
GAR-71030	—	1/2	1/2	16	1
—	GAR-71042	5/8	5/8	19	1

ROTARY FILES & ABRASIVES



Used for deburring and smoothing metals. All shapes available in either standard or double cut. All shanks are 1/8".



Standard Cut



Double Cut

GARR TOOL

Carbide Rotary Files

1/8" Heat Treated Steel Shank

1/16" to 1/8" Diameter



Standard Cut	Double Cut						
Item No.	Item No.	Tool Number	Flute Dia.	Flute Lgth.	Inc. Angle Degree	Pack Qty.	
GAR-74010	GAR-74012	SA-41	1/16	1/4	—	1	
GAR-74020	GAR-74022	SA-42	3/32	7/16	—	1	
GAR-74030	GAR-74032	SA-43	1/8	3/8	—	1	
GAR-74040	GAR-74042	SC-41	3/32	7/16	—	1	
GAR-74050	GAR-74052	SC-42	1/8	3/8	—	1	
GAR-74060	GAR-74062	SD-41	3/32	—	—	1	
GAR-74070	GAR-74072	SD-42	1/8	—	—	1	
GAR-74080	GAR-74082	SE-41	1/8	7/32	—	1	
GAR-74090	GAR-74092	SF-42	1/8	1/2	—	1	

Standard Cut	Double Cut						
Item No.	Item No.	Tool Number	Flute Dia.	Flute Lgth.	Inc. Angle Degree	Pack Qty.	
GAR-74100	GAR-74102	SG-43	1/8	3/8	—	1	
GAR-74110	GAR-74112	SH-41	1/8	1/4	—	1	
GAR-74120	GAR-74122	SJ-42	1/8	—	60	1	
GAR-74130	GAR-74132	SK-42	1/8	—	90	1	
GAR-74140	GAR-74142	SL-41	1/8	3/8	14	1	
GAR-74150	GAR-74152	SL-42	1/8	1/2	8	1	
GAR-74160	GAR-74162	SM-41	1/8	3/8	12	1	
GAR-74170	GAR-74172	SM-43	1/8	5/8	7	1	
GAR-74180	GAR-74182	SN-42	1/8	3/16	10	1	

Carbide Rotary Files

1/8" Heat Treated Steel Shank

1/4" Diameter



GARR TOOL

Standard Cut	Double Cut						
Item No.	Item No.	Tool Number	Flute Dia.	Flute Lgth.	Inc. Angle Degree	Pack Qty.	
GAR-73010	GAR-73012	SA-51	1/4	1/2	—	1	
GAR-73020	GAR-73022	SB-51	1/4	3/16	—	1	
GAR-73030	GAR-73032	SC-51	1/4	1/2	—	1	
GAR-73040	GAR-73042	SD-51	1/4	—	—	1	
GAR-73050	GAR-73052	SE-51	1/4	3/8	—	1	
GAR-73060	GAR-73062	SF-51	1/4	1/2	—	1	
GAR-73070	GAR-73072	SG-51	1/4	1/2	—	1	
GAR-73080	GAR-73082	SM-51	1/4	1/2	22	1	
GAR-73090	GAR-73092	SN-51	1/4	1/4	10	1	

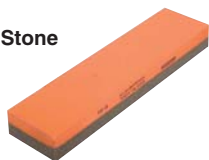
Norton Abrasives India Bench Stone



India bench stones, manufactured with aluminum oxide abrasive, are most popular for producing a strong, keen, long-lasting edge on high quality tools. A frequent choice of artisans, craftsmen and mechanics. Orange/brown in color.

Item No.	Norton	Size	Grit	Pack Qty.
NOR-85590	MB24	4 x 1 x 1/2	Medium	1

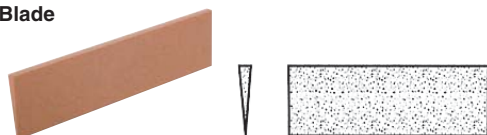
Norton Abrasives India Combination Bench Stone



Manufactured with aluminum oxide abrasive, these stones provide both a coarse and a fine surface. Popular with artisans, craftsmen and mechanics for producing strong, keen, long lasting edges on quality tools. Orange/brown in color.

Item No.	Norton	Size	Grit	Pack Qty.
NOR-85565	IB8	8 x 2 x 1	Coarse/Fine	1

Norton Abrasives India Knife Blade



This knife blade quickly sharpens, hones and maintains the edge and point of cutting tools.

Item No.	Norton	Size	Grit	Pack Qty.
NOR-86775	MF724	4 x 1 x 1/8	Medium	1



SPIRAL TAPS

Buy One or Buy Bulk & SAVE

New Geometry and Powder Metal

- Stable tool life, Reduced inventory cost, Less guesswork when selecting taps, Increased Inventory turns, Reduced tap breakage, Enhanced tool life, Added lubricity, Less chipping problems, Can handle a wide range of tough applications, Can tap in material up to 36 Rc, Lower machining costs

Spiral Point Taps MTT-X Dormer



Material and geometry specifications: HSS XS1, ANSI, 2.5 x D, P 3-5, and a cross-section diagram.

Table with 12 columns: Item No., Tap Size, OAL, Thread Lgth., Shank Dia., Square Dimension, No. of Flutes, Thread Limit, Tap Drill Size, Tap Drill Size (Metric), Neck + Thread Lgth., Pack Qty. Includes sections for UNC, UNF, and Metric.

Spiral Flute Taps MTT-X Dormer

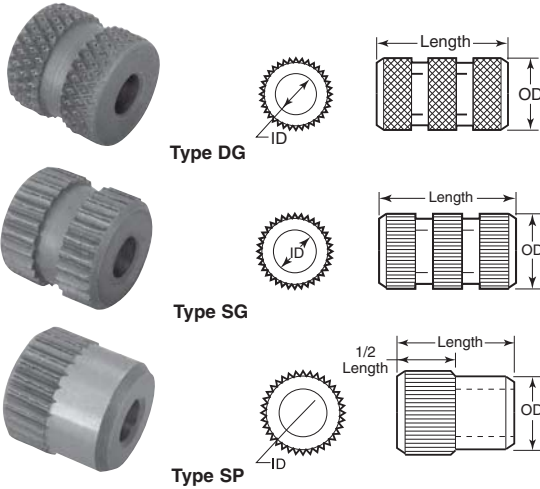


Material and geometry specifications: HSS XS1, ANSI, 2.5 x D, Semi-B, and a cross-section diagram.

Table with 12 columns: Item No., Tap Size, OAL, Thread Lgth., Shank Dia., Square Dimension, No. of Flutes, Thread Limit, Tap Drill Size, Tap Drill Size (Metric), Neck + Thread Lgth., Pack Qty. Includes sections for UNC, UNF, and Metric.



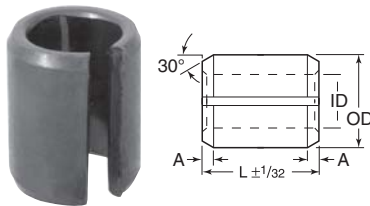
**For Soft Materials
Type DG, SG and SP**



Type DG	Type SP	Type SG	ID	OD	Lgth.	Pack Qty.
BDG-10	—	—	40	1/4	1/4	1
BDG-30	—	—	1/8	3/16	1/2	1
BDG-40	BSP-40	—	—	3/16	1/2	1
BDG-70	—	—	30	3/16	3/8	1
—	BSP-90	—	5/32	3/16	1/2	1
BDG-100	—	—	5/32	1/2	1/2	1
BDG-150	BSP-150	BSG-150	11	1/2	1/2	1
BDG-170	—	—	11	19/32	1/2	1
BDG-180	—	—	10	3/16	3/8	1
BDG-190	—	—	7/32	19/32	1/2	1
BDG-200	—	—	1/4	19/32	1/4	1
BDG-210	—	—	1/4	19/32	3/8	1
BDG-220	—	—	1/4	19/32	1/2	1
—	BSP-230	BSG-230	1/4	1/2	5/16	1
BDG-240	BSP-240	—	1/4	1/2	1/2	1
BDG-250	—	—	1/4	1/2	3/4	1
—	BSP-280	—	5/16	1/2	1/2	1
BDG-300	—	—	5/16	5/8	3/4	1
—	BSP-310	BSG-310	5/8	5/8	1/2	1
BDG-320	BSP-320	BSG-320	3/8	5/8	3/4	1
—	BSP-330	—	3/8	3/4	1/2	1
—	BSP-350	BSG-350	1/2	3/4	1/2	1
—	—	BSG-360	1/2	3/4	3/4	1

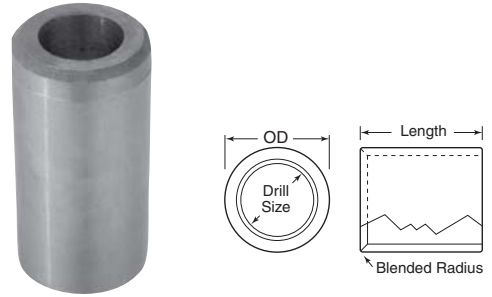
Tension Bushings

Tension bushings are hollow cylinders slit longitudinally over their entire length to permit compression and expansion, with a chamfered end to facilitate insertion. They are rolled from special high carbon spring steel with high elasticity, resilience and wear characteristics. Tension bushings are designed to replace solid steel tubular and case hardened bushings because they are close tolerance, self-retaining and through-hard (Rockwell C 45-50). The inherent elastic material provides constant radial tension for tight fit even if the bore hole becomes enlarged. Insertion can be easily accomplished with a hammer and a drift. Ideal for high-load/low-speed operation in articulating or continuous applications. Static load rating is 125,000 lbs. minimum. Dynamic load rating is 192 in/minute and bearing pressure up to 11,000 lbs. per square inch. Operating temperature up to 630 degree Fahrenheit.



Item No.	OD	ID	L	Recommended Hole-Size Max.-Min.	Outside Dia. Before Insertion Max.-Min.	Inside Dia. After Insertion Max.-Min.	A	Pack Qty.
VT-100	3/4	1/2	3/4	.7511 - .7500	.790 - .770	.507 - .503	.09 - .06	1
VT-102	3/4	1/2	1	.7511 - .7500	.790 - .770	.507 - .503	.09 - .06	1
VT-104	1	3/4	3/4	1.0013 - 1.0000	1.040 - 1.020	.757 - .753	.12 - .08	1
VT-106	1	3/4	1	1.0013 - 1.0000	1.040 - 1.020	.757 - .753	.12 - .08	1
VT-108	1 1/4	1	1 1/2	1.2513 - 1.2500	1.290 - 1.270	1.007 - 1.003	.12 - .08	1
VT-110	1 1/4	1	1	1.2513 - 1.2500	1.290 - 1.270	1.007 - 1.003	.12 - .08	1
VT-112	1 1/2	1 1/4	1	1.5015 - 1.5000	1.540 - 1.520	1.257 - 1.253	.12 - .08	1
VT-114	1 1/2	1 1/4	1 1/2	1.5015 - 1.5000	1.540 - 1.520	1.257 - 1.253	.12 - .08	1
VT-116	1 3/4	1 1/2	3/4	1.7515 - 1.7500	1.790 - 1.770	1.507 - 1.503	.12 - .08	1
VT-120	2	1 1/2	2	2.0015 - 2.0000	2.040 - 2.020	1.512 - 1.504	.15 - .10	1

**Metric Drill Bushings
Headless Press Fit - Type PM**



Bore Tolerance	
Drill Size	ID Tolerance
.35-3.00	+0.02 to +0.08
3.01-6.00	+0.04 to +0.12
6.01-10.00	+0.05 to +0.14
10.01-18.00	+0.06 to +0.17
18.01-30.00	+0.07 to +0.20

Dimensions are in millimeters.

Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.			
6MM OD (+.019/+0.027)				15MM OD (+.028/+0.039)						
DM-03008	3	8	1	DM-09512	9.5	12	1			
DM-03012	3	12	1	DM-09520	9.5	20	1			
DM-03016	3	16	1	DM-09712	9.7	12	1			
7MM OD (+.023/+0.032)				DM-10012				10	12	1
DM-04008	4	8	1	DM-10020	10	20	1			
DM-04012	4	12	1	DM-10025	10	25	1			
DM-04016	4	16	1	18MM OD (+.028/+0.039)						
8MM OD (+.023/+0.032)				DM-11025				11	25	1
DM-04212	4.2	12	1	DM-12012	12	12	1			
DM-04516	4.5	16	1	DM-12020	12	20	1			
10MM OD (+.023/+0.032)				DM-12025				12	25	1
DM-05520	5.5	20	1	22MM OD (+.035/+0.048)						
DM-06010	6	10	1	DM-14016	14	16	1			
DM-06016	6	16	1	DM-14028	14	28	1			
DM-06020	6	20	1	DM-15016	15	16	1			
12MM OD (+.028/+0.039)				DM-15028				15	28	1
DM-06410	6.4	10	1	26MM OD (+.035/+0.048)						
DM-06810	6.8	10	1	DM-16016	16	16	1			
DM-07010	7	10	1	DM-16028	16	28	1			
DM-07016	7	16	1	DM-18016	18	16	1			
DM-07020	7	20	1	DM-18028	18	28	1			
DM-07510	7.5	10	1	DM-18036	18	36	1			
DM-08010	8	10	1	30MM OD (+.035/+0.048)						
DM-08016	8	16	1	DM-20020	20	20	1			
DM-08020	8	20	1	DM-20036	20	36	1			
15MM OD (+.028/+0.039)				DM-22036				22	36	1
DM-08512	8.5	12	1	35MM OD (+.043/+0.059)						
DM-08520	8.5	20	1	DM-25020	25	20	1			
DM-08525	8.5	25	1	DM-25036	25	36	1			
DM-09012	9	12	1	42MM OD (+.043/+0.059)						
DM-09020	9	20	1	DM-30025	30	25	1			
DM-09025	9	25	1							

**Adapter Bushings
Split Type**

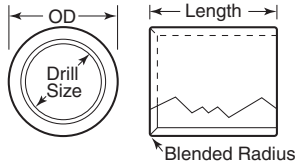


Bushings are made of alloy steel, heat treated and tempered to RC 61-64. Bushings with thin walls are heat treated to RC 50-55. All bushings are .002" undersize to facilitate use with a tolerance of +.005/-0.000. Bushings are concentric within .0015 TIR.

Item No.	ID	OD	Lgth.	Pack Qty.	Item No.	ID	OD	Lgth.	Pack Qty.
SAB-99	1/4	3/4	1 1/4	1	SAB-326	3/4	1	1 1/4	1



Drill Bushings
Headless Press Fit
Type P

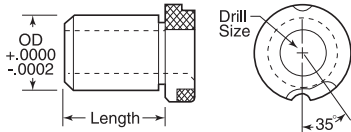


Bore Tolerances	
Drill Size	I.D. Tolerance
.0135 - .25	+.0001 to +.0004
.2510 - .75	+.0001 to +.0005
.7510 - 1.5	+.0002 to +.0006
1.5010 and up	+.0003 to +.0007

Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.
3/16" OD (+.0013/+ .0016)				13/32" OD (+.0013/+ .0016)				5/8" OD (+.0014/+ .0017)			
BP-10010	55	1/4	1	BP-22010	1/4	1/4	1	BP-34130	25/64	5/8	1
BP-10020	1/16	1/4	1	BP-22020	1/4	3/8	1	BP-34210	25/64	1 3/8	1
BP-10200	1/16	1/2	1	BP-22030	1/4	1/2	1	BP-34060	13/32	1/2	1
BP-10120	50	3/8	1	7/16" OD (+.0014/+ .0017)				BP-34140	13/32	3/8	1
BP-10210	50	1/2	1	BP-25030	15/64	3/8	1	BP-34220	13/32	1 3/8	1
BP-10040	5/64	1/4	1	BP-25050	15/64	1/2	1	BP-34070	27/64	1/2	1
BP-10220	5/64	1/2	1	BP-25070	5/16	3/8	1	BP-34150	27/64	5/8	1
BP-10230	46	1/2	1	BP-25080	5/16	1/2	1	BP-50065	7/16	1/4	1
BP-10250	43	1/2	1	BP-25090	5/16	3/4	1	BP-50075	7/16	3/8	1
BP-10090	3/32	1/4	1	1/2" OD (+.0014/+ .0017)				BP-34300	7/16	1 1/4	1
BP-10180	3/32	3/8	1	BP-28010	3/16	3/8	1	BP-34240	7/16	1 3/8	1
BP-10270	3/32	1/2	1	BP-28140	3/16	1/2	1	BP-34310	1/2	1/2	1
1/4" OD (+.0013/+ .0016)				BP-28270	3/16	3/4	1	BP-34320	1/2	3/4	1
BP-13010	40	1/4	1	BP-28020	10	3/8	1	BP-34330	1/2	1	1
BP-13110	40	3/8	1	BP-28280	10	3/4	1	3/4" OD (+.0015/+ .0018)			
BP-13210	40	1/2	1	BP-28290	9	3/4	1	BP-37010	3/8	3/8	1
BP-13020	36	1/4	1	BP-28170	7	1/2	1	BP-37030	3/8	1/2	1
BP-13130	7/64	3/8	1	BP-28300	7	3/4	1	BP-37050	3/8	5/8	1
BP-13230	7/64	1/2	1	BP-28180	13/64	1/2	1	BP-37070	3/8	3/4	1
BP-13240	34	1/2	1	BP-28310	13/64	3/4	1	BP-37100	3/8	1	1
BP-13250	31	1/2	1	BP-28070	7/32	3/8	1	BP-37130	3/8	1 3/8	1
BP-13060	1/8	1/4	1	BP-28200	7/32	1/2	1	BP-37160	7/16	3/4	1
BP-13160	1/8	3/8	1	BP-28330	7/32	3/4	1	BP-37170	7/16	1/2	1
BP-13260	1/8	1/2	1	BP-28210	2	1/2	1	BP-37060	1/2	5/8	1
BP-13070	30	1/4	1	BP-28340	2	3/4	1	BP-37110	1/2	1	1
BP-13170	30	3/8	1	BP-28400	1/4	1/4	1	BP-50085	1/2	1 1/2	1
BP-13270	30	1/2	1	BP-28420	1/4	5/16	1	BP-50095	1/2	2 1/8	1
BP-13180	29	3/8	1	BP-28090	1/4	3/8	1	BP-50096	9/16	3/4	1
BP-13280	29	1/2	1	BP-28220	1/4	1/2	1	BP-50097	9/16	1	1
BP-13290	28	1/2	1	BP-28350	1/4	3/4	1	BP-37090	17/32	3/4	1
BP-13100	9/64	1/4	1	BP-28440	1/4	1	1	BP-37120	17/32	1	1
BP-13200	9/64	3/8	1	BP-28100	F	3/8	1	BP-37180	5/8	1	1
BP-13300	9/64	1/2	1	BP-28230	F	1/2	1	BP-37190	5/8	3/4	1
5/16" OD (+.0013/+ .0016)				BP-28360	F	3/4	1	BP-37200	5/8	1/2	1
BP-16010	1/8	3/8	1	BP-28110	17/64	3/8	1	7/8" OD (+.0015/+ .0018)			
BP-16090	1/8	1/2	1	BP-28240	17/64	1/2	1	BP-50105	9/16	3/8	1
BP-16170	1/8	3/4	1	BP-28370	17/64	3/4	1	BP-40050	9/16	3/4	1
BP-16100	26	1/2	1	BP-28120	9/32	3/8	1	BP-40055	9/16	1	1
BP-16030	24	3/8	1	BP-28250	9/32	1/2	1	BP-40070	19/32	1	1
BP-16110	24	1/2	1	BP-28380	9/32	3/4	1	BP-50115	5/8	3/8	1
BP-16040	5/32	3/8	1	BP-28450	5/16	1	1	BP-40060	5/8	3/4	1
BP-16120	5/32	1/2	1	BP-28460	5/16	1/2	1	BP-40080	5/8	1	1
BP-16200	5/32	3/4	1	BP-28470	3/8	3/4	1	BP-40120	5/8	1 3/8	1
BP-16290	22	1	1	BP-28480	3/8	1	1	1" OD (+.0015/+ .0018)			
BP-16130	21	1/2	1	9/16" OD (+.0014/+ .0017)				BP-43010	1/2	1/2	1
BP-16210	21	3/4	1	BP-32010	3/8	1/2	1	BP-43040	1/2	3/4	1
BP-16060	20	3/8	1	BP-32020	3/8	3/4	1	BP-43070	1/2	1	1
BP-16140	20	1/2	1	BP-32030	7/16	1/2	1	BP-43020	5/8	1/2	1
BP-16070	11/64	3/8	1	BP-32040	7/16	3/4	1	BP-43050	5/8	3/4	1
BP-16150	11/64	1/2	1	BP-32050	7/16	1	1	BP-43080	5/8	1	1
BP-16230	11/64	3/4	—	5/8" OD (+.0014/+ .0017)				BP-43100	11/16	1 1/4	1
BP-16300	3/16	1	1	BP-34010	5/16	1/2	1	BP-43140	11/16	1 1/2	1
3/8" OD (+.0013/+ .0016)				BP-34090	5/16	5/8	1	BP-43110	3/4	1 1/4	1
BP-18010	3/16	1/2	1	BP-34170	5/16	1 3/8	1	BP-43150	3/4	1 1/2	1
BP-18020	3/16	3/4	1	BP-34030	11/32	1/2	1	BP-50130	3/4	2 1/8	1
BP-19010	7	3/8	1	BP-34190	11/32	1 3/8	1	BP-50135	3/4	2 1/2	1
BP-19030	7	1/2	1	BP-50050	3/8	1/4	1	1 1/4" OD (+.0017/+ .0020)			
BP-19050	7	3/4	1	BP-50060	3/8	3/8	1	BP-46050	7/8	2	1
BP-19020	13/64	3/8	1	BP-34040	3/8	1/2	1	BP-46020	15/16	1 1/2	1
BP-19040	13/64	1/2	1	BP-34120	3/8	5/8	1	BP-46040	15/16	1	1
BP-19060	13/64	3/4	1	BP-34250	3/8	3/4	1	1 3/4" OD (+.0018/+ .0022)			
BP-19070	1/4	1/4	1	BP-34270	3/8	1	1	BP-49030	1	2	1
BP-19080	1/4	1/2	1	BP-34290	3/8	1 1/4	1				
BP-19090	1/4	3/4	1	BP-34200	3/8	1 3/8	1				
BP-19100	1/4	1	1	BP-34050	25/64	1/2	1				



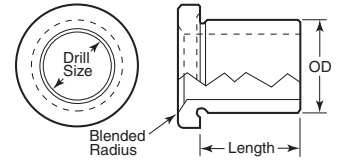
**Drill Bushings
 Slip/Fixed -Type SF**



See page 812 for lock screws.

Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.
1/4" OD (Use lock screw LO-703)				3/4" OD (Use lock screw LO-705)			
BSF-10030	1/8	1/2	1	BSF-25010	5/16	1/2	1
BSF-13010	3/32	3/8	1	BSF-25040	3/8	1/2	1
BSF-13020	3/32	1/2	1	BSF-25050	3/8	3/4	1
BSF-13060	7/64	1/2	1	BSF-25060	3/8	1	1
BSF-13070	1/8	3/8	1	BSF-25080	29/64	3/4	1
BSF-13080	1/8	1/2	1	BSF-25100	13/32	1/2	1
BSF-13090	1/8	3/4	1	BSF-25120	27/64	1/2	1
BSF-13110	5/32	3/8	1	BSF-25130	27/64	3/4	1
BSF-13120	5/32	1/2	1	BSF-25150	7/16	1/2	1
BSF-13130	5/32	3/4	1	BSF-25160	7/16	3/4	1
BSF-13150	11/64	3/8	1	BSF-25170	7/16	1	1
BSF-13160	11/64	1/2	1	BSF-25200	15/32	3/4	1
3/8" OD (Use lock screw LO-703)				1" OD (Use lock screw LO-710)			
BSF-16030	#7	3/4	1	BSF-25230	1/2	1/2	1
BSF-16060	7/32	1/2	1	BSF-25240	1/2	3/4	1
BSF-16070	7/32	3/8	1	BSF-25250	1/2	1	1
1/2" OD (Use lock screw LO-705)				1 1/2" OD (Use lock screw LO-710)			
BSF-19010	3/16	1/2	1	BSF-25260	1/2	1 3/8	1
BSF-19020	3/16	3/4	1	BSF-25270	17/32	1/2	1
BSF-19040	13/64	1/2	1	BSF-25280	17/32	3/4	1
BSF-19050	15/64	3/4	1	1" OD (Use lock screw LO-710)			
BSF-19070	15/64	1/2	1	BSF-28010	1/2	3/4	1
BSF-19090	1/4	1/2	1	BSF-28020	1/2	1	1
BSF-19100	1/4	3/4	1	BSF-28040	1/2	1 1/2	1
BSF-19110	1/4	1	1	BSF-28050	3/8	3/4	1
BSF-19120	F	1/2	1	BSF-28060	3/8	1	1
BSF-19170	9/32	1/2	1	BSF-28070	3/8	1 3/8	1
BSF-19180	9/32	3/4	1	BSF-28080	3/8	1 1/2	1
BSF-19200	5/16	1/2	1	BSF-28100	21/32	1	1
BSF-19210	5/16	3/4	1	BSF-28110	3/4	3/4	1
BSF-19220	5/16	1	1	BSF-28120	3/4	1	1
5/8" OD (Use lock screw LO-705)				1 3/8" OD (Use lock screw LO-710)			
BSF-22010	3/8	3/8	1	BSF-28130	3/4	1 3/8	1
BSF-22020	3/8	1/2	1	BSF-31010	7/8	3/4	1
BSF-22030	3/8	3/4	1	BSF-31050	7/8	1 3/4	1
BSF-22040	3/8	1	1				
BSF-22050	13/32	3/8	1				
BSF-22060	13/32	1/2	1				
BSF-22080	13/32	1	1				

**Drill Bushings
 Standard Head Press Fit -Type H**

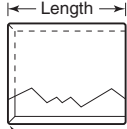
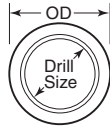


See page 812 for lock screws.

Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.
13/64" OD (+.0010/+0.0013)				1/2" OD (+.0014/+0.0017)			
BHT-10030	3/32	1/4	1	BHT-25240	5/16	1/2	1
BHT-10040	3/32	1/2	1	BHT-25250	5/16	3/4	1
1/4" OD (+.0013/+0.0016)				BHT-25260			
BHT-13010	40	1/4	1	BHT-25270	5/16	1	1
BHT-13020	40	1/2	1	BHT-25280	5/16	1 3/8	1
BHT-13070	7/64	1/2	1	BHT-25290	3/8	3/4	1
BHT-13080	1/8	1/4	1	BHT-25300	3/8	1	1
BHT-13090	1/8	3/8	1	5/8" OD (+.0014/+0.0017)			
BHT-13100	1/8	1/2	1	BHT-28030	5/16	1/2	1
BHT-13110	1/8	3/4	1	BHT-28040	5/16	3/4	1
BHT-13030	29	1/4	1	BHT-28070	21/64	1/2	1
BHT-13040	29	3/8	1	BHT-28080	21/64	3/4	1
BHT-13050	29	1/2	1	BHT-28090	11/32	1/4	1
BHT-13130	9/64	3/8	1	BHT-28100	11/32	1/2	1
BHT-13140	9/64	1/2	1	BHT-28120	3/8	1/4	1
BHT-13150	9/64	3/4	1	BHT-28130	3/8	3/8	1
3/8" OD (+.0013/+0.0016)				BHT-28140			
BHT-16010	1/8	3/8	1	BHT-28150	3/8	3/4	1
BHT-16020	1/8	1/2	1	BHT-28160	3/8	1	1
BHT-16030	1/8	3/4	1	BHT-28170	3/8	1 3/8	1
BHT-16050	5/32	1/2	1	BHT-28180	7/16	1/4	1
BHT-16060	5/32	3/4	1	BHT-28190	7/16	3/8	1
BHT-16070	10	3/8	1	BHT-28200	7/16	1/2	1
BHT-16080	10	1/2	1	BHT-28210	7/16	3/4	1
3/8" OD (+.0013/+0.0016)				BHT-28220			
BHT-19010	7	3/8	1	BHT-28220	7/16	1	1
BHT-19020	7	1/2	1	3/4" OD (+.0015/+0.0018)			
BHT-19030	7/32	3/8	1	BHT-31010	3/8	1/2	1
BHT-19040	7/32	1/2	1	BHT-31020	3/8	3/4	1
BHT-19050	7/32	3/4	1	BHT-31030	3/8	1	1
7/16" OD (+.0014/+0.0017)				BHT-31040			
BHT-22010	1/4	3/8	1	BHT-31050	29/64	1/2	1
BHT-22020	1/4	1/2	1	BHT-31060	29/64	3/4	1
BHT-22030	1/4	3/4	1	BHT-31080	29/64	1 3/8	1
BHT-22040	1/4	1	1	BHT-31110	31/64	1	1
BHT-22050	17/64	3/8	1	BHT-31120	1/2	1/2	1
BHT-22060	17/64	1/2	1	BHT-31130	1/2	3/4	1
1/2" OD (+.0014/+0.0017)				BHT-31140			
BHT-25010	3/16	1/4	1	BHT-31150	1/2	1 3/8	1
BHT-25020	3/16	3/8	1	BHT-31160	33/64	1/2	1
BHT-25030	3/16	1/2	1	BHT-31170	33/64	3/4	1
BHT-25050	7	3/8	1	BHT-31180	33/64	1	1
BHT-25060	7	1/2	1	BHT-31190	17/32	1/2	1
BHT-25090	13/64	1/2	1	BHT-31200	17/32	3/4	1
7/8" OD (+.0015/+0.0018)				1" OD (+.0015/+0.0018)			
BHT-25100	1/4	1/4	1	BHT-34010	5/8	1/2	1
BHT-25110	1/4	3/8	1	BHT-34020	5/8	3/4	1
BHT-25120	1/4	1/2	1	BHT-34030	5/8	1	1
BHT-25130	1/4	3/4	1	BHT-34040	5/8	1 1/4	1
BHT-25140	1/4	1	1	1" OD (+.0015/+0.0018)			
BHT-25150	1/4	1 3/8	1	BHT-37010	3/4	1/2	1
BHT-25180	F	1/2	1	BHT-37020	3/4	3/4	1
BHT-25190	9/32	1/4	1	BHT-37030	3/4	1	1
BHT-25210	9/32	1/2	1	BHT-37040	3/4	1 3/8	1
BHT-25220	5/16	1/4	1	BHT-37050	49/64	1/2	1
BHT-25230	5/16	3/8	1	BHT-37070	49/64	1	1



Drill Bushings Headless Press Fit Type L

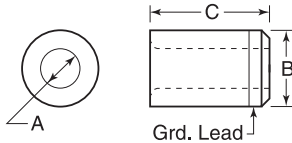


Bore Tolerances	
Drill Size	I.D. Tolerance
.0135 - .25	+ .0001 to + .0004
.2510 - .75	+ .0001 to + .0005
.7510 - 1.5	+ .0002 to + .0006
1.5010 and up	+ .0003 to + .0007

Used with fixed or slip renewable bushings. These liners are pressed permanently into the jig plate creating a precise location point.

Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.	Item No.	Drill Size	Lgth.	Pack Qty.
5/16" OD (+.0013/+ .0016)				3/8" OD (+.0014/+ .0017)				7/8" OD (+.0015/+ .0018)				1 3/8" OD (+.0018/+ .0022)			
BP-16260	3/16	1/4	1	BP-50030	5/16	1/4	1	BP-40020	5/8	1/2	1	BP-50170	1	1	1
BP-16080	3/16	3/8	1	BP-31010	5/16	3/8	1	BP-40040	5/8	3/8	1	BP-49020	1	1 1/8	1
BP-16160	3/16	1/2	1	BP-31020	5/16	1/2	1	BP-40100	5/8	1 1/4	1	BP-50175	1	1 1/2	1
BP-16280	3/16	5/8	1	BP-50040	5/16	5/8	1	1" OD (+.0015/+ .0018)				BP-50180	1	1 3/4	1
BP-16240	3/16	3/4	1	BP-31030	5/16	3/4	1	BP-43030	3/4	1/2	1	BP-50190	1	2 1/2	1
7/16" OD (+.0014/+ .0017)				5/8" OD (+.0014/+ .0017)				1 1/4" OD (+.0017/+ .0020)				1 3/4" OD (+.0019/+ .0023)			
BP-25020	1/4	1/4	1	BP-34080	7/16	1/2	1	BP-43060	3/4	3/4	1	BP-50200	1 3/8	3/4	1
BP-50010	1/4	5/16	1	BP-34160	7/16	5/8	1	BP-43090	3/4	1	1	BP-50125	3/4	1 1/4	1
BP-25040	1/4	3/8	1	BP-34260	7/16	3/4	1	BP-43130	3/4	1 3/8	1	BP-50205	1 3/8	1	1
BP-25060	1/4	1/2	1	BP-34280	7/16	1	1	BP-50125	3/4	1 3/4	1	BP-50215	1 3/8	1 1/2	1
BP-50015	1/4	5/8	1	3/4" OD (+.0015/+ .0018)				BP-50140	3/4	3	1	BP-50220	1 3/8	1 3/4	1
BP-50020	1/4	3/4	1	BP-50080	1/2	5/8	1	1 1/2" OD (+.0017/+ .0020)				BP-50225	1 3/8	2 1/8	1
1/2" OD (+.0014/+ .0017)				BP-37020	1/2	3/8	1	BP-50155	7/8	3/4	1	BP-50230	1 3/8	2 1/2	1
BP-28410	5/16	1/4	1	BP-37040	1/2	1/2	1	BP-46010	7/8	1	1	BP-50235	1 3/8	3	1
BP-28430	5/16	5/16	1	BP-37080	1/2	3/4	1	BP-50160	7/8	1 1/4	1	2 1/4" OD (+.0021/+ .0025)			
BP-28130	5/16	3/8	1	BP-37140	1/2	1 3/8	1	BP-46030	7/8	1 1/2	1	BP-50245	1 3/4	1	1
BP-28260	5/16	1/2	1	BP-50090	1/2	1 3/4	1	1 3/8" OD (+.0018/+ .0022)				BP-50255	1 3/4	1 1/2	1
BP-50025	5/16	5/8	1	7/8" OD (+.0015/+ .0018)				BP-49010	1	1/2	1	BP-50260	1 3/4	1 3/4	1
BP-28390	5/16	3/4	1	BP-40010	5/16	1/2	1	BP-50165	1	3/4	1	BP-50265	1 3/4	2 1/8	1

Drill Bushings Tungsten Carbide Bushings - Type PC



Made from solid tungsten carbide.

See page 812 for lock screws.

Item No.	A	B	C	Pack Qty.	Item No.	A	B	C	Pack Qty.
BTC-15	1/8	1/4	5/16	1	BTC-75	1/4	1/2	3/4	1
BTC-20	1/8	1/4	1/2	1	BTC-80	5/16	1/2	1/2	1
BTC-25	1/8	5/16	1/2	1	BTC-90	3/8	5/8	1/2	1
BTC-140	3/16	5/16	1/2	1	BTC-95	3/8	5/8	3/4	1
BTC-50	1/4	1/2	3/4	1	BTC-110	1/2	3/4	3/4	1
BTC-60	1/4	1 3/32	1/2	1	BTC-115	1/2	3/4	1	1
BTC-70	1/4	1/2	1/2	1	BTC-125	3/4	1	3/4	1

Drill & Tap Sets



These drill and tap sets provide a plug style tap and the proper size drill in a convenient metal index case. Tap dispensers and indexes are available separately.

See page 481 for tap dispensers and indexes.

Item No.	Type	Description	Pack Qty.
DTS-5	UNC	6-32/#36, 8-32/#29, 10-24/#25, 10-32/#21, 1/4-20/#7, 5/16-18/F, 3/8-16/5/16, 7/16-14/U, 1/2-13/27/64	1
DTS-15	UNC/UNF	6-40/#33, 6-32/#36, 8-36/#29, 8-32/#29, 10-32/#21, 10-24/#25, 12-28/#15, 12-24/#16, 1/4-28/#3, 1/4-20/#7, 5/16-24/1, 3/16-18/F, 3/8-24/Q, 3/8-16/5/16, 7/16-20/29/64, 7/16-14/U, 1/2-20/29/64, 1/2-13/27/64	1

Cutting Fluid



EP-Extra Aluminum Pro-Tap



Cutting fluids for a variety of cutting applications. Improves surface finish, machinability and tool life. Tap Magic with EP-EXTRA is ozone friendly for any cutting operation on any metal. Tap Magic Aluminum is used when the majority of work being done is on aluminum. Tap Magic Protap is biodegradable and is used when a fluid free of regulated chemicals is needed.

Item No.	Container	Pack Qty.
w/EP-EXTRA		
TM-10004E	4 oz.	1
TM-10016E	16 oz.	1
TM-10128E	1	1
Aluminum		
TM-20004A	4 oz.	1
TM-20016A	16 oz.	1
Pro-Tap		
TM-30004P	4 oz.	1
TM-30016P	16 oz.	1



Gold-P Coated Drills
Jobber Length
HSS Straight Shank



Right hand spiral, wider flutes. 135 degree split point, .059 diameter and over. Bright body with TiN coating on working length. For drilling in steel, cast steel, alloyed and non-alloyed metals, grey cast iron, graphite and malleable cast iron.

Table with columns: Item No., Dia., Dec. Equiv., Flute Lgth., OAL, Pack Qty., Item No., Dia., Dec. Equiv., Flute Lgth., OAL, Pack Qty. Rows include Fractional and Wire Gauge drill specifications.

* 5 per package
** 10 per package

Step Drills



For use in thin metal, wood and plastic; these step drills can drill as many as 13 different hole sizes with just one bit. The proper size hole is achieved by simply counting the steps as they penetrate the work.

Table with columns: Item No., No. of Holes, Hole Size, Increments, Step Thickness, Shank Size, Pack Qty. Lists items ATC-10101 through ATC-10502.

*Not included in set



Taper Length Drills
Fractional Sizes
Series R51
High Speed Steel
General Purpose
118 Degree Conventional Point



Used when a length longer than jobber length is required.
 Designed to perform on a wide range of materials.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
Bright					
PTD-51001	1/64	.0156	5/16	1 1/2	1
PTD-51002	1/32	.0312	3/4	2	1
PTD-51003	3/64	.0469	1 1/8	2 1/4	1
PTD-51004	1/16	.0625	1 3/4	3	1
PTD-51005	5/64	.0781	2	3 3/4	1
PTD-51006	3/32	.0938	2 1/4	4 1/4	1
PTD-51007	7/64	.1094	2 1/2	2 1/2	1
PTD-51008	1/8	.1250	2 3/4	5 1/8	1
PTD-51009	9/64	.1406	3	5 3/8	1
PTD-51010	5/32	.1562	3	5 3/8	1
PTD-51011	11/64	.1719	3 1/8	1 1/2	1
PTD-51012	3/16	.1875	3 3/8	5 3/4	1
PTD-51013	13/64	.2031	3 1/2	6	1
PTD-51014	7/32	.2188	3 3/8	6	1
PTD-51015	15/64	.2344	3 3/4	6 1/8	1
PTD-51016	1/4	.2500	3 3/4	6 1/8	1
PTD-51017	17/64	.2656	3 3/8	6 1/4	1
PTD-51018	9/32	.2812	3 3/8	6 1/4	1
PTD-51019	19/64	.2969	4	6 3/8	1
PTD-51020	5/16	.3125	4	6 3/8	1
PTD-51021	21/64	.3281	4 1/8	6 1/2	1
PTD-51022	11/32	.3438	4 1/8	6 1/2	1
PTD-51023	23/64	.3594	4 1/4	6 3/4	1
PTD-51024	3/8	.3750	4 1/4	6 3/4	1
PTD-51025	25/64	.3906	4 1/4	7	1
PTD-51026	13/32	.4062	4 3/8	7	1
PTD-51027	27/64	.4219	4 3/8	7 1/4	1
PTD-51028	7/16	.4375	4 3/8	7 1/4	1
PTD-51029	29/64	.4531	4 3/4	7 1/2	1
PTD-51030	15/32	.4688	4 3/4	7 1/2	1
PTD-51031	31/64	.4844	4 3/4	7 3/4	1
PTD-51032	1/2	.5000	4 3/4	7 3/4	1
PTD-51033	33/64	.5156	4 3/4	8	1
PTD-51034	17/32	.5312	4 3/4	8	1
PTD-51035	35/64	.5469	4 3/8	8 1/4	1
PTD-51036	9/16	.5625	4 3/8	8 1/4	1
PTD-51037	37/64	.5781	4 3/8	8 1/4	1
PTD-51038	19/32	.5938	4 3/8	8 1/4	1
PTD-51039	39/64	.6094	4 3/8	8 1/4	1
PTD-51040	5/8	.6250	4 3/8	8 1/4	1
PTD-51041	41/64	.6406	5 1/8	9	1
PTD-51042	21/32	.6562	5 1/8	9	1
PTD-51043	43/64	.6719	5 1/8	9 1/4	1
PTD-51044	11/16	.6875	5 3/8	9 1/4	1
Black Oxide					
PTD-51045	45/64	.7031	5 3/8	9 1/2	1
PTD-51046	23/32	.7188	5 3/8	9 1/2	1
PTD-51047	47/64	.7344	5 3/8	9 3/4	1
PTD-51048	3/4	.7500	5 3/8	9 3/4	1
PTD-51049	49/64	.7656	6	9 3/8	1
PTD-51050	25/32	.7812	6	9 3/8	1
PTD-51051	51/64	.7969	6 1/8	10	1
PTD-51053	53/64	.8281	6 1/8	10	1
PTD-51052	13/16	.8125	6 1/8	10	1
PTD-51054	27/32	.8438	6 1/8	10	1
PTD-51055	55/64	.8594	6 1/8	10	1
PTD-51056	7/8	.8750	6 1/8	10	1
PTD-51057	57/64	.8906	6 1/8	10	1
PTD-51058	29/32	.9062	6 1/8	10	1
PTD-51059	59/64	.9219	6 1/8	10 1/4	1
PTD-51060	15/16	.9375	6 1/8	10 1/2	1
PTD-51061	61/64	.9531	6 3/8	11	1
PTD-51062	31/32	.9688	6 3/8	11	1
PTD-51063	63/64	.9844	6 3/8	11	1
PTD-51100	1	1.000	6 3/8	11	1
PTD-51108	1 1/8	1.1250	7 1/8	11 3/4	1

Taper Shank Drills
Fractional Sizes
Series 209 (Black Oxide)
High Speed Steel
Regular Shank
General Purpose
118 Degree Conventional Point



Drills made to fit Morse Taper holders. Designed to perform on a broad range of material.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Morse Shank No.	Pack Qty.
PTD-20016	1/4	.2500	2 1/8	6 1/8	1	1
PTD-20017	17/64	.2656	3	6 1/4	1	1
PTD-20018	9/32	.2812	3	6 1/4	1	1
PTD-20019	19/64	.2969	3 1/8	6 3/8	1	1
PTD-20020	5/16	.3125	3 1/8	6 3/8	1	1
PTD-20021	21/64	.3281	3 1/4	6 1/2	1	1
PTD-20022	11/32	.3438	3 1/4	6 1/2	1	1
PTD-20023	23/64	.3594	3 1/2	6 3/4	1	1
PTD-20024	3/8	.3750	3 1/2	6 3/4	1	1
PTD-20025	25/64	.3906	3 3/8	7	1	1
PTD-20026	13/32	.4062	3 3/8	7	1	1
PTD-20027	27/64	.4219	3 3/8	7 1/4	1	1
PTD-20028	7/16	.4375	3 3/8	7 1/4	1	1
PTD-20029	29/64	.4531	4 1/4	7 1/2	1	1
PTD-20030	15/32	.4688	2 1/8	7 1/2	1	1
PTD-20031	31/64	.4844	4 3/8	8 1/4	2	1
PTD-20032	1/2	.5000	4 3/8	8 1/4	2	1
PTD-20033	33/64	.5156	4 3/8	8 1/2	2	1
PTD-20034	17/32	.5312	4 3/8	8 1/2	2	1
PTD-20035	35/64	.5469	4 3/8	8 3/4	2	1
PTD-20036	9/16	.5625	4 3/8	8 3/4	2	1
PTD-20037	37/64	.5781	4 3/8	8 3/4	2	1
PTD-20038	19/32	.5938	4 3/8	8 3/4	2	1
PTD-20039	39/64	.6094	4 3/8	8 3/4	2	1
PTD-20040	5/8	.6250	5 1/8	8 3/4	2	1
PTD-20041	41/64	.6406	5 3/8	9	2	1
PTD-20042	21/32	.6562	5 3/8	9	2	1
PTD-20043	43/64	.6719	5 3/8	9 1/4	2	1
PTD-20044	11/16	.6875	5 3/8	9 1/4	2	1
PTD-20045	45/64	.7031	5 3/8	9 1/2	2	1
PTD-20046	23/32	.7188	5 3/8	9 1/2	2	1
PTD-20047	47/64	.7344	5 3/8	9 3/4	2	1
PTD-20048	3/4	.7500	5 3/8	9 3/4	2	1
PTD-20049	49/64	.7656	6	9 3/8	2	1
PTD-20050	25/32	.7812	6	9 3/8	2	1
PTD-20051	51/64	.7969	6 1/8	10 3/4	3	1
PTD-20052	13/16	.8125	6 1/8	10 3/4	3	1
PTD-20053	53/64	.8281	6 1/8	10 3/4	3	1
PTD-20054	27/32	.8438	6 1/8	10 3/4	3	1
PTD-20055	55/64	.8594	6 1/8	10 3/4	3	1
PTD-20056	7/8	.8750	6 1/8	10 3/4	3	1
PTD-20057	57/64	.8906	6 1/8	10 3/4	3	1
PTD-20058	29/32	.9062	6 1/8	10 3/4	3	1
PTD-20059	59/64	.9219	6 1/8	10 3/4	3	1
PTD-20060	15/16	.9375	6 1/8	10 3/4	3	1
PTD-20061	61/64	.9531	6 3/8	11	3	1
PTD-20062	31/32	.9688	6 3/8	11	3	1
PTD-20063	63/64	.9844	6 3/8	11	3	1
PTD-21000	1	1.00	2 1/8	11	3	1
PTD-21001	1 1/64	1.0156	6 1/2	11 3/8	3	1
PTD-21002	1 1/32	1.0312	2 1/8	11 3/8	3	1
PTD-21004	1 1/8	1.0625	6 3/8	11 3/4	3	1
PTD-21005	1 1/64	1.0781	6 3/8	12 1/2	4	1
PTD-21006	1 1/32	1.0938	6 3/8	12 1/2	4	1
PTD-21007	1 1/64	1.1094	7 1/8	12 3/4	4	1
PTD-21008	1 1/8	1.1250	2 1/8	12 3/4	4	1
PTD-21010	1 1/32	1.1562	7 1/4	12 3/4	4	1
PTD-21012	1 1/16	1.1875	7 3/8	13	4	1
PTD-21014	1 1/32	1.2188	7 1/2	13 3/8	4	1
PTD-21016	1 1/4	1.2500	7 3/8	13 3/8	4	1
PTD-21020	1 1/16	1.3125	8 3/8	14 1/4	4	1



Reduced Shank Drills
Fractional Sizes
Series R56 (Black Oxide, Round Shank)
High Speed Steel
General Purpose
Silver and Deming
1/2" Reduced Shank
118 Degree Point



Performs on medium and low tensile material.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
PTD-91433	33/64	.5156	3	6	1
PTD-91434	17/32	.5312	3	6	1
PTD-91435	39/64	.5469	3	6	1
PTD-91436	9/16	.5625	3	6	1
PTD-91437	37/64	.5781	3	6	1
PTD-91438	19/32	.5938	3	6	1
PTD-91439	39/64	.6094	3	6	1
PTD-91440	3/8	.6250	3	6	1
PTD-91441	41/64	.6406	3	6	1
PTD-91442	21/32	.6562	3	6	1
PTD-91443	43/64	.6719	3	6	1
PTD-91444	11/16	.6875	3	6	1
PTD-91445	45/64	.7031	3	6	1
PTD-91446	23/32	.7188	3	6	1
PTD-91447	47/64	.7344	3	6	1
PTD-91448	3/4	.7500	3	6	1
PTD-91449	49/64	.7656	3	6	1
PTD-91450	25/32	.7812	3	6	1
PTD-91451	51/64	.7969	3	6	1
PTD-91452	13/16	.8125	3	6	1
PTD-91453	53/64	.8281	3	6	1
PTD-91454	27/32	.8438	3	6	1
PTD-91455	55/64	.8594	3	6	1
PTD-91456	7/8	.8750	3	6	1
PTD-91457	57/64	.8906	3	6	1
PTD-91458	29/32	.9062	3	6	1
PTD-91459	59/64	.9219	3	6	1
PTD-91460	15/16	.9375	3	6	1
PTD-91461	61/64	.9531	3	6	1
PTD-91462	31/32	.9688	3	6	1
PTD-91463	63/64	.9844	3	6	1
PTD-91464	1	1.0000	3	6	1
PTD-91468	1 1/16	1.0625	3	6	1
PTD-91470	1 3/32	1.0930	3	6	1
PTD-91471	1 1/64	1.1094	3	6	1
PTD-91472	1 1/8	1.1250	3	6	1
PTD-91476	1 3/16	1.1875	3	6	1
PTD-91483	1 3/8	1.3750	3	6	1
PTD-91486	1 1/2	1.0312	3	6	1
PTD-91487	1 5/32	1.1562	3	6	1
PTD-91488	1 1/2	1.2188	3	6	1

Screw Machine Drills
High Speed Steel
Fractional Sizes
Series R40 (Bright)
General Purpose
118 Degree Conventional Point



Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
PTD-40003	3/64	.0469	1/2	1 3/8	1
PTD-40004	7/16	.0625	1/2	1 3/8	1
PTD-40005	3/64	.0781	11/16	1 1/4	1
PTD-40006	3/32	.0938	3/4	1 3/4	1
PTD-40007	7/64	.1094	3/4	1 3/8	1
PTD-40008	3/8	.1250	7/8	1 7/8	1
PTD-40009	3/64	.1406	15/16	1 9/16	1
PTD-40010	3/32	.1562	1	2 1/16	1
PTD-40011	11/64	.1719	1 1/16	2 1/8	1
PTD-40012	3/16	.1875	1 1/8	2 9/16	1
PTD-40013	13/64	.2031	1 3/16	2 1/4	1
PTD-40014	7/32	.2188	1 1/4	2 3/8	1
PTD-40015	15/64	.2344	1 5/16	2 1/2	1
PTD-40016	3/4	.2500	1 3/8	2 1/2	1
PTD-40017	17/64	.2656	1 7/16	2 3/4	1
PTD-40018	9/32	.2812	1 1/2	2 11/16	1
PTD-40019	19/64	.2969	1 5/16	2 3/4	1
PTD-40020	9/16	.3125	1 3/8	2 9/16	1
PTD-40021	21/64	.3281	1 11/16	2 13/16	1
PTD-40022	11/32	.3438	1 11/16	3	1
PTD-40023	23/64	.3594	1 3/4	3 1/16	1
PTD-40024	3/8	.3750	1 13/16	3 3/8	1
PTD-40025	25/64	.3906	1 7/8	3 1/4	1
PTD-40026	13/32	.4062	1 15/16	3 5/8	1
PTD-40027	27/64	.4219	2	3 3/4	1
PTD-40028	7/16	.4375	2 1/16	3 7/8	1
PTD-40029	29/64	.4531	2 3/16	3 13/16	1
PTD-40030	15/32	.4688	2 1/8	3 3/4	1
PTD-40031	31/64	.4844	2 3/16	3 11/16	1
PTD-40032	1/2	.5000	2 1/4	3 3/4	1

Extra Length Drills
Fractional Sizes
Series 1290 (Bright, Black Oxide)
High Speed Steel
Straight Shank
118 Degree Conventional Point



For applications where extra length is required. Performs on a wide range of materials.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
Bright					
PTD-59608	1/8	.1250	9	12	1
PTD-59609	1/8	.1250	9	12	1
PTD-59610	9/32	.1562	9	12	1
PTD-59611	11/64	.1719	9	12	1
PTD-59612	3/16	.1875	9	12	1
PTD-59613	19/64	.2031	9	12	1
PTD-59614	7/32	.2188	9	12	1
PTD-59615	19/64	.2344	9	12	1
PTD-59616	1/4	.2500	9	12	1
PTD-59617	17/64	.2656	9	12	1
PTD-59618	9/32	.2812	9	12	1
PTD-59619	19/64	.2969	9	12	1
PTD-59620	5/16	.3125	9	12	1
PTD-59621	21/64	.3281	9	12	1
PTD-59622	11/32	.3438	9	12	1
PTD-59623	23/64	.3438	9	12	1
PTD-59624	3/8	.3750	9	12	1
PTD-59625	25/64	.3906	9	12	1
PTD-59626	13/32	.4062	9	12	1
Black Oxide					
PTD-59627	27/64	.4219	9	12	1
PTD-59628	7/16	.4375	9	12	1
PTD-59629	29/64	.4531	9	12	1
PTD-59630	15/32	.4688	9	12	1
PTD-59631	31/64	.4844	9	12	1
PTD-59632	1/2	.5000	9	12	1

Extra Length Drills
Fractional Sizes
Series QC0860P (Bright)
High Speed Steel
Wide Land Parabolic Flute Design
135 Degree Self-Centering Split Point



Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
PTD-55608	1/8	.1250	6	8	1
PTD-55610	9/32	.1562	6	8	1
PTD-55612	3/16	.1875	6	8	1
PTD-55616	1/4	.2500	6	8	1
PTD-55618	9/32	.2812	6	8	1
PTD-55621	21/64	.3281	6	8	1
PTD-55622	11/32	.3438	6	8	1
PTD-55624	3/8	.3750	6	8	1
PTD-55632	1/2	.5000	6	8	1

Fractional Sizes
Series QC21 (Black Oxide)
High Speed Steel
Wide Land Parabolic Flute Design
135 Degree Self-Centering Split Point



The wide land parabolic design provides superior performance in a greater range of materials and applications. Especially effective in deep hole drilling. Feed rates and speeds do not have to be reduced like other drills - saving time and increasing efficiency. The unique flute design produces closer tolerances due to improved chip and coolant flow and higher torsional rigidity.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
PTD-81607	7/64	.1094	1 1/2	2 3/8	1
PTD-81614	7/32	.2188	2 1/2	3 3/4	1
PTD-81621	21/64	.3281	3 3/16	4 3/8	1
PTD-81624	3/8	.3750	3 3/8	5	1
PTD-81625	25/64	.3906	3 3/4	5 1/2	1
PTD-81626	13/32	.4062	3 3/8	5 1/4	1
PTD-81630	15/32	.4688	4 3/16	5 3/4	1



**Drill Sets
 High Speed Steel**



Black Oxide

Bright

Item No.	Finish	Description	Pack Qty.
Metric			
PTD-99988	Black Oxide	25 pcs. - 1mm to 13mm by .5mm	1
PTD-99987	Bright	25 pcs. - 1mm to 13mm by .5mm	1
PTD-99985	Black Oxide	50 pcs. - 1mm to 5.9mm by .1mm	1

**Drill Sets
 High Speed Steel**



**29 Piece
 Taper Length**



**29 Piece
 Jobber Length**



**60 Piece
 Jobber Length**



**20 Piece
 Jobber Length**

Item No.	Description	Pack Qty.
PTD-90154	Taper Length 29 Piece Drill Set in Metal Box Fractional Sizes 1/16 to 1/2 by 64ths High Speed Steel, right Finish	1
PTD-99977	Jobber Length 29 Piece Drill Set in Metal Box Fractional Sizes 1/16 to 1/2 inch by 64ths High Speed Steel, Black Oxide	1
PTD-99976	Jobber Length 60 Piece Drill Set in Metal Box Wire Sizes #1 to #60 High Speed Steel, Black Oxide	1
PTD-99981	Jobber Length 20 Piece Drill Set Wire Sizes #61 to #80 High Speed Steel, Black Oxide	1

118 Degree Jobber Length Drill Set



29 Piece Set

- High speed surface treated steel
- Fractional sizes
- Metal box

Item No.	Description	Pack Qty.
BT-62914	29 Piece Fractional Size Drill Set (1/16 - 1/2 by 64ths)	1

**Carbide Tipped Drills
 Die Drill 118 Degree Point**



Run at 75 to 100 surface feet per minute with a steady hand feed. Designed for drilling hardened steels in the range of 45-65 Rc. Gray satin finish. Made in the U.S.

Item No.	Dia.	Dec. Equiv.	Flute Lgth.	OAL	Nominal Shank Size	Pack Qty.
HD-5	3/16	.1875	1 1/2	3 1/2	1 1/64	1
HD-36	1 7/64	.2656	2 1/4	4 1/4	1 5/64	1
HD-39	2 1/64	.3281	2 3/4	4 3/4	1 9/64	1
HD-11	3/8	.3750	3	5	1 1/32	1

**Drill Bit Sharpener
 Drill Doctor**



The Drill Doctor® can conveniently and properly sharpen drills in less than a minute. The Drill Doctor® will sharpen carbide, high speed steel, masonry, split point, cobalt, TIN coated and parabolic twist drill bits. Drill Doctor® will sharpen 2 flute drills in fractional metric, numbers, letters, sizes with 118 degree or 135 degree points up to 3/4" in diameter. Uses 120V and is made of high impact resistant plastic casing with 6' long cord. Includes 1/2" diamond wheel. Training video included.

Item No.	Description	Pack Qty.
DBS-750	Model 750, 3/32"- 3/4" Drill Sharpener Includes 3/32"- 1/2" Chuck and 1/2"- 3/4" Chuck	1

**3xD 2 Flute**
135 Degree Preliminary/Secondary Drill Point

- Titanium, inconel, hastalloy and waspalloy
- Excellent heat resistance/lubricity
- Up to 40% faster than uncoated
- Heavy web for extra rigidity and added strength
- Thinned point
- 15 degree helix

Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.	Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
GAR-19071	1/16	.0625	5/8	1 1/8	1	GAR-19396	#5	.2055	1 1/4	2 3/8	1
GAR-19076	#52	.0635	1 1/16	1 1/16	1	GAR-19401	#4	.2090	1 1/4	2 3/8	1
GAR-19081	#51	.0670	1 1/16	1 1/16	1	GAR-19406	#3	.2130	1 1/4	2 3/8	1
GAR-19086	#50	.0700	1 1/16	1 1/16	1	GAR-19411	5.5	.2165	32	60	1
GAR-19091	#49	.0730	1 1/16	1 1/16	1	GAR-19416	7/32	.2188	1 1/4	2 3/8	1
GAR-19096	#48	.0760	1 1/16	1 1/16	1	GAR-19421	#2	.2210	1 1/16	2 1/16	1
GAR-19101	5/64	.0781	1 1/16	1 1/16	1	GAR-19426	#1	.2280	1 1/16	2 1/16	1
GAR-19106	#47	.0785	3/4	1 3/4	1	GAR-19431	A	.2340	1 1/16	2 1/16	1
GAR-19116	2	.0787	19	44.5	1	GAR-19436	1 5/64	.2344	1 1/16	2 1/16	1
GAR-19121	#46	.0810	3/4	1 3/4	1	GAR-19441	6	.2362	35	63.5	1
GAR-19126	#45	.0820	3/4	1 3/4	1	GAR-19446	B	.2380	1 1/8	2 1/2	1
GAR-19131	#44	.0860	3/4	1 3/4	1	GAR-19451	C	.2420	1 3/8	2 3/8	1
GAR-19136	#43	.0890	3/4	1 3/4	1	GAR-19456	D	.2460	1 3/8	2 1/2	1
GAR-19141	#42	.0935	3/4	1 3/4	1	GAR-19461	1/4(E)	.2500	1 3/8	2 1/2	1
GAR-19146	3/32	.0938	3/4	1 3/4	1	GAR-19466	6.5	.2559	37	67	1
GAR-19151	#41	.0960	1 1/16	1 1/16	1	GAR-19471	F	.2570	1 1/16	2 3/8	1
GAR-19156	#40	.0980	1 1/16	1 1/16	1	GAR-19476	G	.2610	1 1/16	2 3/8	1
GAR-19161	2.5	.0984	21	46	1	GAR-19481	1 1/64	.2656	1 1/16	2 3/8	1
GAR-19166	#39	.0995	1 1/16	1 1/16	1	GAR-19486	H	.2660	1 1/2	2 1 1/16	1
GAR-19171	#38	.1015	1 1/16	1 1/16	1	GAR-19491	I	.2720	1 1/2	2 1 1/16	1
GAR-19176	#37	.1040	1 1/16	1 1/16	1	GAR-19496	7	.2756	38	68	1
GAR-19181	#36	.1065	1 1/16	1 1/16	1	GAR-19501	J	.2770	1 1/2	2 1 1/16	1
GAR-19186	3/64	.1094	1 1/16	1 1/16	1	GAR-19506	K	.2810	1 1/2	2 1 1/16	1
GAR-19191	#35	.1100	7/8	1 7/8	1	GAR-19511	3/32	.2812	1 1/2	2 1 1/16	1
GAR-19196	#34	.1110	7/8	1 7/8	1	GAR-19516	L	.2900	1 1/16	2 3/4	1
GAR-19201	#33	.1130	7/8	1 7/8	1	GAR-19521	M	.2950	1 1/16	2 3/4	1
GAR-19206	#32	.1160	7/8	1 7/8	1	GAR-19526	7.5	.2953	40	70	1
GAR-19211	3	.1181	22	48	1	GAR-19531	1 3/64	.2969	1 1/16	2 3/4	1
GAR-19216	#31	.1200	7/8	1 7/8	1	GAR-19536	N	.3020	1 3/8	2 1 1/16	1
GAR-19221	1/8	.1250	7/8	1 7/8	1	GAR-19541	5/16	.3125	1 3/8	2 1 1/16	1
GAR-19226	#30	.1285	1 1/16	1 1/16	1	GAR-19546	8	.3150	43	75	1
GAR-19231	#29	.1360	1 1/16	1 1/16	1	GAR-19551	O	.3160	1 1/16	2 1 1/16	1
GAR-19236	3.5	.1378	24	49	1	GAR-19556	P	.3230	1 1/16	2 1 1/16	1
GAR-19241	#28	.1405	1 1/16	1 1/16	1	GAR-19561	2 1/64	.3281	1 1/16	2 1 1/16	1
GAR-19246	3/64	.1406	1 1/16	1 1/16	1	GAR-19566	Q	.3320	1 1/16	3	1
GAR-19251	#27	.1440	1	2 1/16	1	GAR-19571	8.5	.3346	43	76	1
GAR-19256	#26	.1470	1	2 1/16	1	GAR-19576	R	.3390	1 1/16	3	1
GAR-19261	#25	.1495	1	2 1/16	1	GAR-19581	1 1/32	.3438	1 1/16	3	1
GAR-19266	#24	.1520	1	2 1/16	1	GAR-19586	S	.3480	1 3/4	3 1/4	1
GAR-19271	#23	.1540	1	2 1/16	1	GAR-19591	9	.3543	44	78	1
GAR-19276	5/32	.1562	1	2 1/16	1	GAR-19596	T	.3580	1 3/4	3 1/4	1
GAR-19281	#22	.1570	1 1/16	2 1/16	1	GAR-19601	2 3/64	.3594	1 3/4	3 1/4	1
GAR-19286	4	.1575	27	54	1	GAR-19606	U	.3680	1 1 1/16	3 1/4	1
GAR-19291	#21	.1590	1 1/16	2 1/16	1	GAR-19611	9.5	.3740	46	79	1
GAR-19296	#20	.1610	1 1/16	2 1/16	1	GAR-19616	3/8	.3750	1 1/16	3 1/4	1
GAR-19301	#19	.1660	1 1/16	2 1/16	1	GAR-19621	V	.3770	1 1/8	3 1/4	1
GAR-19306	#18	.1695	1 1/16	2 1/16	1	GAR-19626	W	.3860	1 1/8	3 1/4	1
GAR-19311	1 1/64	.1719	1 1/16	2 1/16	1	GAR-19631	2 3/64	.3906	1 1/8	3 1/4	1
GAR-19316	#17	.1730	1 1/8	1 3/8	1	GAR-19636	10	.3937	49	84	1
GAR-19321	#16	.1770	1 1/8	2 3/16	1	GAR-19641	X	.3970	1 1/16	3 5/16	1
GAR-19326	4.5	.1772	29	56	1	GAR-19646	Y	.4040	1 1/16	3 5/16	1
GAR-19331	#15	.1800	1 1/8	2 3/16	1	GAR-19651	1 3/32	.4062	1 1/16	3 5/16	1
GAR-19336	#14	.1820	1 1/8	2 3/16	1	GAR-19656	Z	.4130	2	3 3/8	1
GAR-19341	#13	.1850	1 1/8	2 3/16	1	GAR-19661	10.5	.4134	51	86	1
GAR-19346	3/16	.1875	1 1/8	2 3/16	1	GAR-19666	2 1/64	.4219	2	3 3/8	1
GAR-19351	#12	.1890	1 3/16	2 1/4	1	GAR-19671	11	.4331	52	87	1
GAR-19356	#11	.1910	1 3/16	2 1/4	1	GAR-19676	7/16	.4375	2 1/16	3 1/8	1
GAR-19361	#10	.1935	1 3/16	2 1/4	1	GAR-19681	11.5	.4528	54	90.5	1
GAR-19366	#9	.1960	1 3/16	2 1/4	1	GAR-19686	2 3/64	.4531	2 1/8	3 1/8	1
GAR-19371	5	.1969	30	57	1	GAR-19691	1 5/32	.4688	2 1/8	3 3/8	1
GAR-19376	#8	.1990	1 3/16	2 1/4	1	GAR-19696	12	.4724	56	94	1
GAR-19381	#7	.2010	1 3/16	2 1/4	1	GAR-19701	3 1/64	.4844	2 3/16	3 1 1/16	1
GAR-19386	1 3/64	.2031	1 3/16	2 1/4	1	GAR-19706	12.5	.4921	56	95	1
GAR-19391	#6	.2040	1 1/4	2 1/4	1	GAR-19711	1/2	.5000	2 1/4	3 3/4	1



3xD 2 Flute
140 Degree High Performance Drill Point



- High performance, high penetration
- Extended tool life and greater surface finishes through faster SFM rates
- Up to 50% faster than standard carbide drills
- 30 degree helix for better chip evacuation
- Honed cutting edge

Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.	Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
GAR-20301	3	.1181	16	46	1	GAR-20591	J	.2770	1 ¹¹ / ₃₂	2 ¹ / ₁₆	1
GAR-20306	#31	.1200	5/8	1 ¹³ / ₁₆	1	GAR-20596	K	.2810	1 ¹¹ / ₃₂	2 ¹ / ₁₆	1
GAR-20311	1/8	.1250	1 ¹ / ₁₆	1 ¹ / ₁₆	1	GAR-20601	9/32	.2812	1 ¹¹ / ₃₂	2 ¹ / ₁₆	1
GAR-20316	#30	.1285	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1	GAR-20606	L	.2900	1 ¹¹ / ₃₂	2 ¹ / ₁₆	1
GAR-20321	#29	.1360	3/4	2 ¹ / ₁₆	1	GAR-20611	M	.2950	1 ¹¹ / ₃₂	2 ¹ / ₁₆	1
GAR-20326	3.5	.1378	19	52	1	GAR-20616	7.5	.2953	34	74.6	1
GAR-20331	#28	.1405	3/4	2 ¹ / ₁₆	1	GAR-20621	1 ⁹ / ₆₄	.2969	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20336	3/64	.1406	3/4	2 ¹ / ₁₆	1	GAR-20626	N	.3020	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20341	#27	.1440	3/4	2 ¹ / ₁₆	1	GAR-20631	5/16	.3125	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20346	#26	.1470	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20636	8	.3150	37	78.6	1
GAR-20351	#25	.1495	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20641	O	.3160	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20356	#24	.1520	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20646	P	.3230	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20361	#23	.1540	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20651	2 ¹ / ₆₄	.3281	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20366	3/32	.1562	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20656	Q	.3320	1 ¹⁵ / ₃₂	3 ³ / ₃₂	1
GAR-20371	#22	.1570	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20661	8.5	.3346	37	78.6	1
GAR-20376	4	.1575	20.6	55.5	1	GAR-20666	R	.3390	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20381	#21	.1590	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20671	1 ¹ / ₃₂	.3438	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20386	#20	.1610	1 ³ / ₁₆	2 ³ / ₁₆	1	GAR-20676	S	.3480	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20391	#19	.1660	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20681	9	.3543	40	84	1
GAR-20396	#18	.1695	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20686	T	.3580	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20401	1 ¹ / ₆₄	.1719	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20691	2 ³ / ₆₄	.3594	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20406	#17	.1730	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20696	U	.3680	1 ¹ / ₁₆	3 ³ / ₁₆	1
GAR-20411	#16	.1770	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20701	9.5	.3740	40	84	1
GAR-20416	4.5	.1772	24	58	1	GAR-20706	3/8	.3750	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20421	#15	.1800	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20711	V	.3770	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20426	#14	.1820	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20716	W	.3860	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20431	#13	.1850	1 ⁵ / ₁₆	2 ³ / ₃₂	1	GAR-20721	2 ⁵ / ₆₄	.3906	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20436	3/16	.1875	1	2 ¹³ / ₃₂	1	GAR-20726	10	.3937	43	89	1
GAR-20441	#12	.1890	1	2 ¹³ / ₃₂	1	GAR-20731	X	.3970	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20446	#11	.1910	1	2 ¹³ / ₃₂	1	GAR-20736	Y	.4040	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20451	#10	.1935	1	2 ¹³ / ₃₂	1	GAR-20741	1 ¹³ / ₃₂	.4062	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20456	#9	.1960	1	2 ¹³ / ₃₂	1	GAR-20746	Z	.4130	1 ¹¹ / ₁₆	3 ¹ / ₂	1
GAR-20461	5	.1969	25	61	1	GAR-20751	10.5	.4134	43	89	1
GAR-20466	#8	.1990	1	2 ¹³ / ₃₂	1	GAR-20756	2 ⁷ / ₆₄	.4219	1 ¹³ / ₁₆	3 ³ / ₄	1
GAR-20471	#7	.2010	1	2 ¹³ / ₃₂	1	GAR-20761	11	.4331	46	95	1
GAR-20476	1 ⁹ / ₆₄	.2031	1	2 ¹³ / ₃₂	1	GAR-20766	7/16	.4375	1 ¹³ / ₁₆	3 ³ / ₄	1
GAR-20481	#6	.2040	1	2 ¹³ / ₃₂	1	GAR-20771	11.5	.4528	46	95	1
GAR-20486	#5	.2055	1	2 ¹³ / ₃₂	1	GAR-20776	2 ⁹ / ₆₄	.4531	1 ¹³ / ₁₆	3 ³ / ₄	1
GAR-20491	#4	.2090	1	2 ¹³ / ₃₂	1	GAR-20781	1 ¹⁵ / ₃₂	.4688	1 ¹⁵ / ₁₆	4	1
GAR-20496	#3	.2130	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20786	12	.4724	49	101.6	1
GAR-20501	5.5	.2165	28	67	1	GAR-20791	3 ¹ / ₆₄	.4844	1 ¹⁵ / ₁₆	4	1
GAR-20506	7/32	.2188	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20796	12.5	.4921	49	101.6	1
GAR-20511	#2	.2210	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20801	1/2	.5000	1 ¹⁵ / ₁₆	4	1
GAR-20516	#1	.2280	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20806	13	.5118	53	107	1
GAR-20521	A	.2340	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20811	3 ³ / ₆₄	.5156	2 ³ / ₃₂	4 ⁷ / ₃₂	1
GAR-20526	1 ¹⁵ / ₆₄	.2344	1 ¹³ / ₃₂	2 ⁵ / ₈	1	GAR-20816	1 ¹⁷ / ₃₂	.5312	2 ³ / ₃₂	4 ⁷ / ₃₂	1
GAR-20531	6	.2362	28	67	1	GAR-20821	13.5	.5315	56	109.5	1
GAR-20536	B	.2380	1 ¹³ / ₃₂	2 ⁵ / ₄	1	GAR-20826	3 ⁹ / ₆₄	.5469	2 ⁷ / ₃₂	4 ⁹ / ₁₆	1
GAR-20541	C	.2420	1 ¹³ / ₃₂	2 ⁵ / ₄	1	GAR-20831	14	.5512	56	109.5	1
GAR-20546	D	.2460	1 ¹³ / ₃₂	2 ⁵ / ₄	1	GAR-20836	9/16	.5625	2 ¹⁵ / ₃₂	4 ⁹ / ₁₆	1
GAR-20551	1/4(E)	.2500	1 ⁷ / ₃₂	2 ⁵ / ₄	1	GAR-20841	14.5	.5709	63	116	1
GAR-20556	6.5	.2559	31	70	1	GAR-20846	3 ⁷ / ₆₄	.5781	2 ⁹ / ₁₆	4 ¹¹ / ₁₆	1
GAR-20561	F	.2570	1 ⁷ / ₃₂	2 ⁵ / ₄	1	GAR-20851	15	.5906	65	125	1
GAR-20566	G	.2610	1 ⁷ / ₃₂	2 ⁵ / ₄	1	GAR-20856	1 ¹⁹ / ₃₂	.5938	2 ⁹ / ₁₆	4 ¹¹ / ₁₆	1
GAR-20571	1 ¹ / ₆₄	.2656	1 ¹¹ / ₃₂	2 ¹⁵ / ₁₆	1	GAR-20861	3 ⁹ / ₆₄	.6094	2 ¹³ / ₁₆	5 ¹ / ₁₆	1
GAR-20576	H	.2660	1 ¹¹ / ₃₂	2 ¹⁵ / ₁₆	1	GAR-20866	15.5	.6102	71	128.6	1
GAR-20581	I	.2720	1 ¹¹ / ₃₂	2 ¹⁵ / ₁₆	1	GAR-20871	5/8	.6250	3 ¹ / ₈	5 ¹ / ₄	1
GAR-20586	7	.2756	34	74.6	1	GAR-20876	16	.6299	79	133	1

**5xD 2 Flute**
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- Extended tool life and greater surface finishes through faster SFM rates
- Up to 50% faster than standard carbide drills
- Honed cutting edge
- 30 degree helix for better chip evacuation

Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.	Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
GAR-21301	3	.1181	19	51	1	GAR-21591	J	.2770	1 ¹ / ₁₆	3 ¹ / ₂	1
GAR-21306	#31	.1200	3/4	2	1	GAR-21596	K	.2810	1 ³ / ₁₆	3 ¹ / ₂	1
GAR-21311	1/8	.1250	3/4	2	1	GAR-21601	L	.2812	1 ³ / ₁₆	3 ¹ / ₂	1
GAR-21316	#30	.1285	3/4	2 ¹ / ₄	1	GAR-21606	L	.2900	1 ³ / ₁₆	3 ¹ / ₂	1
GAR-21321	#29	.1360	7/8	2 ¹ / ₄	1	GAR-21611	M	.2950	1 ³ / ₁₆	3 ³ / ₄	1
GAR-21326	3.5	.1378	22	57	1	GAR-21616	7.5	.2953	44	95	1
GAR-21331	#28	.1405	7/8	2 ¹ / ₄	1	GAR-21621	1 ⁵ / ₆₄	.2969	1 ⁷ / ₈	3 ³ / ₄	1
GAR-21336	5/64	.1406	7/8	2 ¹ / ₄	1	GAR-21626	N	.3020	1 ⁷ / ₈	3 ³ / ₄	1
GAR-21341	#27	.1440	7/8	2 ¹ / ₄	1	GAR-21631	9/16	.3125	1 ⁷ / ₈	3 ³ / ₄	1
GAR-21346	#26	.1470	7/8	2 ¹ / ₄	1	GAR-21636	8	.3150	48	95	1
GAR-21351	#25	.1495	1 ⁵ / ₁₆	2 ¹ / ₄	1	GAR-21641	O	.3160	1 ⁷ / ₈	3 ³ / ₄	1
GAR-21356	#24	.1520	1 ⁵ / ₁₆	2 ¹ / ₄	1	GAR-21646	P	.3230	2 ³ / ₃₂	3 ³ / ₄	1
GAR-21361	#23	.1540	1 ⁵ / ₁₆	2 ¹ / ₄	1	GAR-21651	2 ¹ / ₆₄	.3281	2 ³ / ₃₂	4	1
GAR-21366	3/32	.1562	1 ⁵ / ₁₆	2 ¹ / ₂	1	GAR-21656	Q	.3320	2 ³ / ₃₂	4	1
GAR-21371	#22	.1570	1 ⁵ / ₁₆	2 ¹ / ₂	1	GAR-21661	8.5	.3346	53	101.6	1
GAR-21376	4	.1575	24	63.5	1	GAR-21666	R	.3390	2 ³ / ₃₂	4	1
GAR-21381	#21	.1590	1 ⁵ / ₁₆	2 ¹ / ₂	1	GAR-21671	1 ¹ / ₃₂	.3438	2 ³ / ₁₆	4	1
GAR-21386	#20	.1610	1 ⁵ / ₁₆	2 ¹ / ₂	1	GAR-21676	S	.3480	2 ³ / ₁₆	4	1
GAR-21391	#19	.1660	1	2 ¹ / ₂	1	GAR-21681	9	.3543	55.5	101.6	1
GAR-21396	#18	.1695	1	2 ¹ / ₂	1	GAR-21686	T	.3580	2 ³ / ₃₂	4 ¹ / ₄	1
GAR-21401	1 ¹ / ₆₄	.1719	1	2 ¹ / ₂	1	GAR-21691	2 ³ / ₆₄	.3594	2 ³ / ₃₂	4 ¹ / ₄	1
GAR-21406	#17	.1730	1	2 ¹ / ₂	1	GAR-21696	U	.3680	2 ³ / ₃₂	4 ¹ / ₄	1
GAR-21411	#16	.1770	1	2 ¹ / ₂	1	GAR-21701	9.5	.3740	58	108	1
GAR-21416	4.5	.1772	25	63.5	1	GAR-21706	3/8	.3750	2 ³ / ₈	4 ¹ / ₄	1
GAR-21421	#15	.1800	1	2 ³ / ₄	1	GAR-21711	V	.3770	2 ³ / ₈	4 ¹ / ₄	1
GAR-21426	#14	.1820	1	2 ³ / ₄	1	GAR-21716	W	.3860	2 ³ / ₈	4 ¹ / ₂	1
GAR-21431	#13	.1850	1 ¹ / ₄	2 ³ / ₄	1	GAR-21721	2 ⁵ / ₆₄	.3906	2 ³ / ₈	4 ¹ / ₂	1
GAR-21436	3/16	.1875	1 ¹ / ₄	2 ³ / ₄	1	GAR-21726	10	.3937	60	114	1
GAR-21441	#12	.1890	1 ¹ / ₄	2 ³ / ₄	1	GAR-21731	X	.3970	2 ¹ / ₂	4 ¹ / ₂	1
GAR-21446	#11	.1910	1 ¹ / ₄	2 ³ / ₄	1	GAR-21736	Y	.4040	2 ³ / ₁₆	4 ¹ / ₂	1
GAR-21451	#10	.1935	1 ¹ / ₄	2 ³ / ₄	1	GAR-21741	1 ³ / ₃₂	.4062	2 ³ / ₁₆	4 ¹ / ₂	1
GAR-21456	#9	.1960	1 ¹ / ₂	3	1	GAR-21746	Z	.4130	2 ³ / ₈	4 ¹ / ₂	1
GAR-21461	5	.1969	33	76	1	GAR-21751	10.5	.4134	67	114	1
GAR-21466	#8	.1990	1 ¹ / ₂	3	1	GAR-21756	2 ¹ / ₆₄	.4219	2 ¹ / ₁₆	4 ¹ / ₂	1
GAR-21471	#7	.2010	1 ¹ / ₂	3	1	GAR-21761	11	.4331	68	114	1
GAR-21476	1 ³ / ₆₄	.2031	1 ¹ / ₂	3	1	GAR-21766	7/16	.4375	2 ¹ / ₁₆	4 ¹ / ₂	1
GAR-21481	#6	.2040	1 ³ / ₈	3	1	GAR-21771	11.5	.4528	71	121	1
GAR-21486	#5	.2055	1 ³ / ₈	3	1	GAR-21776	2 ³ / ₆₄	.4531	2 ³ / ₈	4 ³ / ₄	1
GAR-21491	#4	.2090	1 ³ / ₈	3	1	GAR-21781	1 ⁵ / ₃₂	.4688	2 ³ / ₈	4 ³ / ₄	1
GAR-21496	#3	.2130	1 ³ / ₈	3	1	GAR-21786	12	.4724	73	121	1
GAR-21501	5.5	.2165	35	76	1	GAR-21791	3 ¹ / ₆₄	.4844	3	5 ¹ / ₁₆	1
GAR-21506	7/32	.2188	1 ³ / ₈	3	1	GAR-21796	12.5	.4921	76	135	1
GAR-21511	#2	.2210	1 ³ / ₈	3	1	GAR-21801	1/2	.5000	3 ¹ / ₁₆	5 ³ / ₈	1
GAR-21516	#1	.2280	1 ³ / ₈	3	1	GAR-21806	13	.5118	78	136.5	1
GAR-21521	A	.2340	1 ¹ / ₂	3 ¹ / ₄	1	GAR-21811	3 ³ / ₆₄	.5156	3 ¹ / ₈	5 ³ / ₈	1
GAR-21526	1 ⁵ / ₆₄	.2344	1 ¹ / ₂	3 ¹ / ₄	1	GAR-21816	1 ⁷ / ₃₂	.5312	3 ³ / ₁₆	5 ¹ / ₁₆	1
GAR-21531	6	.2362	38	82.5	1	GAR-21821	13.5	.5315	84	144	1
GAR-21536	B	.2380	1 ⁵ / ₈	3 ¹ / ₄	1	GAR-21826	3 ⁵ / ₆₄	.5469	3 ³ / ₈	5 ¹ / ₁₆	1
GAR-21541	C	.2420	1 ⁵ / ₈	3 ¹ / ₄	1	GAR-21831	14	.5512	86	148	1
GAR-21546	D	.2460	1 ⁵ / ₈	3 ¹ / ₄	1	GAR-21836	9/16	.5625	3 ¹ / ₂	5 ¹ / ₁₆	1
GAR-21551	1/4(E)	.2500	1 ⁵ / ₈	3 ¹ / ₄	1	GAR-21841	14.5	.5709	89	151	1
GAR-21556	6.5	.2559	41	82.5	1	GAR-21846	3 ⁷ / ₆₄	.5781	3 ¹ / ₂	6	1
GAR-21561	F	.2570	1 ¹ / ₁₆	3 ¹ / ₄	1	GAR-21851	15	.5906	90	152.4	1
GAR-21566	G	.2610	1 ¹ / ₁₆	3 ¹ / ₂	1	GAR-21856	1 ³ / ₃₂	.5938	3 ³ / ₁₆	6	1
GAR-21571	1 ⁷ / ₆₄	.2656	1 ¹ / ₁₆	3 ¹ / ₂	1	GAR-21861	3 ⁵ / ₆₄	.6094	3 ¹ / ₁₆	6 ³ / ₁₆	1
GAR-21576	H	.2660	1 ¹ / ₁₆	3 ¹ / ₂	1	GAR-21866	15.5	.6102	94	157	1
GAR-21581	I	.2720	1 ¹ / ₁₆	3 ¹ / ₂	1	GAR-21871	5/8	.6250	3 ³ / ₄	6 ³ / ₁₆	1
GAR-21586	7	.2756	43	89	1	GAR-21876	16	.6299	95	160	1

BALINIT® HARDLUBE COATED DRILLS



GARR TOOL®

5xD 2 Flute
118 Degree Cam Drill Point
135 Degree 4-Facet Drill Point



Excellent heat resistance/lubricity, 25 degree helix, up to 40% faster than uncoated.

118 Degree		135 Degree		+ .0000/- .0005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.	118 Degree		135 Degree		+ .0000/- .0005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
Item No.	Item No.	Item No.	Item No.						Item No.	Item No.							
GAR-56166	GAR-89166	1/16	.0625	3/4	1 1/8	1	GAR-56526	GAR-89526	1 5/64	.2344	2	3 1/4	1				
GAR-56171	GAR-89171	#52	.0635	3/4	1 1/2	1	GAR-56531	GAR-89531	6	.2362	50	82	1				
GAR-56176	GAR-89176	#51	.0670	3/4	1 1/2	1	GAR-56536	GAR-89536	B	.2380	2	3 1/4	1				
GAR-56181	GAR-89181	#50	.0700	7/8	1 1/16	1	GAR-56541	GAR-89541	C	.2420	2	3 1/4	1				
GAR-56186	GAR-89186	#49	.0730	7/8	1 1/16	1	GAR-56546	GAR-89546	D	.2460	2	3 1/4	1				
GAR-56191	GAR-89191	#48	.0760	7/8	1 1/16	1	GAR-56551	GAR-89551	1/4(E)	.2500	2	3 1/4	1				
GAR-56196	GAR-89196	5/64	.0781	7/8	1 1/4	1	GAR-56556	GAR-89556	6.5	.2559	50	82	1				
GAR-56201	GAR-89201	#47	.0785	7/8	1 1/4	1	GAR-56561	GAR-89561	F	.2570	2	3 1/4	1				
GAR-56206	GAR-89206	2	.0787	22	44	1	GAR-56566	GAR-89566	G	.2610	2 1/2	3 1/2	1				
GAR-56211	GAR-89211	#46	.0810	7/8	1 1/4	1	GAR-56571	GAR-89571	1 1/4	.2656	2 1/2	3 1/2	1				
GAR-56216	GAR-89216	#45	.0820	7/8	1 1/4	1	GAR-56576	GAR-89576	H	.2660	2 1/2	3 1/2	1				
GAR-56221	GAR-89221	#44	.0860	1	2	1	GAR-56581	GAR-89581	I	.2720	2 1/2	3 1/2	1				
GAR-56226	GAR-89226	#43	.0890	1	2	1	GAR-56586	GAR-89586	J	.2756	54	88	1				
GAR-56231	GAR-89231	#42	.0935	1	2	1	GAR-56591	GAR-89591	K	.2770	2 1/2	3 1/2	1				
GAR-56236	GAR-89236	3/32	.0938	1	2	1	GAR-56596	GAR-89596	L	.2810	2 1/2	3 1/2	1				
GAR-56241	GAR-89241	#41	.0960	1	2	1	GAR-56601	GAR-89601	3/32	.2812	2 1/2	3 1/2	1				
GAR-56246	GAR-89246	#40	.0980	1	2	1	GAR-56606	GAR-89606	M	.2900	2 1/2	3 1/2	1				
GAR-56251	GAR-89251	2.5	.0984	32	57	1	GAR-56611	GAR-89611	N	.2950	2 1/2	3 1/2	1				
GAR-56256	GAR-89256	#39	.0995	1 1/4	2 1/4	1	GAR-56616	GAR-89616	7.5	.2953	60	95	1				
GAR-56261	GAR-89261	#38	.1015	1 1/4	2 1/4	1	GAR-56621	GAR-89621	1 5/64	.2969	2 1/2	3 1/4	1				
GAR-56266	GAR-89266	#37	.1040	1 1/4	2 1/4	1	GAR-56626	GAR-89626	N	.3020	2 1/2	3 1/4	1				
GAR-56271	GAR-89271	#36	.1065	1 1/4	2 1/4	1	GAR-56631	GAR-89631	5/16	.3125	2 1/2	3 1/4	1				
GAR-56276	GAR-89276	3/64	.1094	1 1/4	2 1/4	1	GAR-56636	GAR-89636	8	.3150	60	95	1				
GAR-56281	GAR-89281	#35	.1100	1 1/4	2 1/4	1	GAR-56641	GAR-89641	O	.3160	2 1/2	3 1/4	1				
GAR-56286	GAR-89286	#34	.1110	1 1/4	2 1/4	1	GAR-56646	GAR-89646	P	.3230	2 1/2	3 1/4	1				
GAR-56291	GAR-89291	#33	.1130	1 1/4	2 1/4	1	GAR-56651	GAR-89651	2 5/64	.3281	2 1/2	4	1				
GAR-56296	GAR-89296	#32	.1160	1 1/4	2 1/4	1	GAR-56656	GAR-89656	Q	.3320	2 1/2	4	1				
GAR-56301	GAR-89301	3	.1181	32	57	1	GAR-56661	GAR-89661	8.5	.3346	63	101	1				
GAR-56306	GAR-89306	#31	.1200	1 1/4	2 1/4	1	GAR-56666	GAR-89666	R	.3390	2 1/2	4	1				
GAR-56311	GAR-89311	1/8	.1250	1 1/4	2 1/4	1	GAR-56671	GAR-89671	1 1/2	.3438	2 1/2	4	1				
GAR-56316	GAR-89316	#30	.1285	1 1/4	2 1/4	1	GAR-56676	GAR-89676	S	.3480	2 1/2	4	1				
GAR-56321	GAR-89321	#29	.1360	1 1/2	2 1/2	1	GAR-56681	GAR-89681	9	.3543	63	101	1				
GAR-56326	GAR-89326	3.5	.1378	35	63	1	GAR-56686	GAR-89686	T	.3580	2 1/2	4 1/4	1				
GAR-56331	GAR-89331	#28	.1405	1 1/2	2 1/2	1	GAR-56691	GAR-89691	2 3/64	.3594	2 1/2	4 1/4	1				
GAR-56336	GAR-89336	5/64	.1406	1 1/2	2 1/2	1	GAR-56696	GAR-89696	U	.3680	2 1/2	4 1/4	1				
GAR-56341	GAR-89341	#27	.1440	1 1/2	2 1/2	1	GAR-56701	GAR-89701	9.5	.3740	70	107	1				
GAR-56346	GAR-89346	#26	.1470	1 1/2	2 1/2	1	GAR-56706	GAR-89706	3/8	.3750	2 1/2	4 1/4	1				
GAR-56351	GAR-89351	#25	.1495	1 1/2	2 1/2	1	GAR-56711	GAR-89711	V	.3770	2 1/2	4 1/4	1				
GAR-56356	GAR-89356	#24	.1520	1 1/2	2 1/2	1	GAR-56716	GAR-89716	W	.3860	2 1/2	4 1/2	1				
GAR-56361	GAR-89361	#23	.1540	1 1/2	2 1/2	1	GAR-56721	GAR-89721	2 5/64	.3906	2 1/2	4 1/2	1				
GAR-56366	GAR-89366	3/32	.1562	1 1/2	2 1/2	1	GAR-56726	GAR-89726	10	.3937	73	114	1				
GAR-56371	GAR-89371	#22	.1570	1 1/2	2 1/2	1	GAR-56731	GAR-89731	X	.3970	2 1/2	4 1/2	1				
GAR-56376	GAR-89376	4	.1575	35	63	1	GAR-56736	GAR-89736	Y	.4040	2 1/2	4 1/2	1				
GAR-56381	GAR-89381	#21	.1590	1 1/2	2 1/2	1	GAR-56741	GAR-89741	1 5/32	.4062	2 1/2	4 1/2	1				
GAR-56386	GAR-89386	#20	.1610	1 1/2	2 1/2	1	GAR-56746	GAR-89746	Z	.4130	2 1/2	4 1/2	1				
GAR-56391	GAR-89391	#19	.1660	1 1/2	2 1/2	1	GAR-56751	GAR-89751	10.5	.4134	73	114	1				
GAR-56396	GAR-89396	#18	.1695	1 1/2	2 1/2	1	GAR-56756	GAR-89756	2 7/64	.4219	2 1/2	4 1/2	1				
GAR-56401	GAR-89401	1 1/64	.1719	1 1/2	2 1/2	1	GAR-56761	GAR-89761	11	.4331	73	114	1				
GAR-56406	GAR-89406	#17	.1730	1 1/2	2 1/2	1	GAR-56766	GAR-89766	7/16	.4375	2 1/2	4 1/2	1				
GAR-56411	GAR-89411	#16	.1770	1 1/2	2 1/2	1	GAR-56771	GAR-89771	11.5	.4528	76	120	1				
GAR-56416	GAR-89416	4.5	.1772	41	70	1	GAR-56776	GAR-89776	2 9/64	.4531	3	4 1/4	1				
GAR-56421	GAR-89421	#15	.1800	1 1/2	2 1/2	1	GAR-56781	GAR-89781	1 1/32	.4688	3	4 1/4	1				
GAR-56426	GAR-89426	#14	.1820	1 1/2	2 1/2	1	GAR-56786	GAR-89786	12	.4724	76	120	1				
GAR-56431	GAR-89431	#13	.1850	1 1/2	2 1/2	1	GAR-56791	GAR-89791	3 1/64	.4844	3	4 1/4	1				
GAR-56436	GAR-89436	3/16	.1875	1 1/2	2 1/2	1	GAR-56796	GAR-89796	12.5	.4921	76	120	1				
GAR-56441	GAR-89441	#12	.1890	1 1/2	2 1/2	1	GAR-56801	GAR-89801	1 1/2	.5000	3	4 1/4	1				
GAR-56446	GAR-89446	#11	.1910	1 1/2	2 1/2	1	---	GAR-89806	13	.5118	83	127	1				
GAR-56451	GAR-89451	#10	.1935	1 1/2	2 1/2	1	---	GAR-89811	3 5/64	.5156	3 1/4	5	1				
GAR-56456	GAR-89456	#9	.1960	1 3/4	3	1	---	GAR-89816	1 1/32	.5312	3 1/4	5	1				
GAR-56461	GAR-89461	5	.1969	44	76	1	---	GAR-89821	13.5	.5315	83	127	1				
GAR-56466	GAR-89466	#8	.1990	1 3/4	3	1	---	GAR-89826	3 3/64	.5469	3 1/4	5	1				
GAR-56471	GAR-89471	#7	.2010	1 3/4	3	1	---	GAR-89831	14	.5512	83	127	1				
GAR-56476	GAR-89476	1 3/64	.2031	1 3/4	3	1	---	GAR-89836	9/16	.5625	3 1/4	5	1				
GAR-56481	GAR-89481	#6	.2040	1 3/4	3	1	---	GAR-89841	14.5	.5709	83	127	1				
GAR-56486	GAR-89486	#5	.2055	1 3/4	3	1	---	GAR-89846	3 7/64	.5781	3 1/2	5 1/4	1				
GAR-56491	GAR-89491	#4	.2090	1 3/4	3	1	---	GAR-89851	15	.5906	89	133	1				
GAR-56496	GAR-89496	#3	.2130	1 3/4	3	1	---	GAR-89856	1 5/32	.5938	3 1/2	5 1/4	1				
GAR-56501	GAR-89501	5.5	.2165	44	76	1	---	GAR-89861	3 5/64	.6094	3 1/2	5 1/4	1				
GAR-56506	GAR-89506	7/32	.2188	1 3/4	3	1	---	GAR-89866	15.5	.6102	89	133	1				
GAR-56511	GAR-89511	#2	.2210	1 3/4	3	1	---	GAR-89871	5/8	.6250	3 1/2	5 1/4	1				
GAR-56516	GAR-89516	#1	.2280	1 3/4	3	1	---	GAR-89876	16	.6299	89	133	1				
GAR-56521	GAR-89521	A	.2340	2	3 1/4	1											



**Solid Submicron Grain Carbide Drill
 3 Flute
 150 Degree Self-Centering Point**

GARR TOOL®



Increased feed rates and tighter tolerance holes. Improved roundness and straightness. Diameter tolerance is .000/-0.005.

Item No.	+0.000/-0.005 Dia.	Dec. Equiv.	Lgth. of Cut	OAL	Pack Qty.
GAR-90310	1/8	.125	1 1/4	2 1/4	1
GAR-90705	3/8	.375	2 3/4	4 1/4	1
GAR-90800	1/2	.500	3	4 3/4	1

**Solid Submicron Grain Carbide Drill
 Combination Drill and Countersink
 118 Degree Drill Point**

GARR TOOL®



For center drilling applications 60 degree included countersink angle. Drill diameter tolerance is +.003/-0.000.

Item No.	+0.003/-0.000 Dia.	Size	Shank Dia.	OAL	Pack Qty.
GAR-58030	3/64	1	1/8	1 1/2	1
GAR-58040	5/64	2	3/16	2	1
GAR-58050	7/64	3	1/4	2	1
GAR-58060	9/64	4	5/16	2 1/8	1
GAR-58070	11/64	5	3/16	2 3/4	1
GAR-58080	13/64	6	1/2	3	1

Designed for use in all types of machine tools. Ground with a 45 degree chamfer. Made in the U.S.A. Diameter tolerance: through 1/2" = +.0002/-0.0000, above 1/2" through 5/8" = +.0003/-0.0000, dowel pin = +.0000/-0.0002.

**Chucking Reamer Set
 High Speed Steel - Straight Shank - Straight Flute**



Item No.	Description	Pack Qty.
MRS-1	14 pc. Over and Under Size Set (.1240 - .5010)	1

**Chucking Reamers
 High Speed Steel - Straight Shank - Straight Flute
 Over and Under Sizes**



Item No.	Dia.	Flute Lgth.	OAL	Pack Qty.
MR-1	.1240	7/8	3 1/2	1
MR-2	.1260	7/8	3 1/2	1
MR-3	.1865	1 1/8	4 1/2	1
MR-4	.1885	1 1/8	4 1/2	1
MR-5	.2490	1 1/2	6	1
MR-6	.2510	1 1/2	6	1
MR-7	.3115	1 1/2	6	1
MR-8	.3135	1 1/2	6	1
MR-9	.3740	1 3/4	7	1
MR-10	.3760	1 3/4	7	1
MR-11	.4365	1 3/4	7	1
MR-13	.4990	2	8	1
MR-14	.5010	2	8	1

**Chucking Reamers
 High Speed Steel - Straight Shank - Straight Flute
 Dowel Pin Sizes**



Item No.	Dia.	Flute Lgth.	OAL	Pack Qty.
MR-16	.1247	7/8	3 1/2	1
MR-17	.1855	1 1/8	4 1/2	1
MR-18	.1870	1 1/8	4 1/2	1
MR-19	.2480	1 1/2	6	1
MR-20	.2495	1 1/2	6	1
MR-24	.3745	1 3/4	7	1
MR-28	.4995	2	8	1

**Solid Submicron Grain Carbide Drill
 Spade Drill
 118 Degree Drill Point**

GARR TOOL®



For shallow hole drilling and burnishing to a depth of 1 to 1 1/2 times the diameter. Diameter tolerance is +.0000/-0.0005.

Item No.	+0.0000/-0.0005 Dia.	Web Thickness	OAL	Pack Qty.
GAR-57050	3/32	.015	1 1/2	1
GAR-57070	1/8	.015	1 1/2	1
GAR-57080	9/32	.020	1 1/2	1
GAR-57090	3/16	.020	2	1
GAR-57110	1/4	.025	2	1

**Solid Submicron Grain Carbide Drill
 Straight Flute
 135 Degree Notched Drill Point**

GARR TOOL®



For precision drilling of tight tolerance holes, and materials 40 Rockwell or higher. Diameter tolerance is +.000/-0.0005.

Item No.	+0.000/-0.0005 Dia.	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
GAR-59310	1/8	.1250	5/8	2	1
GAR-59365	5/32	.1562	3/4	2 1/2	1
GAR-59435	3/16	.1875	3/4	2 1/2	1
GAR-59550	1/4	.2500	1	2 1/2	1
GAR-59630	5/16	.3125	1 1/4	2 1/2	1
GAR-59705	3/8	.3750	1 1/4	3	1
GAR-59800	1/2	.5000	1 1/4	3	1

**Chucking Reamers
 High Speed Steel - Straight Shank - Straight Flute
 Metric Sizes**



Item No.	Dia.	Flute Lgth.	OAL	Pack Qty.
MCR-1	6	1 1/2	6	1
MCR-2	7	1 1/2	6	1
MCR-3	8	1 1/2	6	1
MCR-4	9	1 3/4	7	1
MCR-5	10	1 3/4	7	1
MCR-7	12	2	8	1
MCR-8	13	2	8	1
MCR-9	14	2	8	1
MCR-10	15	2	8	1
MCR-11	16	2 1/4	9	1
MCR-13	18	2 1/4	9	1

**Chucking Reamers
 High Speed Steel - Straight Shank - Straight Flute
 Individual Reamers**



Item No.	Size	Dec. Equiv.	Flute Lgth.	OAL	Pack Qty.
MR-256	#31	.1200	7/8	3 1/2	1
MR-259	1/8	.1250	7/8	3 1/2	1
MR-265	#29	.1360	1	4	1
MR-298	#20	.1610	1 1/8	4 1/2	1
MR-325	5/16	.1875	1 1/8	4 1/2	1
MR-346	13/64	.2031	1 1/4	5	1
MR-352	#5	.2055	1 1/4	5	1
MR-367	#1	.2280	1 1/2	6	1
MR-373	15/64	.2344	1 1/2	6	1
MR-385	1/4 (E)	.2500	1 1/2	6	1
MR-388	F	.2570	1 1/2	6	1
MR-391	G	.2610	1 1/2	6	1
MR-412	L	.2900	1 1/2	6	1
MR-427	O	.3160	1 1/2	6	1
MR-430	P	.3230	1 1/2	6	1
MR-457	3/8	.3750	1 3/4	7	1
MR-460	V	.3770	1 3/4	7	1
MR-469	X	.3970	1 3/4	7	1
MR-475	19/32	.4062	1 3/4	7	1
MR-484	7/16	.4375	1 3/4	7	1
MR-496	1/2	.5000	2	8	1

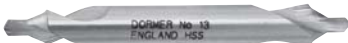


Cutting Tools
Counterbores - Straight Shank



Item No.	Pilot Dia.	Mill Dia.	For U.S.S. Cap Screw	Shank Dia.	OAL	Pack Qty.
1936 Series						
BT-CS-10	.187	.316	#10	5/16	3 1/2	1
BT-CS-11	.204	.328	#10	5/16	3 1/2	1
BT-CS-16	1/4	3/8	1/4	3/8	5 3/4	1
BT-CS-18	5/32	13/32	1/4	3/8	5 3/4	1
BT-CS-22	11/32	19/32	5/16	7/16	6	1
BT-CS-24	3/8	9/16	3/8	1/2	6 1/2	1
BT-CS-26	13/32	19/32	3/8	1/2	6 1/2	1
BT-CS-34	17/32	25/32	1/2	1/2	7 1/4	1
BT-CS-36	9/16	13/16	5/16	3/4	7 1/2	1
1960 Series						
BT-CS-22-60	11/32	1/2	5/16	7/16	6	1
BT-CS-42-60	21/32	31/32	3/8	3/4	8 1/4	1
BT-CS-44-60	11/16	1	3/8	3/4	8 1/4	1

HSS Combined Drills and Countersinks - Bell Type
118 Degree w/ 60 Degree Protected Form



Item No.	Size	Body Dia.	Drill Dia.	Bell Dia.	Drill Lgth.	OAL	Pack Qty.
DOR-A222-13	13	1/4	3/32	.20	3/32	2	1
DOR-A222-16	16	1/2	3/16	.40	3/16	3	1

Cutting Tools
Sleeves for Taper Shank Drills
Oil Toughened



Item No.	Inside Morse Taper	Outside Morse Taper	Pack Qty.
DOR-M150-2-3	2	3	1
DOR-M150-2-4	2	4	1
DOR-M150-3-4	3	4	1
DOR-M150-4-5	4	5	1

Cutting Tools
Ejecting Drifts - Center Keys



Used to eject Morse Taper shank tools from sleeves, sockets and machine spindles.

Item No.	Size	Ejecting MT Number	Pack Qty.
DOR-M152-1	1	1 & 2	1
DOR-M152-2	2	3 & 4	1
DOR-M152-3	3	4 & 5	1

Econo-Sink
90 Degree Drill Point Countersinks



Item No.	Severance	C'sink Dia.	Drill Type	Shank Dia.	OAL	Shank Lgth.	Pack Qty.
SEV-01501	ESD-3/8	3/8	.125	1/4	1 1/4	7/8	1
SEV-01502	ESD-1/2	1/2	.167	3/8	2 1/8	1 1/8	1
SEV-01507	ESD-3/4	3/4	.250	1/2	2 11/16	1 11/16	1

Combined Drills and Countersinks
High Speed Steel - Bright Finish



Plain type, 60 degree included angle.

Item No.	Dia.	Body Dia.	Drill Dia.	Drill Lgth.	OAL	Pack Qty.
PTD-97604	4	5/16	1/8	1/8	2 1/8	1

Cutting Tools
Combined Drills and Countersinks Long Series



Long series combined drills and countersinks are used for producing center holes in components or workpieces with the extra length, allowing access to hard to reach areas. These have an angle of 60 degree.

Item No.	Size	Body Dia.	Point Dia.	Point Lgth.	OAL	Pack Qty.
KEO-21030	1	1/8	3/64	3/64	3	1
KEO-21040	1	1/8	3/64	3/64	4	1
KEO-22040	2	3/16	3/64	3/64	4	1
KEO-22050	2	3/16	3/64	3/64	5	1
KEO-23040	3	1/4	7/64	7/64	4	1
KEO-23050	3	1/4	7/64	7/64	5	1
KEO-23060	3	1/4	7/64	7/64	6	1
KEO-24040	4	5/16	1/8	1/8	4	1
KEO-24050	4	5/16	1/8	1/8	5	1
KEO-24060	4	5/16	1/8	1/8	6	1
KEO-25050	5	7/16	3/16	3/16	5	1
KEO-25060	5	7/16	3/16	3/16	6	1
KEO-26060	6	1/2	7/32	7/32	6	1

Cutting Tools
Single Flute Countersinks



Single flute countersinks are ideal for chamfering, deburring and countersinking. The large positive rake and single flute construction provide a smooth surface finish on a variety of materials. A versatile tool on all general purpose applications.

Item No.	Body Dia.	Shank Lgth.	OAL	Shank Dia.	Angle Degrees	Pack Qty.
KEO-53128	1/2	1	2	1/4	82	1
KEO-53148	3/4	3/4	1 1/2	1/4	82	1
KEO-53108	1	1 1/4	2 3/4	1/2	82	1
KEO-53348	3/4	1 1/4	2 3/8	1/2	82	1
KEO-53388	3/8	7/8	1 3/4	1/4	82	1
KEO-53588	5/8	1	2 1/4	3/8	82	1

Cutting Tools
NC Spotting Drills

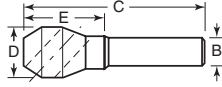


Designed with a narrow chisel edge for quick starting and a constant web to allow for resharpening without the need for web thinning.

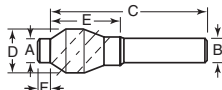
Item No.	Dia.	Cut	OAL	Point Angle	Flute Lgth.	Pack Qty.
SD-110	1/4	RH	4	90	3/4	1
SD-130	3/8	RH	5	90	1 1/8	1
SD-140	3/8	RH	5	120	1 1/8	1
SD-150	1/2	RH	6	90	1 3/8	1
SD-170	5/8	RH	7	90	1 3/8	1



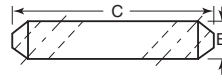
Style 1 - Pilotless



Style 2 - Piloted



Style 3 - Double End



These countersinks and deburring tools are designed to make 60, 82, 90 and 100 degree cuts with greater ease. The action of a single cutting edge prevents chatter. They are made of high speed steel and are a right hand cut.

Deburring Tools - 60 Degrees



Item No.	Style	Dia. of Cut		B	C	D	E	Pack Qty.
		Min.	Max.					
WEL-DC-14	1	3/16	1/2	1/4	1 1/4	7/16	7/8	1
WEL-DC-18	1	3/16	1/2	3/4	1 15/16	9/16	1 1/4	1
WEL-DC-26	1	7/16	2 1/2	1/2	2 11/16	1 1/2	1 7/8	1
WEL-DC-36	1	1 1/16	1 1/2	1/2	2 7/8	1 1/8	1 3/4	1

Countersinks - 82 Degrees



Item No.	Style	Screw Size	Dia. of Cut		B	C	D	E	F	Pack Qty.
			Min.	Max.						
WEL-CS-5S	1	#4, #5	—	1/4	1 1/2	17/64	5/8	—	—	1
WEL-CS-6S	1	#6	—	1/4	1 1/2	19/64	5/8	—	—	1
WEL-CS-8S	1	#8	—	1/4	1 1/2	1 1/2	3/4	—	—	1
WEL-CS-10S	1	#10	—	1/4	1 1/2	25/64	3/4	—	—	1
WEL-CS-8-1	2	1/4	1/4	3/8	2	39/64	1	5/32	—	1
WEL-CS-10-1	2	5/16	5/16	3/8	2 1/8	1 1/8	1 1/8	5/32	—	1
WEL-CS-12-1	2	3/8	3/8	1/2	2 5/8	1 1/2	1 1/2	5/32	—	1
WEL-82S	Nine countersinks - WEL-CS-5S, 6S, 8S, 10S, 8-1, 10-1, 12-1, 14-1, 16-1, w/wooden block									1

Countersinks - 82 Degrees



Item No.	Style	Dia. of Cut		B	C	D	E	Pack Qty.
		Min.	Max.					
WEL-CS-3S	3	.073	15/64	1/4	1 3/4	—	—	1
WEL-CS-18	1	3/16	17/32	3/4	1 7/8	9/16	1	1
WEL-CS-26	1	.307	25/32	1/2	2 1/8	13/16	1 3/8	1
WEL-CS-26A	1	.307	25/32	1/4	2 1/8	13/16	1 1/4	1
WEL-CS-36	1	.431	7/8	1/2	2 1/2	1 1/2	1 1/2	1
WEL-CS-48	1	1/2	1 1/32	1/2	3 1/2	1 1/2	2 1/8	1

Deburring Tools - 90 Degrees



Item No.	Style	Dia. of Cut		B	C	D	E	Pack Qty.
		Min.	Max.					
WEL-DB-4	3	1/4	11/64	3/16	1 1/2	—	—	1
WEL-DB-6	3	1/16	11/64	3/16	1 1/2	—	—	1
WEL-DB-8	3	1/8	15/64	1/4	1 3/4	—	—	1
WEL-DB-14	1	9/32	13/32	1/4	1 11/16	7/16	13/16	1
WEL-DB-18	1	3/16	17/32	1/4	1 1/8	9/16	1	1
WEL-DB-26	1	9/16	25/32	1/2	2 1/8	13/16	1 1/8	1
WEL-DB-26A	1	9/16	25/32	1/4	2 1/32	13/16	1 3/32	1
WEL-DB-36	1	9/16	1 1/32	1/4	2 1/16	1 1/8	1 1/8	1
WEL-DB-48	1	1/2	1 1/32	1/2	3 1/2	1 1/2	2 1/8	1

Countersinks - 100 Degrees



Item No.	Style	Dia. of Cut		B	C	D	E	Pack Qty.
		Min.	Max.					
WEL-CSA-14	1	1/8	27/64	1/4	1 1/16	7/16	13/16	1
WEL-CSA-18	1	3/16	39/64	1/4	1 7/8	9/16	1	1
WEL-CSA-8	1	9/32	1/4	1/4	1 1/2	7/8	9/8	1

Counterbores - "Tu-Lip" HSS - Straight Shank Individual Sizes



Designed for 1960 Series socket head cap screws. Weldon "Tu-Lip" counterbores are extremely free cutting. With only two cutting lips to re-grind, tool room grinding costs are greatly reduced. Generous chip room in the flutes minimizes breakage caused by clogging. Solid pilots without grooves will not ream or mar holes.

Item No.	Screw Size	Pilot Dia.	Cutting Lip Dia.	Shank Dia.	OAL	Pack Qty.
WEL-LGN-4-2	#4	.125	.199	5/32	2 1/2	1
WEL-LGN-6-2	#6	.150	.242	3/16	2 1/2	1
WEL-LGN-8-1	#8	.162	.290	3/16	2 1/2	1
WEL-LGN-8-2	#8	.178	.290	3/16	2 1/2	1
WEL-LGN-10-1	#10	.188	.332	3/16	2 3/4	1
WEL-LGN-10-2	#10	.204	.332	3/16	2 3/4	1
WEL-LGS-8-1	1/4	1/4	19/32	1/4	3 1/2	1
WEL-LGS-8-2	1/4	17/64	19/32	1/4	3 1/2	1
WEL-LGS-8-3	1/4	9/32	19/32	1/4	3 1/2	1
WEL-LGS-10-1	5/16	5/16	1/2	5/16	3 3/4	1
WEL-LGS-10-2	5/16	5/16	1/2	5/16	3 3/4	1
WEL-LGS-10-3	5/16	11/32	1/2	5/16	3 3/4	1
WEL-LGS-12-1	3/8	3/8	19/32	3/8	4	1
WEL-LGS-12-2	3/8	25/64	19/32	3/8	4	1
WEL-LGS-12-3	3/8	17/32	19/32	3/8	4	1
WEL-LGS-16-3	1/2	17/32	25/32	1/2	5	1
WEL-LGL-8-3	1/4	9/32	19/32	3/8	5 1/2	1
WEL-LGL-12-1	3/8	3/8	19/32	1/2	6 1/2	1
WEL-LGL-12-3	3/8	19/32	19/32	1/2	6 1/2	1
WEL-LGL-16-2	1/2	39/64	25/32	1/2	7	1
WEL-LGL-16-3	1/2	17/32	25/32	1/2	7	1

Single Flute 60 Degree Countersinks High Speed Steel



Item No.	Seurance	Body Dia.	Shank Dia.	OAL	Shank Lgth.	Pack Qty.
SEV-00275	1/2-SF	1/2	3/8	2 1/2	1 1/2	1
SEV-00281	1-SF	1	1/2	2 13/16	1 1/8	1

6 Flute Countersinks High Speed Steel - Chatterless



Item No.	Seurance	Body Dia.	Shank Dia.	OAL	Shank Lgth.	Pack Qty.
60° Included Angle - 30° Centerline Angle						
SEV-02372	CK-1/4	1/4	3/16	1 1/2	3/4	1
SEV-02374	CK-3/8	3/8	1/4	1 1/4	7/8	1
SEV-02375	CK-1/2	1/2	3/8	2 1/8	1 1/8	1
SEV-02377	CK-5/8	5/8	3/8	2 3/8	1 1/8	1
SEV-02379	CK-3/4	3/4	1/2	2 11/16	1 1/8	1
SEV-02381	CK-1	1	1/2	2 13/16	1 1/8	1
SEV-02382	CK-1-1/4	1 1/4	3/4	3 3/8	1 1/8	1
82° Included Angle - 41° Centerline Angle						
SEV-02390	CK-1/8	1/8	1/16	1 1/8	1 1/8	1
SEV-02392	CK-1/4	1/4	3/16	1 1/2	3/4	1
SEV-02394	CK-3/8	3/8	1/4	1 1/4	7/8	1
SEV-02395	CK-1/2	1/2	3/8	2 1/8	1 1/8	1
SEV-02397	CK-5/8	5/8	3/8	2 3/8	1 1/8	1
SEV-02399	CK-3/4	3/4	1/2	2 11/16	1 1/8	1
SEV-02401	CK-1	1	1/2	2 13/16	1 1/8	1
SEV-02402	CK-1-1/4	1 1/4	3/4	3 3/8	1 1/8	1
SEV-02403	CK-1-1/2	1 1/2	3/4	3 1/2	1 1/8	1
SEV-02404	CK-1-3/4	1 3/4	1	4 1/4	2 1/8	1

6 Flute Countersinks Carbide - Chatterless



Item No.	Seurance	Body Dia.	Shank Dia.	OAL	Shank Lgth.	Pack Qty.
60° Included Angle - 30° Centerline Angle						
SEV-02525	CK-1/2-W	1/2	3/8	2 1/2	2	1
82° Included Angle - 41° Centerline Angle						
SEV-02541	CK-3/16-W	3/16	3/16	1 1/2	1 1/2	1
SEV-02542	CK-1/4-W	1/4	3/16	1 1/2	1 1/2	1
SEV-02543	CK-5/16-W	5/16	1/4	2 1/4	1 3/4	1
SEV-02544	CK-3/8-W	3/8	1/4	2 1/4	1 3/4	1
SEV-02545	CK-1/2-W	1/2	3/8	2 1/2	2	1
SEV-02547	CK-5/8-W	5/8	3/8	2 5/8	2	1
SEV-02549	CK-3/4-W	3/4	1/2	2 3/4	2	1

Cutting Tools 30 Degree Outside Chamfering Mills High Speed Steel



Item No.	Seurance	Max. Cutting Dia.	Recess Hole Dia.	Mouth Dia.	Body Dia.	Body Lgth.	ID Thread Size	Pack Qty.
60° Included Angle - 30° Centerline Angle								
SEV-25232	OC-1/2-30	1/2	1/8	3/8	3/8	1 1/2	3/8-24	1

**4 Flute - Regular Length
Center Cutting - Double End**



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
WEL-AAC16-3	1/2	1/2	1	4 1/2	1

**4 Flute - Regular Length
Center Cutting - Single End**



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
WEL-AC16-3	1/2	1/2	1 1/4	3 1/4	1
WEL-AC24-5	3/4	3/4	1 1/2	3 3/8	1

**4 Flute - Long Length
Center Cutting - Single End**



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
WEL-AC24-5A	3/4	3/4	3	4 1/4	1
WEL-AC28-6A	7/8	7/8	3 1/2	5 1/4	1
WEL-AC32-7A	1	1	4	6 1/2	1

**4 Flute - Extra Long Length
Center Cutting - Single End**



Item No.	Cutting Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
WEL-AC16-3B	1/2	1/2	3	5	1
WEL-AC20-4B	5/8	5/8	4	6 1/2	1
WEL-AC24-5B	3/4	3/4	5	6 3/4	1

**2 Flute - Regular Length
Right Hand Cut - Ball Style - Single End**



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
WEL-COR6-2	3/16	3/8	1/2	2 3/8	1
WEL-COR10-2	3/16	3/8	3/4	2 1/2	1
WEL-R16-3	1/2	1/2	1	3	1
WEL-R32-7	1	1	2 1/4	4 3/4	1

Cut-Ease Stick Lubricant



- Extends tool life
- Cleaner, faster cut
- Reduces loading
- Stops binding
- Prevents burring

In cardboard tube with push bottom. Approximately 2" x 10" and weight: 1 lb. For high speed sawing and cutting where circulating lubricants are not used. Provides smooth, cool cutting for non-ferrous metals and plastics - won't stain aluminum.

Item No.	Description	Pack Qty.
CE-16	CUT-EASE Stick Lubricant	1

MOLD COMPONENTS

Core Pins
Ejector Pins
Oversized Step Pins
Pages 450 - 454



Premium Solid Carbide End Mills
4 Flute
Regular Length
Made in U.S.A.



Square End



Square End with ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Square End	Ball Nose	Square End	Ball Nose				
Item No.	Item No.	Item No.	Item No.				
TU-130722	TU-132790	TU-166340	TU-133197	1/32	5/64	1 1/2	1
TU-130744	TU-132812	TU-166362	TU-133219	1/16	3/16	1 1/2	1
TU-130766	TU-132834	TU-166384	TU-133241	3/32	3/8	1 1/2	1
TU-130777	TU-132845	TU-166395	TU-133252	7/64	3/8	1 1/2	1
TU-130788	TU-132856	TU-166406	TU-133263	1/8	1/2	1 1/2	1
TU-130799	TU-132867	TU-166417	TU-133274	9/64	9/16	2	1
TU-130810	TU-132878	TU-166428	TU-133285	5/32	9/16	2	1
TU-130832	TU-132900	TU-166450	TU-133307	3/16	5/8	2	1
TU-130854	TU-132922	TU-166472	TU-133329	7/32	5/8	2 1/2	1
TU-130876	TU-132944	TU-166494	TU-133351	1/4	5/8	2 1/2	1
TU-130887	TU-132955	TU-166505	TU-133362	17/64	3/4	2 1/2	1
TU-130898	TU-132966	TU-166516	TU-133373	9/32	3/4	2 1/2	1
TU-130909	TU-132977	TU-166527	TU-133384	19/64	19/16	2 1/2	1
TU-130920	TU-132988	TU-166538	TU-133395	5/16	19/32	2 1/2	1
TU-130942	TU-133010	TU-166560	TU-133417	11/32	7/8	2 1/2	1
TU-130964	TU-133032	TU-166582	TU-133439	3/8	7/8	2 1/2	1
TU-130986	TU-133054	TU-166604	TU-133461	13/32	7/8	2 1/2	1
TU-131008	TU-133076	TU-166626	TU-133483	7/16	7/8	2 1/2	1
TU-131030	TU-133098	TU-166648	TU-133505	15/32	1	3	1
TU-131052	TU-133120	TU-166670	TU-133527	1/2	1	3	1
TU-131074	TU-133131	TU-166692	TU-133538	9/16	1 1/4	3	1
TU-131085	TU-133142	TU-166703	TU-133549	5/8	1 1/4	3 1/2	1
TU-131096	TU-133153	TU-166714	TU-133560	3/4	1 1/2	4	1
TU-131107	TU-133164	TU-166725	TU-133571	7/8	1 1/2	4	1
TU-131118	TU-133175	TU-166736	TU-133582	1	1 1/2	4	1

Premium Solid Carbide End Mills
4 Flute
Long Length
Made in U.S.A.



Square End



Square End ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Square End	Ball Nose	Square End	Ball Nose				
Item No.	Item No.	Item No.	Item No.				
TU-136442	TU-137058	TU-136596	TU-137212	1/8	3/4	2 1/4	1
TU-136453	TU-137069	TU-136607	TU-137223	3/16	3/4	2 1/2	1
TU-136464	TU-137080	TU-136618	TU-137234	1/4	1 1/8	3	1
TU-136475	TU-137091	TU-136629	TU-137245	1/4	1	4	1
TU-136486	TU-137102	TU-136640	TU-137256	5/16	1 1/8	3	1
TU-136497	TU-137113	TU-136651	TU-137267	3/8	1 1/8	3	1
TU-136508	TU-137124	TU-136662	TU-137278	3/8	1	4	1
TU-136519	TU-137135	TU-136673	TU-137289	7/16	2	4	1
TU-136530	TU-137146	TU-136684	TU-137300	1/2	1	4	1
TU-136541	TU-137157	TU-136695	TU-137311	1/2	2	4	1
TU-136552	TU-137168	TU-136706	TU-137322	5/8	2 1/4	5	1
TU-136563	TU-137179	TU-136717	TU-137333	3/4	2 1/4	5	1
TU-136574	TU-137190	TU-136728	TU-137344	7/8	2 1/4	5	1
TU-136585	TU-137201	TU-136739	TU-137355	1	2 1/4	5	1

Premium Solid Carbide End Mills
4 Flute
Extra Long Length
Made in U.S.A.



Square End



Square End ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Square End	Ball Nose	Square End	Ball Nose				
Item No.	Item No.	Item No.	Item No.				
TU-137674	TU-138334	TU-137850	TU-138510	1/8	1	3	1
TU-137685	TU-138345	TU-137861	TU-138521	3/16	1 1/8	3	1
TU-137696	TU-138356	TU-137872	TU-138532	1/4	1 1/2	4	1
TU-137707	TU-138367	TU-137883	TU-138543	1/4	1 1/2	6	1
TU-137718	TU-138378	TU-137894	TU-138554	5/16	1 1/8	4	1
TU-137729	TU-138389	TU-137905	TU-138565	3/8	1 3/4	4	1
TU-137740	TU-138400	TU-137916	TU-138576	3/8	1 1/2	6	1
TU-137751	TU-138411	TU-137927	TU-138587	7/16	3	6	1
TU-137762	TU-138422	TU-137938	TU-138598	1/2	1 1/2	6	1
TU-137773	TU-138433	TU-137949	TU-138609	1/2	3	6	1
TU-137784	TU-138444	TU-137960	TU-138620	5/8	3	6	1
TU-137795	TU-138455	TU-137971	TU-138631	3/4	3	6	1
TU-137817	TU-138477	TU-137993	TU-138653	7/8	3	6	1
TU-137828	TU-138488	TU-138004	TU-138664	1	3	6	1



END MILLS

Buy One or Buy Bulk & SAVE



Premium Solid Carbide End Mills
2 Flute
Regular Length
Made in U.S.A.



Square End



Square End ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

Square End		Ball Nose		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Item No.	Item No.	Item No.	Item No.	Square End	Ball Nose				
TU-129677	TU-131745	TU-130084	TU-132152	1/64	5/8	2	1		
TU-129578	TU-131646	TU-129985	TU-132053	1/32	5/64	1 1/2	1		
TU-129600	TU-131668	TU-130007	TU-132075	1/16	3/16	1 1/2	1		
TU-129622	TU-131690	TU-130029	TU-132097	3/32	3/8	1 1/2	1		
TU-129644	TU-131712	TU-130051	TU-132119	1/8	1/2	1 1/2	1		
TU-129666	TU-131734	TU-130073	TU-132141	5/32	9/16	2	1		
TU-129688	TU-131756	TU-130095	TU-132163	3/16	5/8	2	1		
TU-129710	TU-131778	TU-130117	TU-132185	7/32	5/8	2 1/2	1		
TU-129732	TU-131800	TU-130139	TU-132207	1/4	3/4	2 1/2	1		
TU-129754	TU-131822	TU-130161	TU-132229	9/32	3/4	2 1/2	1		
TU-129776	TU-131844	TU-130183	TU-132251	5/16	13/16	2 1/2	1		
TU-129798	TU-131866	TU-130205	TU-132273	11/32	7/8	2 1/2	1		
TU-129820	TU-131888	TU-130227	TU-132295	3/8	7/8	2 1/2	1		
TU-129842	TU-131910	TU-130249	TU-132317	13/32	7/8	2 1/2	1		
TU-129864	TU-131932	TU-130271	TU-132339	7/16	7/8	2 1/2	1		
TU-129886	TU-131954	TU-130293	TU-132361	15/32	1	3	1		
TU-129908	TU-131976	TU-130315	TU-132383	1/2	1	3	1		
TU-129919	TU-131987	TU-130326	TU-132394	9/16	1 1/4	3	1		
TU-129930	TU-131998	TU-130337	TU-132405	5/8	1 1/4	3 1/2	1		
TU-129941	TU-132009	TU-130348	TU-132416	3/4	1 1/2	4	1		
TU-129952	TU-132020	TU-130359	TU-132427	7/8	1 1/2	4	1		
TU-129963	TU-132031	TU-130370	TU-132438	1	1 1/2	4	1		

Premium Solid Carbide End Mills
2 Flute
Long Length
Made in U.S.A.



Square End



Square End ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

Square End		Ball Nose		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Item No.	Item No.	Item No.	Item No.	Square End	Ball Nose				
TU-136134	TU-136750	TU-136288	TU-136904	1/8	3/4	2 1/4	1		
TU-136145	TU-136761	TU-136299	TU-136915	3/16	3/4	2 1/2	1		
TU-136156	TU-136772	TU-136310	TU-136926	1/4	1 1/8	3	1		
TU-136167	TU-136783	TU-136321	TU-136937	1/4	1	4	1		
TU-136178	TU-136794	TU-136332	TU-136948	5/16	1 1/8	3	1		
TU-136189	TU-136805	TU-136343	TU-136959	3/8	1 1/8	3	1		
TU-136200	TU-136816	TU-136354	TU-136970	3/8	1	4	1		
TU-136211	TU-136827	TU-136365	TU-136981	7/16	2	4	1		
TU-136222	TU-136838	TU-136376	TU-136992	1/2	1	4	1		
TU-136233	TU-136849	TU-136387	TU-137003	1/2	2	4	1		
TU-136244	TU-136860	TU-136398	TU-137014	5/8	2 1/4	5	1		
TU-136255	TU-136871	TU-136409	TU-137025	3/4	2 1/4	5	1		
TU-136266	TU-136882	TU-136420	TU-137036	7/8	2 1/4	5	1		
TU-136277	TU-136893	TU-136431	TU-137047	1	2 1/4	5	1		

Premium Solid Carbide End Mills
2 Flute
Extra Long Length
Made in U.S.A.



Square End



Square End ALTiN Coated



Ball Nose



Ball Nose ALTiN Coated

Square End		Ball Nose		ALTiN Coated		Size	Flute Lgth.	OAL	Pack Qty.
Item No.	Item No.	Item No.	Item No.	Square End	Ball Nose				
TU-137366	TU-138026	TU-137520	TU-138180	1/8	1	3	1		
TU-137377	TU-138037	TU-137531	TU-138191	3/16	1 1/8	3	1		
TU-137388	TU-138048	TU-137542	TU-138202	1/4	1 1/2	4	1		
TU-137399	TU-138059	TU-137553	TU-138213	1/4	1 1/2	6	1		
TU-137410	TU-138070	TU-137564	TU-138224	3/16	1 3/4	4	1		
TU-137421	TU-138081	TU-137575	TU-138235	3/8	1 3/4	4	1		
TU-137432	TU-138092	TU-137586	TU-138246	3/8	1 1/2	6	1		
TU-137443	TU-138103	TU-137597	TU-138257	7/16	3	6	1		
TU-137454	TU-138114	TU-137608	TU-138268	1/2	1 1/2	6	1		
TU-137465	TU-138125	TU-137619	TU-138279	1/2	3	6	1		
TU-137476	TU-138136	TU-137630	TU-138290	5/8	3	6	1		
TU-137487	TU-138147	TU-137641	TU-138301	3/4	3	6	1		
TU-137498	TU-138158	TU-137652	TU-138312	7/8	3	6	1		
TU-137509	TU-138169	TU-137663	TU-138323	1	3	6	1		



TiCN Coated Roughing End Mills
Regular Length - Square End
Coarse Profile
Center Cutting

HANITA



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	No. of Flutes	Pack Qty.
HA-TC6208-10004	3/8	3/8	3/4	2 1/2	4	1
HA-TC6208-11005	7/16	1/2	1 1/4	3 3/4	4	1

Roughing End Mills
Long Length - Square End
Coarse Profile
Non-Center Cutting

HANITA



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	No. of Flutes	Pack Qty.
HA-6217-16006	5/8	5/8	2 1/2	4 5/8	4	1

TiCN Coated End Mills
2 Flute - Regular Length
Center Cutting

HANITA



Premium steel - M42 (8%) Cobalt

Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
HA-TC1202-10004	3/8	3/8	3/8	2 5/8	1
HA-TC1202-11005	7/16	1/2	1	3	1
HA-TC1202-16006	5/8	5/8	1 5/8	3 1/8	1

4 Flute - Regular Length Carbide
TiCN Coated
Center Cutting

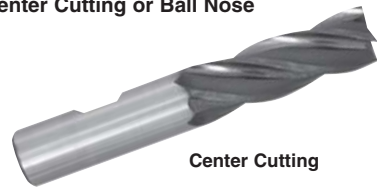
HANITA



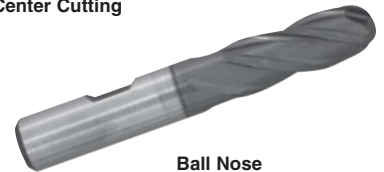
Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
HA-TC4S0R-10004	3/8	3/8	7/8	2 1/2	1
HA-TC4S0R-13005	1/2	1/2	1	3	1

TiCN Coated End Mills
4 Flute - Regular Length
Center Cutting or Ball Nose

HANITA



Center Cutting



Ball Nose

Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
Center Cutting					
HA-TC1205-08004	5/16	3/8	3/4	2 1/2	1
HA-TC1205-22003	7/8	7/8	1 7/8	4 1/8	1
Ball Nose					
HA-TC1200-13005	1/2	1/2	1 1/4	3 3/4	1

End Mills
2 Flute - Regular Length
Single Ball End

BRUBAKER TOOL



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
BT-ER8-1	1/4	3/8	5/8	2 7/16	1
BT-ER16-2	1/2	1/2	1	3	1

4 Flute
Regular Length
Single End

BRUBAKER TOOL



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
BT-G8-1	1/4	3/8	5/8	2 7/16	1
BT-G10-1	5/16	3/8	3/4	2 1/2	1
BT-G14-1	7/16	3/8	1	2 11/16	1
BT-G20-3	5/8	5/8	1 5/8	3 3/4	1

4 Flute
Long Length
Single End

BRUBAKER TOOL



Item No.	Cut Dia.	Shank Dia.	Lgth. of Cut	OAL	Pack Qty.
BT-GL8-1	1/4	3/8	1 1/4	3 1/8	1
BT-GL10-1	5/16	3/8	1 5/8	3 3/8	1
BT-GL12-1	3/8	3/8	1 1/2	3 1/4	1



AlumaStar® coating (Titanium Diboride - TiB2) has a low affinity to aluminum and high hardness, making it integral to the productive machining of aluminum alloys. The thickness is kept intentionally lower in order to maintain sharp cutting edges needed for the machining of softer materials like magnesium, and various copper and titanium alloys.

Specific coating engineered to repel aluminum. Engineered to run at 750-2500 SFM. High velocity- high metal removal rate. Use properly balanced holders. Holds perpendicularity.

2 and 3 Flute HSAL Square End - AlumaStar® Coated



2 Flute



3 Flute

Table with columns: Item No., Flute Dia., Dec. Equiv., Flute Lgth., Shank Dia., OAL, Pack Qty. for 2 Flute and 3 Flute drill bits.

2 Flute HSAL Ball End - AlumaStar® Coated



Table with columns: Item No., Flute Dia., Dec. Equiv., Flute Lgth., Shank Dia., OAL, Pack Qty. for 2 Flute Ball End drill bits.

3 Flute HSAL Corner Radius - AlumaStar® Coated



Table with columns: Item No., Flute Dia., Dec. Equiv., Corner Radius, Flute Lgth., Shank Dia., OAL, Pack Qty. for 3 Flute Corner Radius drill bits.

Cutting Fluids Tap Free Excel



A high performance cutting oil that produces tight tolerances, provides longer tool life and gives a better finish on all metals. Especially effective on hard to cut metals.

Table with columns: Item No., Container, Pack Qty. for Tap Free Excel.

Cutting Fluids Tap Free 2



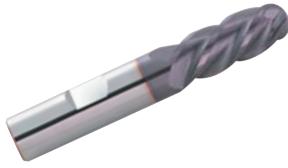
An environmentally safe, aqueous-based fluid that provides superior performance on most metals from aluminum to stainless steel. Easy clean up.

Table with columns: Item No., Container, Pack Qty. for Tap Free 2.



High Performance End Mills
4 Flute - Ball End
Balinit® X.CEED Coated

GARR TOOL®



State-of-the-art solid carbide rougher finisher using VRX technology. Reduces vibration for more aggressive machining resulting in less cycle times and greater productivity.

Table with columns: Plain/Weldon Flats, Item No., Flute Dia., Dec. Equiv., Flute Lgth., Shank Dia., OAL, Pack Qty. Includes Inch and Metric sections.

High Performance End Mills
4 Flute - Corner Radius
Balinit® X.CEED Coated

GARR TOOL®



State-of-the-art solid carbide rougher finisher using VRX technology. Reduces vibration for more aggressive machining resulting in less cycle times and greater productivity.

Table with columns: Plain/Weldon Flats, Item No., Flute Dia., Dec. Equiv., Corner Radius, Flute Lgth., Shank Dia., OAL, Pack Qty. Includes Inch and Metric sections.

High Performance End Mills
Extra Length - Corner Radius
Balinit® X.CEED Coated

GARR TOOL®



Table with columns: Plain/Weldon, Item No., Flute Dia., Dec. Equiv., Corner Radius, Flute Lgth., Shank Dia., OAL, Pack Qty. Includes Inch and Metric sections.

Table with columns: Plain/Weldon, Item No., Flute Dia., Dec. Equiv., Corner Radius, Flute Lgth., Shank Dia., OAL, Pack Qty. Includes Metric section.