



F&D Tool Company

Carbide and High Speed Cutting Tools

The Standard in Excellence



F&D Tool Co., Inc (800) 338-6650 www.fdtool.com sales@fdtool.com



Message from F&D Tool Co.



Welcome to our online catalog and thank you for choosing F&D Tool Company Inc. for your cutting tool needs.

Founded by Frank Falk and John Duda, Jr. in 1939 as a machine rebuilding company in Three Rivers, Massachusetts, F&D quickly began to build a reputation of excellence and expanded the business to become a manufacturer of standard and special cutting tools.

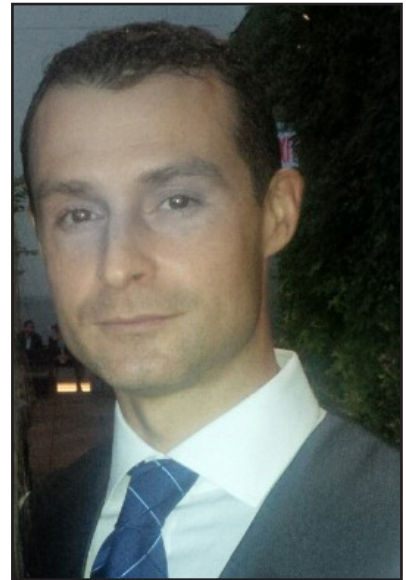
Today, F&D continues to adapt to the changing needs of its customers and is actively reinvesting in machining and other technology to help stay current with the latest innovations in the cutting tool field. F&D offers state of the art carbide and carbide tipped cutters that are designed and manufactured using the latest CAD software in a completely renovated engineering and milling department with its products being reviewed and tested in an improved quality control department.

For 78 years, F&D has been a pioneer in the cutting tool industry. F&D began with a commitment and philosophy to produce superior quality products at competitive prices with a focus on customer satisfaction. Over the past three decades, under the leadership and management of attorney and electrical engineer Philip Duda, F&D President, F&D continued to adhere to, and improve upon, that commitment and philosophy. Today, and as F&D moves into the future, the company and its third generation leader, Cort Duda, Boston College graduate and Vice President of F&D, will honor and continue the traditions and philosophy upon which F&D was founded while maintaining and embracing flexibility to meet the ever changing demands of its customers and innovations in the industry.

F&D is proud to have served its customers and the tooling industry for over 78 years as a reliable and trusted manufacturer of cutting tools and looks forward to continuing to serve existing and new customers now and in the future.

Please contact us by phone at (800) 338-6650, by fax at (413) 289-1701, or by email at fdtoolco@gmail.com.

Thank you for your continued support and we look forward to working with you.



Philip M. Duda
President
F&D Tool Company

Cort Duda
Vice President
F&D Tool Company

F&D Tool Company, Inc.

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- Credit:** We are able to ship open account upon your request to firms having satisfactory Dunn & Bradstreet ratings of HH2 or better. Accounts that are 45 days old are past due and put on hold. Non-rated accounts must send check with order or be shipped C.O.D. We also accept MasterCard & Visa.
- Ordering:** If you have never purchased from us, you can avoid delay by furnishing us with your bank's name and address, plus three trade references.
- Guarantee:** All material is fully guaranteed against defects in material or workmanship for 90 days from date of purchase.
- Shipping Terms:** All drop shipments are collect and all excelled methods of transportation are collect. We ship by United Parcel Service whenever possible. It is our objective to ship your order the same day it is placed.
- Damaged, Lost, or Short Shipments** UPS - Notify your local UPS office immediately. Advise us so we can reship the merchandise and place a claim. Keep damaged goods and containers for UPS inspection.
- Claims:** All claims for shortages, damages, or defects must be made within 5 days of receipt of goods, accompanied by an F&D invoice number.
- Returns:** All returns must be made within 90 days of delivery. No goods may be returned without authorization. A 10% handling charge will be made on all returns. You must include your invoice number with goods returned and goods must be in same condition as when shipped. All returns must be prepaid. Specials are non-returnable.
- Terms of Payment:** Standards 2/10, Net 30. Specials - Net 30. 1.5%/month surcharge over 30 days.
- Bid & Quotation Service** We solicit the opportunity to quote on your needs and to be placed on your bid list. Quotations are valid for 30 days.

Since we are continuously improving our products, it is possible that some tools may undergo dimensional changes without prior notice.

Any cutting tool may break or shatter under improper use. Governmental regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use. F&D Tool is not responsible for any cutting tool that is altered, damaged, or used subsequent to leaving the facility.



ANNULAR CUTTERS*

Cobalt	58
High Speed Steel	58

ARBORS/ADAPTERS*

Endmill	128
Shell Endmill	128-129
Semi Flush	132
Holders – Stub Arbor	132
Milling Machine	
National Standard Taper	130
Straight Shank – Stub	7
R-8	129
Retention Knobs for Holders	132
Slitting & Slotting Saw	43
Shell Endmill	
Brown & Sharpe Taper	128
National Standard Taper	131
Shell Reamer	122
Threaded for Angle Cutters	26

ARBOR SPACERS/SHIM SETS

131

BROACHES*

Broach Sets	133-135
-------------------	---------

BUSHINGS

136

BORING BARS

150-151

CARBIDE (SOLID)*

Combined Drills & Countersinks	93
Endmills	
Four Flute	79
Four Flute Variable Helix	80
Five Flute Variable Helix	80
Four Flute Extra Extra Long	81
Four Flute Extra Long	81
Six Flute Helix With Corner Radius	80
Three Flute High Helix	80
Three Flute Standard Length	81
Two Flute Extra Long	81
Two Flute Standard Length	81
Slitting Saws	49
Woodruff Keyseat – Shank Type	52
Boring Bars	152

CARBIDE TIPPED*

Angle Milling	25
Chamfering	55
Chucking Reamers	113
Corner Rounding Endmills	35
Counterbores	87

Double Angle Cutters	25
Double Angle Shank Type	56
Dovetail	56
Port Contour Cutters	89-91
Side Mills-Straight Tooth	20-21
Shell Reamers	121
Slitting Saws	22-23
T-Slot Cutters	55
Woodruff Keyseat Cutters	52-53

CENTERS

Jarno Taper	127
Morse Taper	127
B&S Taper	127

COATINGS

161

COUNTERBORES

Aircraft	88
Cap Screw	88
Carbide Tipped	87
Continuous Pilot	88
Short Set	85
Solid Pilot	88

COUNTERSINKS

92

DECIMAL CHART

160

DIES*

Adjustable Round Split	
Carbon	147-148
High Speed Steel	147
Adjustable Two Piece	
Carbon Steel	149
Hexagon Retreading	145
Solid Square Bolt	145
Solid Square Pipe	145
Collets – Two Piece	149
Stocks	146, 149

DOVETAIL

High Speed Steel	56
Carbide Tipped	56

DRILLS

Cobalt	98
Combined Drills & Countersinks	93
Core Drills	103-104
Drill Blanks	105-106
Drill Sets	105

Jobber Drills	94
Letter Drills	94
Masonry Drills	102
Screw Machine – Short Length	96-97
Silver & Deming	98
Split Point-Cobalt	98
Taper Length-Straight Shank	99
Twist Drills-Taper Shank	100-102
Wire Drills	95
Spotting Drills	97

ENDMILLS

Ball End – HSS	69
Multiple Flute	76-77
Corner Rounding	
Carbide Tipped	35
Cobalt	34
High Speed Steel	34
Multiple Flute – HSS	
Double End	62-63, 66, 70-71
Single End	60, 61, 63-70
Taper Shank-Brown & Sharpe	73
Taper Shank-Morse Taper	72
Center Cutting	69-71, 80
Single End	67-69
Multiple Flute – Cobalt	76-77
Multiple Flute – Solid Carbide	78-79
Multiple Flute – T-15	77
Roughing	74
Solid Carbide	
Four Flute	79
Four Flute Variable Helix	80
Five Flute Variable Helix	80
Four Flute Extra Extra Long	81
Four Flute Extra Long	81
Six Flute Helix With Corner Radius	80
Three Flute High Helix	80
Three Flute Standard Length	81
Two Flute Extra Long	81
Two Flute Standard Length	81
Two Flute	78
Three Flute	66
Two Flute – HSS	
Double End	62-63
For Aluminum	64
Extension Type	61, 63
Single End	60
Taper Shank	65
Two Flute – Cobalt	75
Two Flute – Solid Carbide	78
Two Flute – T-15	75

HOLLOW MILLS57	Slab Mills (See Plain Mills)	SCREW EXTRACTORS126
INVOLUTE GEAR CUTTERS	Staggered Tooth Side Mills	TAPS*
HSS 14 1/2 Degree.....36-37	For Aluminum.....16	Carbon Steel
HSS 20 Degree.....37-38	Full Radius.....19	Hand Taps.....144
HSS 14 1/2 Degree Bevel.....38	High Speed Steel.....12-15	Machine Screw.....144
	M-42 Cobalt.....17	Pipe.....142
	Superior T-15.....18	Spiral Point.....144-145
INDEX – EDI #157-159	Straight Tooth Side Mills	High Speed Steel - Cut Thread
KEYSEAT CUTTERS (WOODRUFF)	Carbide Tipped.....20-21	Hand Taps.....143
HSS.....50	Full Radius.....19	Machine Screw.....143
Carbide Tipped.....52	High Speed Steel.....8-11	Pipe.....142
Carbide Tipped For Aluminum.....53	M-42 Cobalt.....17	Spiral Point.....144
Cobalt.....50		High Speed Steel - Ground Thread
Narrow Width.....51	PILOTS86	Hand Taps.....139
Solid Carbide.....52	PORT CONTOUR CUTTERS89-91	Machine Screw.....139-140
Large Diameter.....51	QUOTE REQUEST FORMS155-156	Pipe.....141
LATHE MANDRELS126	REAMERS	Pulley.....141
MILLING CUTTERS	Bridge Reamers.....119	Spiral Fluted.....140
Angle Milling Cutters	Brown & Sharpe Taper Reamers...117	Spiral Point.....139-140
Double Angle Arbor Type.....24	Car Reamers.....117	Tap & Reamer Wrenches.....146
Single Angle Arbor Type.....24	Center Reamers.....92	T-Handle Tap Wrenches.....146
Double Angle Shank Type	Chucking Reamers	T-SLOT
High Speed Steel.....56	Carbide Tipped.....113	Carbide Tipped.....55
Carbide Tipped.....56	Expanding.....115	M42 Cobalt Roughing.....55
Single Angle Chamfering	Straight Shank.....109-111	Straight Shank HSS.....54
High Speed Steel.....55	Construction Taper Reamers.....117	Taper Shank HSS.....54
Carbide Tipped.....55	Expansion Hand Reamers.....116	TOOL BITS125
Threaded Hole.....26	Hand Reamers.....123	ENGINEERING DATA153-154
Concave Cutters	Jig Borer Reamers.....122	
Arbor Type.....31	Jobber Reamers.....122	
Shank Type.....33	Morse Taper Reamers.....118	
Convex Cutters	Reamer Blanks.....106-107	
Arbor Type.....32	Shell Reamers.....121	
Shank Type.....33	Tap & Reamer Wrenches.....146	
Corner Rounding Cutters- R&L Hand..33	Taper Pin Reamers.....120	
Dovetail Cutters	Taper Pipe Reamers.....117	
Carbide Tipped.....56	Aligning Reamers.....120	
High Speed Steel.....56	SAWS	
Gear Cutters.....36-38	Carbide Tipped	
Half Side Mills - R&L Hand	Coarse Tooth.....22	
High Speed Steel.....11	Standard Tooth.....23	
M-42 Cobalt.....11	Jewelers.....45-48	
Interlocking Side Mills - HSS.....6	M42 Cobalt	
Plain Mills.....6-7	Side Chip.....43	
Shell (Face) Mills.....30	Staggered Tooth.....43	
Carbide Tipped.....30	Plain Slitting.....39	
HSS R&L Hand.....27	Side Chip.....40-41	
M-42 Cobalt.....29	Full Radius.....19	
M-42 Cobalt Roughing.....28	Screw Slotting.....44	
	Solid Carbide Slitting.....49	
	Staggered Tooth.....42	

All standard items subject to a 10% restocking fee
Items with an * have a 15% restocking fee

CARBIDE & HIGH SPEED CUTTING TOOLS

UNDER THE F&D TOOL TRADEMARK

In 1939, two ambitious young men, Frank Falk and John Duda, Jr., formed a machine rebuilding company in Three Rivers, Mass. They began to build upon a reputation of excellence in their work. With the war near its end, the owners decided to enter the manufacturing field of standard and special cutting tools. Theirs was a company based on a continuous policy of offering only superior products, dependable services and something that was, as yet, unheard of in the tooling industry - special cutters at standard prices. It was at this time that F&D began producing its famous "Step Tooth" milling cutters, an original design by John Duda, Jr. that has since been copied throughout the tool industry.



Today, F&D continues to adapt to the changing needs of its customers and is active in machining societies and organizations to stay current with the latest innovations in the cutting tool field. F&D offers state of the art carbide and carbide tipped cutters that are designed and manufactured using the latest CAD software in a completely renovated engineering department with its products being reviewed and tested in an improved quality control department. F&D continues to stock in-between sizes and offers twenty-four hour turnaround on specials. F&D also offers its extensive line of products on its newly revamped online website through which its customers can check the current list price, review specifications of a particular product, request a quote and place his or her order.

For 75 years, F&D has been a pioneer in the cutting tool industry. F&D began with a commitment and philosophy to produce superior quality products at competitive prices with a focus on customer satisfaction. Today, and over the past three decades, under the leadership and management of attorney and electrical engineer Philip Duda, F&D continues to adhere to, and improve upon, that same commitment and philosophy. As F&D moves into the next generation, Philip has brought on board his son, Cort Duda, to honor and continue the traditions and philosophy upon which F&D was founded, while maintaining and embracing flexibility to meet the ever changing demands of its customers and innovations in the industry.

F&D is proud to have served its customers and the tooling industry for over 73 years as a reliable and trusted manufacturer of cutting tools and looks forward to continuing to serve existing and new customers now and in the future.



CARBIDE / HIGH SPEED STEEL

CUTTERS & SAWS





PLAIN MILLING CUTTERS

INTERLOCKING SIDE MILLING CUTTERS



N300
PLAIN TYPE
Teeth out of line



N350
STAGGERED TOOTH TYPE
Using two standards and grind hubs



N400
PLAIN TYPE
General purpose application



N500
STAGGERED TOOTH TYPE
For Heavy duty application and deep slotting operations



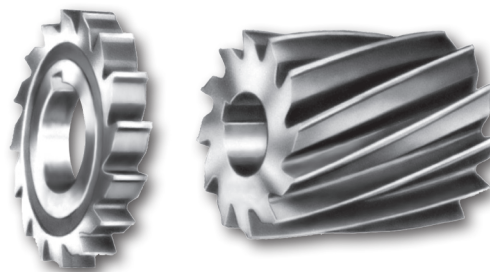
N600
HERRINGBONE TYPE
Recommended for widths exceeding 1 1/2 inches

These cutters are designed for general purpose slotting operations and can be adjusted to cut a desired width. A shim inserted between the two interlocking parts permits width adjustment and maintenance of that width after resharpener. Each cutter has a 10° rake and 10° spiral in diameters up to 12" and infinite width range.

PLAIN MILLING CUTTERS LIGHT DUTY - HIGH SPEED STEEL

These cutters are 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 left hand spiral.

right hand spiral also available upon request



Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10501-A108	2 1/4	1/4	7/8	\$53.09
10502-A110	2 1/4	1/2	7/8	53.09
10503-A112	2 1/4	1	7/8	68.99
10504-A114	2 1/2	3/16	1	36.78
10505-A116	2 1/2	1/4	1	44.25
10506-A118	2 1/2	5/16	1	46.90
10507-A120	2 1/2	3/8	1	50.95
10508-A122	2 1/2	7/16	1	53.09
10509-A124	2 1/2	1/2	1	57.46
10510-A126	2 1/2	5/8	1	62.86
10511-A128	2 1/2	3/4	1	69.90
10513-A130	2 1/2	1	1	84.39
10515-A132	2 1/2	1 1/2	1	108.42
10516-A134	2 1/2	2	1	130.18
10518-A136	2 1/2	2 1/2	1	160.33
10520-A138	2 1/2	3	1	173.66
10522-A140	3	3/16	1	45.09
10523-A142	3	1/4	1	56.81
10524-A144	3	5/16	1	62.64
10525-A146	3	3/8	1	67.44
10526-A148	3	3/8	1 1/4	67.44
10527-A149	3	7/16	1	69.90
10528-A150	3	7/16	1 1/4	69.90
10529-A151	3	1/2	1	72.47
10530-A152	3	1/2	1 1/4	72.47

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10531-A153	3	5/8	1	\$81.87
10532-A154	3	5/8	1 1/4	81.87
10533-A156	3	3/4	1 1/4	84.90
10534-A158	3	7/8	1 1/4	89.67
10535-A160	3	1	1 1/4	110.09
10536-A162	3	1 1/4	1 1/4	124.00
10538-A164	3	1 1/2	1 1/4	138.63
10540-A166	3	2	1 1/4	170.76
10542-A167	3	2 1/2	1 1/4	229.51
10543-A168	3	3	1 1/4	238.48
10545-A169	3	4	1 1/4	300.05
10546-A170	4	1/4	1	84.90
10547-A172	4	1/4	1 1/4	84.90
10548-A174	4	5/16	1	91.47
10549-A176	4	5/16	1 1/4	91.47
10550-A178	4	3/8	1	96.37
10551-A180	4	3/8	1 1/4	96.37
10552-A182	4	1/2	1 1/4	117.31
10553-A184	4	5/8	1 1/4	124.97
10554-A186	4	3/4	1 1/4	138.11
10555-A188	4	1	1 1/4	165.88
10557-A190	4	1 1/2	1 1/4	213.42
10559-A192	4	2	1 1/4	262.81
10561-A194	4	3	1 1/4	387.34
10563-A196	4	4	1 1/4	512.11

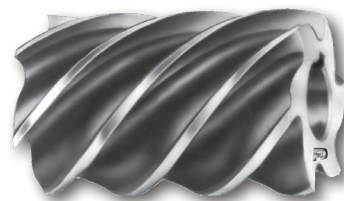
PLAIN MILLING CUTTERS HEAVY DUTY - HIGH SPEED STEEL



- Excellent for heavy stock removal
- Regularly furnished with 45° L.H. spiral

Catalog EDI-Number	Dia.	Width of Face	Hole Size	List Price
10565-A210	2 1/2	2	1	\$138.11
10567-A212	2 1/2	4	1	233.06
10569-A213	3	1 1/4	1 1/4	149.58
10570-A213A	3	1 1/2	1 1/4	151.18
10571-A214	3	2	1 1/4	179.08
10573-A216	3	2 1/2	1 1/4	217.46
10575-A218	3	3	1 1/4	242.59
10577-A220	3	4	1 1/4	314.61
10579-A222	3	6	1 1/4	506.96
10581-A224	4	2	1 1/2	271.32
10583-A226	4	3	1 1/2	400.40
10585-A228	4	4	1 1/2	566.99
10587-A230	4	6	1 1/2	814.61
10588-A231	4	10	1 1/2	2,074.72
10589-A232	4 1/2	6	2	1,053.46
10590-A234	4 1/2	12	2	2,430.62

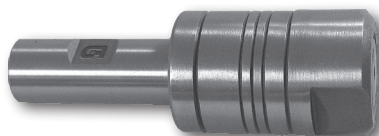
PLAIN MILLING CUTTERS HELICAL - HIGH SPEED STEEL



Helical Milling Cutters can be run at high speeds and will produce a smooth finish. F&D 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 other pieces of metal which cannot be held securely in the milling machine.

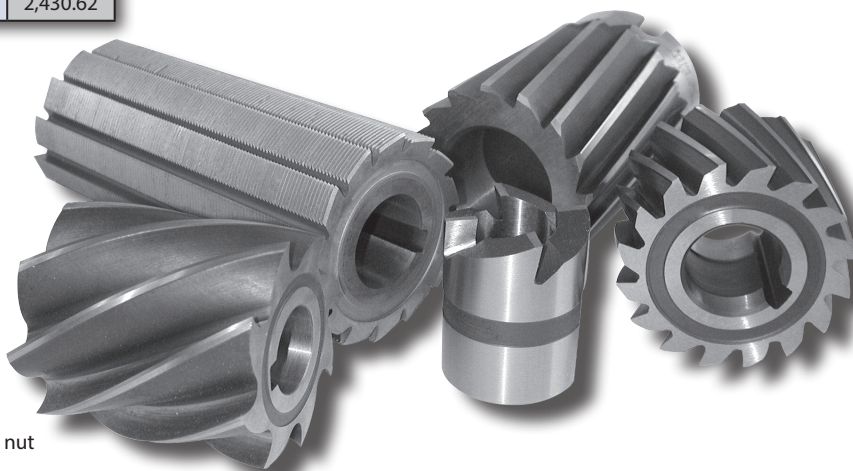
Catalog EDI-Number	Dia.	Width of Face	Hole Size	List Price
10592-A308	3	3	1 1/4	\$256.00
10591-A310	3	4	1 1/4	362.80
10593-A312	3	6	1 1/4	590.25
10595-A313	4	3	1 1/2	651.63
10596-A314	4	4	1 1/2	712.06
10597-A316	4	6	1 1/2	968.30
10598-A318	4	8	1 1/2	1,217.67
10599-A320	4	10	1 1/2	1,893.96
10600-A322	4 1/2	6	2	1,581.54
10601-A324	4 1/2	12	2	2,702.13

STRAIGHT SHANK STUB MILLING MACHINE ARBORS



FEATURES:

- For holding saws or small cutters
- These arbors are designed and made to fit directly into standard End Mill adapters
- Includes Spacers and nut
- Arbors furnished with standard keyways and L.H. Arbor nut
- See our full stock of arbors & holders on pages 131-135.



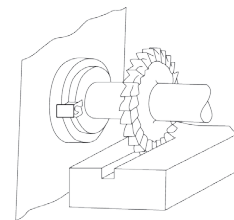
Catalog EDI-Number	Arbor Dia.	Shank Dia.	Shoulder to Nut	OAL	List Price
31094	1/2	1/2	1	3 3/8	\$141.52
31095	5/8	1/2	1	3 5/8	150.73
31096	3/4	1/2	1	3 7/8	159.81
31096A	1/2	3/4	1	3 5/8	165.69
31096B	5/8	3/4	1	*	170.57
31097	3/4	3/4	1	4 1/16	173.93
31098	7/8	3/4	1	4 1/4	173.74
31099	1	3/4	1	4 1/4	180.63
31100	1 1/4	3/4	1	4 7/16	202.65



SIDE MILLING CUTTERS HIGH SPEED STEEL



We have the largest and most varied range of sizes. Cutters can be ganged or used as straddle mills. Two different keyway locations permit interlocking. Cutters marked A & B will interlock when hubs are ground.



Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10701-A410	2	3/16	1/2	\$43.29
10702-A412	2	3/16	5/8	43.29
10703-A414	2	1/4	1/2	44.90
10704-A416	2	1/4	5/8	44.90
10705-A418	2	3/8	1/2	49.15
10706-A420	2	3/8	5/8	49.15
10706B-A380	2	5/8	1/2	61.71
10706C-A382	2	3/4	1/2	66.41
10706D-A384	2 1/2	3/16	1	57.60
10706E-A386	2 1/2	3/16	7/8	61.00
10707-A422	2 1/2	1/4	7/8	51.66
10708-A423	2 1/2	1/4	1	71.25
10709-A424	2 1/2	5/16	7/8	54.30
10710-A425	2 1/2	5/16	1	74.59
10711-A426	2 1/2	3/8	7/8	58.17
10712-A427	2 1/2	3/8	1	78.32
10713-A4275	2 1/2	7/16	1	81.49
10714-A428	2 1/2	1/2	7/8	58.89
10715-A429	2 1/2	1/2	1	84.12
10716-A4295	2 1/2	9/16	1	89.67
10717-A4305	2 1/2	5/8	1	96.82
10718-A5306	3	3/16	1	56.56
10719-A5307	3	3/16	1 1/4	56.56
10720-A3307	3	7/32	1	71.50
10721-A3308	3	7/32	1 1/4	71.50
10722-A430	3	1/4	1	53.33
10723-A5309	3	1/4	1 1/4	53.33
10724-A3309	3	9/32	1	76.40
10725-A3310	3	9/32	1 1/4	76.40
10726-A432	3	5/16	1	61.77
10727-A5311	3	5/16	1 1/4	61.77
10728-A3311	3	11/32	1	86.64
10729-A3312	3	11/32	1 1/4	86.64
10730-A434	3	3/8	1	67.06
10731-A5313	3	3/8	1 1/4	67.06
10732-A3313	3	13/32	1	87.87
10733-A3314	3	13/32	1 1/4	87.87
10734-A436	3	7/16	1	71.05
10735-A5315	3	7/16	1 1/4	71.05
10736-A438	3	1/2	1	68.02

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10737-A5317	3	1/2	1 1/4	\$68.02
10738-A5318	3	9/16	1	84.39
10739-A5319	3	9/16	1 1/4	84.39
10740-A5320	3	5/8	1	88.51
10741-A5321	3	5/8	1 1/4	88.51
10742-A5322	3	11/16	1	87.81
10743-A5323	3	11/16	1 1/4	87.81
10744-A5324	3	3/4	1	93.34
10745-A5325	3	3/4	1 1/4	93.34
10746-A5326	3	13/16	1	101.97
10747-A5327	3	13/16	1 1/4	101.97
10748-A5328	3	7/8	1	111.95
10749-A5329	3	7/8	1 1/4	111.95
10750-A5330	3	15/16	1	116.02
10751-A5331	3	15/16	1 1/4	116.02
10752-A5332	3	1	1	118.26
10753-A5333	3	1	1 1/4	122.52
10754-A5346	3 1/2	3/16	1	67.51
10755-A5347	3 1/2	3/16	1 1/4	80.07
10756-A5348	3 1/2	1/4	1	82.83
10757-A5349	3 1/2	1/4	1 1/4	82.83
10758-A5350	3 1/2	5/16	1	95.14
10759-A5351	3 1/2	5/16	1 1/4	95.14
10760-A5352	3 1/2	3/8	1	96.69
10761-A5353	3 1/2	3/8	1 1/4	96.69
10762-A5354	3 1/2	7/16	1	100.36
10763-A5355	3 1/2	7/16	1 1/4	100.36
10764-A5356	3 1/2	1/2	1	100.75
10765-A5357	3 1/2	1/2	1 1/4	100.75
10766-A5358	3 1/2	9/16	1	103.26
10767-A5359	3 1/2	9/16	1 1/4	103.26
10768-A5360	3 1/2	5/8	1	110.22
10769-A5361	3 1/2	5/8	1 1/4	110.22
10770-A5362	3 1/2	11/16	1	113.11
10771-A5363	3 1/2	11/16	1 1/4	113.11
10772-A5364	3 1/2	3/4	1	114.08
10773-A5365	3 1/2	3/4	1 1/4	114.08
10774-A5366	3 1/2	13/16	1	116.66
10775-A5367	3 1/2	13/16	1 1/4	116.66
10776-A5368	3 1/2	7/8	1	122.65
10777-A5369	3 1/2	7/8	1 1/4	122.65
10778-A5370	3 1/2	15/16	1	124.32
10779-A5371	3 1/2	15/16	1 1/4	124.32
10780-A5372	3 1/2	1	1	127.09
10781-A5373	3 1/2	1	1 1/4	127.09



SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10781B-A5407	4	3/16	1	\$64.67
10781C-A5408	4	3/16	1 1/4	96.31
10781D-A3407	4	7/32	1	97.97
10781E-A3408	4	7/32	1 1/4	97.97
10782-A440	4	1/4	1	76.27
10783-A5409	4	1/4	1 1/4	92.76
10784-A3409	4	9/32	1	100.49
10785-A3410	4	9/32	1 1/4	100.49
10786-A5410	4	5/16	1	95.59
10787-A5411	4	5/16	1 1/4	95.59
10788-A3411	4	11/32	1	102.16
10789-A3412	4	11/32	1 1/4	102.16
10790-A442	4	3/8	1	85.68
10791-A5413	4	3/8	1 1/4	105.51
10792-A3413	4	13/32	1	112.28
10793-A3414	4	13/32	1 1/4	112.28
10794-A5414	4	7/16	1	107.44
10795-A5415	4	7/16	1 1/4	107.44
10796-A3415	4	15/32	1	105.84
10797-A3416	4	15/32	1 1/4	105.84
10798-A444	4	1/2	1	96.18
10799-A446	4	1/2	1 1/4	96.18
10800-A5418	4	9/16	1	116.40
10801-A5419	4	9/16	1 1/4	116.40
10802-A448	4	5/8	1	110.28
10803-A450	4	5/8	1 1/4	110.28
10804-A5422	4	11/16	1	127.74
10805-A5423	4	11/16	1 1/4	127.74
10806-A452	4	3/4	1	119.37
10807-A454	4	3/4	1 1/4	119.37
10808-A5426	4	13/16	1	134.89
10809-A5427	4	13/16	1 1/4	134.89
10810-A456	4	7/8	1	131.09
10811-A458	4	7/8	1 1/4	131.09
10812-A5430	4	15/16	1	157.04
10813-A5431	4	15/16	1 1/4	157.04
10814-A5432	4	1	1	165.23
10815-A5433	4	1	1 1/4	165.23
10815B-A5446	4 1/2	3/16	1	92.11
10815C-A5447	4 1/2	3/16	1 1/4	114.86
10816-A5448	4 1/2	1/4	1	99.71
10817-A5449	4 1/2	1/4	1 1/4	99.71
10818-A5450	4 1/2	5/16	1	105.71
10819-A5451	4 1/2	5/16	1 1/4	105.71
10820-A5452	4 1/2	3/8	1	113.11
10821-A5453	4 1/2	3/8	1 1/4	113.11
10822-A5456	4 1/2	1/2	1	125.23

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10823-A5457	4 1/2	1/2	1 1/4	\$125.23
10824-A5460	4 1/2	5/8	1	133.15
10825-A5461	4 1/2	5/8	1 1/4	133.15
10826-A5464	4 1/2	3/4	1	144.55
10827-A5465	4 1/2	3/4	1 1/4	144.55
10828-A5468	4 1/2	7/8	1	159.95
10829-A5469	4 1/2	7/8	1 1/4	159.95
10830-A5472	4 1/2	1	1	187.39
10831-A5473	4 1/2	1	1 1/4	187.39
10831B-A5506	5	3/16	1	89.02
10831C-A5507	5	3/16	1 1/4	112.28
10831D-A3507	5	7/32	1	113.18
10831E-A3508	5	7/32	1 1/4	113.18
10832-A5508	5	1/4	1	124.97
10833-A5509	5	1/4	1 1/4	124.97
10834-A3509	5	9/32	1	134.77
10835-A3510	5	9/32	1 1/4	134.77
10836-A5510	5	5/16	1	127.23
10837-A5511	5	5/16	1 1/4	127.23
10838-A3511	5	11/32	1	135.34
10839-A3512	5	11/32	1 1/4	135.34
10840-A5512	5	3/8	1	136.11
10841-A5513	5	3/8	1 1/4	136.11
10842-A3513	5	13/32	1	144.55
10843-A3514	5	13/32	1 1/4	144.55
10844-A5514	5	7/16	1	146.49
10845-A5515	5	7/16	1 1/4	146.49
10846-A3515	5	15/32	1	148.93
10847-A3516	5	15/32	1 1/4	148.93
10848-A460	5	1/2	1	131.21
10849-A462	5	1/2	1 1/4	131.21
10850-A5518	5	9/16	1	162.52
10851-A5519	5	9/16	1 1/4	162.52
10852-A464	5	5/8	1	145.20
10853-A466	5	5/8	1 1/4	145.20
10854-A5522	5	11/16	1	172.37
10855-A5523	5	11/16	1 1/4	172.37
10856-A468	5	3/4	1	164.90
10857-A470	5	3/4	1 1/4	164.90
10858-A5526	5	13/16	1	184.94
10859-A5527	5	13/16	1 1/4	184.94
10860-A5528	5	7/8	1	216.24
10861-A5529	5	7/8	1 1/4	216.24
10862-A5530	5	15/16	1	196.20
10863-A5531	5	15/16	1 1/4	196.20
10864-A5532	5	1	1	206.33
10865-A472	5	1	1 1/4	197.31



SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10865B-A5546	5 1/2	3/16	1	\$115.89
10865C-A5547	5 1/2	3/16	1 1/4	132.12
10866-A5548	5 1/2	1/4	1	127.03
10867-A5549	5 1/2	1/4	1 1/4	127.03
10868-A5550	5 1/2	5/16	1	136.11
10869-A5551	5 1/2	5/16	1 1/4	136.11
10870-A5552	5 1/2	3/8	1	146.16
10871-A5553	5 1/2	3/8	1 1/4	146.16
10872-A5556	5 1/2	1/2	1	165.42
10873-A5557	5 1/2	1/2	1 1/4	165.42
10874-A5560	5 1/2	5/8	1	178.37
10875-A5561	5 1/2	5/8	1 1/4	178.37
10876-A5564	5 1/2	3/4	1	192.93
10877-A5565	5 1/2	3/4	1 1/4	192.93
10877B-A390	5 1/2	13/16	1	211.93
10877C-A392	5 1/2	13/16	1 1/4	211.93
10878-A5568	5 1/2	7/8	1	207.86
10879-A5569	5 1/2	7/8	1 1/4	207.86
10879B-A394	5 1/2	15/16	1	228.36
10879C-A396	5 1/2	15/16	1 1/4	228.36
10880-A5572	5 1/2	1	1	224.23
10881-A5573	5 1/2	1	1 1/4	224.23
10882-A5580	5 1/2	1 1/4	1	273.77
10883-A5581	5 1/2	1 1/4	1 1/4	273.77
10883B-A5606	6	3/16	1	115.43
10883C-A5607	6	3/16	1 1/4	115.43
10883D-A3607	6	7/32	1	154.86
10883E-A3608	6	7/32	1 1/4	154.86
10884-A5608	6	1/4	1	153.57
10885-A5609	6	1/4	1 1/4	153.57
10886-A3609	6	9/32	1	164.52
10887-A3610	6	9/32	1 1/4	171.16
10888-A5610	6	5/16	1	169.48
10889-A5611	6	5/16	1 1/4	176.24
10890-A3611	6	11/32	1	180.74
10891-A3612	6	11/32	1 1/4	188.03
10892-A5612	6	3/8	1	181.46
10893-A5613	6	3/8	1 1/4	188.68
10894-A3613	6	13/32	1	191.38
10895-A3614	6	13/32	1 1/4	199.05
10896-A5614	6	7/16	1	187.52
10897-A5615	6	7/16	1 1/4	191.64
10898-A3615	6	15/32	1	183.84
10899-A3616	6	15/32	1 1/4	183.84
10900-A474	6	1/2	1	168.90
10901-A476	6	1/2	1 1/4	168.90
10902-A5618	6	9/16	1	208.51
10903-A5619	6	9/16	1 1/4	204.71
10904-A5620	6	5/8	1	219.28
10905-A478	6	5/8	1 1/4	185.52
10906-A5622	6	11/16	1	230.03

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10907-A5623	6	11/16	1 1/4	\$224.17
10908-A480	6	3/4	1	217.79
10909-A482	6	3/4	1 1/4	217.79
10910-A5626	6	13/16	1	249.94
10911-A5627	6	13/16	1 1/4	240.98
10912-A5628	6	7/8	1	259.47
10913-A5629	6	7/8	1 1/4	248.91
10914-A5630	6	15/16	1	270.10
10915-A5631	6	15/16	1 1/4	264.04
10916-A5632	6	1	1	280.41
10917-A484	6	1	1 1/4	256.82
10918-A5708	7	1/4	1 1/4	243.36
10919-A5710	7	5/16	1 1/4	256.24
10920-A5712	7	3/8	1 1/4	280.08
10921-A5714	7	7/16	1 1/4	293.93
10922-A5716	7	1/2	1 1/4	314.86
10923-A5718	7	9/16	1 1/4	327.50
10924-A5720	7	5/8	1 1/4	338.57
10925-A5722	7	11/16	1 1/4	351.45
10926-A486	7	3/4	1 1/4	327.23
10927-A5726	7	13/16	1 1/4	375.48
10928-A5728	7	7/8	1 1/4	396.54
10929-A5730	7	15/16	1 1/4	409.62
10930-A488	7	1	1 1/4	420.37
10931-A5808	8	1/4	1 1/4	337.60
10932-A5810	8	5/16	1 1/4	354.03
10933-A5812	8	3/8	1 1/4	372.84
10934-A5814	8	7/16	1 1/4	391.27
10935-A5816	8	1/2	1 1/4	393.91
10936-A5818	8	9/16	1 1/4	417.80
10937-A5820	8	5/8	1 1/4	438.68
10938-A5822	8	11/16	1 1/4	473.08
10939-A490	8	3/4	1 1/4	388.30
10940-A5826	8	13/16	1 1/4	494.14
10941-A5828	8	7/8	1 1/4	515.33
10942-A5830	8	15/16	1 1/4	533.43
10943-A492	8	1	1 1/4	483.32
10944-A5908	9	1/4	1 1/4	433.21
10945-A5910	9	5/16	1 1/4	481.57
10946-A5912	9	3/8	1 1/4	486.68
10947-A5914	9	7/16	1 1/4	544.31
10948-A5916	9	1/2	1 1/4	546.63
10949-A5917	9	9/16	1 1/4	593.65
10950-A5918	9	5/8	1 1/4	601.72

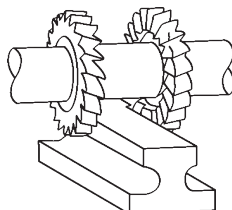


SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10951-A5920	9	11/16	1 1/4	622.65
10952-A5924	9	3/4	1 1/4	643.32
10953-A5926	9	13/16	1 1/4	658.27
10954-A5928	9	7/8	1 1/4	664.71
10955-A5930	9	15/16	1 1/4	698.01
10956-A5932	9	1	1 1/4	676.57
10957-A6009	10	1/4	1 1/2	585.41
10958-A6011	10	5/16	1 1/2	639.14
10959-A6013	10	3/8	1 1/2	690.80
10960-A6015	10	7/16	1 1/2	729.32
10961-A6017	10	1/2	1 1/2	762.68
10962-A6019	10	9/16	1 1/2	790.20
10963-A6021	10	5/8	1 1/2	674.70
10964-A6023	10	11/16	1 1/2	853.90
10965-A6025	10	3/4	1 1/2	870.00
10966-A6027	10	13/16	1 1/2	894.16

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
10967-A6029	10	7/8	1 1/2	921.09
10968-A6031	10	15/16	1 1/2	1,009.73
10969-A6033	10	1	1 1/2	985.05
10970-A6209	12	1/4	1 1/2	768.42
10971-A6211	12	5/16	1 1/2	820.92
10972-A6213	12	3/8	1 1/2	873.42
10973-A6215	12	7/16	1 1/2	923.15
10974-A6217	12	1/2	1 1/2	964.31
10975-A6219	12	9/16	1 1/2	1,022.29
10976-A6221	12	5/8	1 1/2	1,023.57
10977-A6223	12	11/16	1 1/2	1,066.53
10978-A6225	12	3/4	1 1/2	1,085.93
10979-A6227	12	13/16	1 1/2	1,121.68
10980-A6229	12	7/8	1 1/2	1,152.02
10981-A6231	12	15/16	1 1/2	1,223.77
10982-A6233	12	1	1 1/2	1,231.96

HALF SIDE MILLING CUTTERS HIGH SPEED STEEL OR COBALT



HIGH SPEED STEEL

Specify whether left or right hand cutters are required

COBALT

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11801-A610R	4	3/4	1 1/4	\$135.98
11802-A610L	4	3/4	1 1/4	135.98
11803-A612R	5	3/4	1 1/4	184.03
11804-A612L	5	3/4	1 1/4	184.03
11804B-A602R	5 1/2	7/16	1 1/4	157.56
11804C-A602L	5 1/2	7/16	1 1/4	157.56
11804D-A604R	5 1/2	9/16	1 1/4	*
11804E-A604L	5 1/2	9/16	1 1/4	*
11804F-A606R	5 1/2	11/16	1 1/4	*
11804G-A606L	5 1/2	11/16	1 1/4	*
11805-A614R	6	3/4	1 1/4	242.20
11806-A614L	6	3/4	1 1/4	242.20
11807-A616R	6	1	1 1/2	293.67
11808-A616L	6	1	1 1/2	293.67
11809-A618R	7	3/4	1 1/2	411.56
11810-A618L	7	3/4	1 1/2	411.56
11811-A620R	7	1	1 1/2	479.84
11812-A620L	7	1	1 1/2	479.84
11813-A622R	8	3/4	1 1/2	539.74
11814-A622L	8	3/4	1 1/2	539.74
11815-A624R	8	1	1 1/2	647.83
11816-A624L	8	1	1 1/2	647.83

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11821-AX610R	4	3/4	1 1/4	\$198.73
11822-AX610L	4	3/4	1 1/4	199.76
11823-AX612R	5	3/4	1 1/4	268.04
11824-AX612L	5	3/4	1 1/4	268.04
11824B-AX602R	5 1/2	7/16	1 1/4	*
11824C-AX602L	5 1/2	7/16	1 1/4	*
11824D-AX604R	5 1/2	9/16	1 1/4	*
11824E-AX604L	5 1/2	9/16	1 1/4	*
11824F-AX606R	5 1/2	11/16	1 1/4	*
11824G-AX606L	5 1/2	11/16	1 1/4	*
11825-AX614R	6	3/4	1 1/4	353.97
11826-AX614L	6	3/4	1 1/4	353.97
11827-AX616R	6	1	1 1/2	429.08
11828-AX616L	6	1	1 1/2	429.08
11829-AX618R	7	3/4	1 1/2	600.87
11830-AX618L	7	3/4	1 1/2	600.87
11831-AX620R	7	1	1 1/2	702.01
11832-AX620L	7	1	1 1/2	702.01
11833-AX622R	8	3/4	1 1/2	789.23
11834-AX622L	8	3/4	1 1/2	789.23
11835-AX624R	8	1	1 1/2	947.83
11836-AX624L	8	1	1 1/2	947.83

* Call for pricing



STAGGERED TOOTH SIDE MILLING CUTTERS HIGH SPEED STEEL

This type of cutter is recommended for slotting operations. The alternate spiral effectively counteracts all tendency to chatter. Keyways are located so that cutters of equal diameter and equal number of teeth can be interlocked by grinding hubs to required thickness.



Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11001-K114	2 1/8	3/16	3/4	\$65.70
11002-K116	2 1/8	1/4	3/4	66.41
11003-K118	2 1/8	5/16	3/4	71.25
11004-K120	2 1/8	3/8	3/4	74.27
11000-A509	2 1/2	3/16	1	63.19
11005-A510	2 1/2	1/4	7/8	65.57
11006-A511	2 1/2	1/4	1	81.36
11007-A512	2 1/2	5/16	7/8	64.80
11008-A513	2 1/2	5/16	1	87.29
11009-A514	2 1/2	3/8	7/8	74.41
11010-A515	2 1/2	3/8	1	91.28
11011-A515A	2 1/2	7/16	1	94.11
11012-A516	2 1/2	1/2	7/8	78.14
11013-A516A	2 1/2	1/2	1	96.88
11014-A517	2 1/2	9/16	1	109.57
11015-A517A	2 1/2	5/8	1	114.53
11016-K216	2 3/4	1/4	1	84.19
11017-K218	2 3/4	5/16	1	91.86
11018-K220	2 3/4	3/8	1	93.73
11019-K222	2 3/4	7/16	1	95.59
11020-K224	2 3/4	1/2	1	101.33
11021-A518	3	3/16	1	63.64
11022-A7307	3	3/16	1 1/4	76.27
11023-A2307	3	7/32	1	84.72
11024-A2308	3	7/32	1 1/4	84.72
11025-A520	3	1/4	1	68.28
11026-A7309	3	1/4	1 1/4	78.78
11027-A2309	3	9/32	1	86.12
11028-A2310	3	9/32	1 1/4	86.12
11029-A522	3	5/16	1	76.27
11030-A7311	3	5/16	1 1/4	85.41
11031-A2311	3	11/32	1	86.51
11032-A2312	3	11/32	1 1/4	86.51
11033-A524	3	3/8	1	77.63
11034-A7313	3	3/8	1 1/4	88.51
11035-A2313	3	13/32	1	93.34
11036-A2314	3	13/32	1 1/4	93.34
11037-A7314	3	7/16	1	93.20
11038-A7315	3	7/16	1 1/4	93.20
11039-A7316	3	1/2	1	93.85
11040-A526	3	1/2	1 1/4	82.97
11041-A7318	3	9/16	1	100.11
11042-A7319	3	9/16	1 1/4	100.11
11043-A7320	3	5/8	1	109.06
11044-A528	3	5/8	1 1/4	95.98
11045-A7322	3	11/16	1	112.47

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11046-A7323	3	11/16	1 1/4	\$112.47
11047-A7324	3	3/4	1	116.28
11048-A530	3	3/4	1 1/4	104.04
11049-A7326	3	13/16	1	119.55
11050-A7327	3	13/16	1 1/4	119.55
11051-A7328	3	7/8	1	123.88
11052-A7329	3	7/8	1 1/4	123.88
11053-A7330	3	15/16	1	132.89
11054-A7331	3	15/16	1 1/4	132.89
11055-A7332	3	1	1	130.12
11056-A7333	3	1	1 1/4	130.12
11057-A7335	3	1 1/4	1	179.59
11058-A7337	3	1 1/4	1 1/4	179.59
11059-A7340	3 1/4	1/4	1 1/4	113.18
11060-A7341	3 1/4	3/8	1 1/4	123.49
11061-A7342	3 1/4	1/2	1 1/4	136.56
11062-A7343	3 1/4	3/4	1 1/4	145.14
11365-A7346	3 1/2	7/32	1	118.90
11366-A7347	3 1/2	7/32	1 1/4	118.90
11063-A7348	3 1/2	1/4	1	116.93
11064-A7349	3 1/2	1/4	1 1/4	116.93
11065-A7350	3 1/2	5/16	1	123.74
11066-A7351	3 1/2	5/16	1 1/4	123.74
11067-K420	3 1/2	3/8	1	117.81
11068-A7353	3 1/2	3/8	1 1/4	117.81
11069-K422	3 1/2	7/16	1	123.38
11070-A7355	3 1/2	7/16	1 1/4	123.38
11071-K424	3 1/2	1/2	1	126.12
11072-A7357	3 1/2	1/2	1 1/4	139.65
11073-K426	3 1/2	9/16	1	138.69
11074-A7359	3 1/2	9/16	1 1/4	142.62
11075-K428	3 1/2	5/8	1	138.69
11076-A7361	3 1/2	5/8	1 1/4	142.62
11077-K430	3 1/2	11/16	1	148.23
11078-A7363	3 1/2	11/16	1 1/4	151.32
11079-K432	3 1/2	3/4	1	193.31
11080-A7365	3 1/2	3/4	1 1/4	154.60
11081-A7366	3 1/2	13/16	1	159.30
11082-A7367	3 1/2	13/16	1 1/4	159.30
11083-A7368	3 1/2	7/8	1	164.98
11084-A7369	3 1/2	7/8	1 1/4	164.98
11085-A7370	3 1/2	15/16	1	183.01
11086-A7371	3 1/2	15/16	1 1/4	183.01
11087-A7372	3 1/2	1	1	191.90
11088-A7373	3 1/2	1	1 1/4	191.90
11089-A7380	3 3/4	1/4	1 1/4	120.40



STAGGERED TOOTH SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11090-A7381	3 3/4	3/8	1 1/4	\$130.57
11091-A7382	3 3/4	1/2	1 1/4	150.42
11092-A7383	3 3/4	3/4	1 1/4	168.46
11093-A7406	4	3/16	1	104.42
11094-A7407	4	3/16	1 1/4	104.42
11095-A2407	4	7/32	1	114.66
11096-A2408	4	7/32	1 1/4	114.66
11097-A7408	4	1/4	1	112.66
11098-A532	4	1/4	1 1/4	99.33
11099-A2409	4	9/32	1	116.79
11100-A2410	4	9/32	1 1/4	116.79
11101-A7410	4	5/16	1	117.17
11102-A534	4	5/16	1 1/4	100.94
11103-A2411	4	11/32	1	126.90
11104-A2412	4	11/32	1 1/4	126.90
11105-A7412	4	3/8	1	122.78
11106-A536	4	3/8	1 1/4	103.06
11107-A2413	4	13/32	1	130.32
11108-A2414	4	13/32	1 1/4	130.32
11109-A7414	4	7/16	1	131.79
11110-A538	4	7/16	1 1/4	111.83
11111-A2415	4	15/32	1	161.75
11112-A2416	4	15/32	1 1/4	161.75
11113-A7416	4	1/2	1	135.21
11114-A540	4	1/2	1 1/4	116.66
11115-A7418	4	9/16	1	145.45
11116-A7419	4	9/16	1 1/4	145.45
11117-A7420	4	5/8	1	150.47
11118-A542	4	5/8	1 1/4	134.36
11119-A7422	4	11/16	1	162.01
11120-A7423	4	11/16	1 1/4	162.01
11121-A7424	4	3/4	1	165.93
11122-A544	4	3/4	1 1/4	143.33
11123-A7426	4	13/16	1	172.64
11124-A7427	4	13/16	1 1/4	172.64
11125-A7428	4	7/8	1	172.76
11126-A546	4	7/8	1 1/4	151.32
11127-A7430	4	15/16	1	194.34
11128-A7431	4	15/16	1 1/4	194.34
11129-A7432	4	1	1	203.49
11130-A7433	4	1	1 1/4	203.49
11131-A7437	4	1 1/8	1 1/4	219.79
11132-A7439	4	1 3/16	1 1/4	219.79
11133-A7441	4	1 1/4	1 1/4	226.88
11134-A7440	4	1 3/8	1 1/4	258.69
11135-A7442	4	1 1/2	1 1/4	263.33
11136-A7443	4 1/4	1/4	1 1/4	133.27

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11137-A7444	4 1/4	3/8	1 1/4	\$150.35
11138-A7445	4 1/4	1/2	1 1/4	167.04
11139-A7446	4 1/4	3/4	1 1/4	203.18
11140-A7447	4 1/2	7/32	1	134.12
11141-A2447	4 1/2	7/32	1 1/4	134.12
11142-A7448	4 1/2	1/4	1	148.23
11143-A7449	4 1/2	1/4	1 1/4	148.23
11144-A7450	4 1/2	5/16	1	140.76
11145-A7451	4 1/2	5/16	1 1/4	140.76
11146-A7452	4 1/2	3/8	1	151.57
11147-A7453	4 1/2	3/8	1 1/4	151.57
11148-A7456	4 1/2	1/2	1	168.90
11149-A7457	4 1/2	1/2	1 1/4	168.90
11150-A7460	4 1/2	5/8	1	191.38
11151-A7461	4 1/2	5/8	1 1/4	191.38
11152-A7464	4 1/2	3/4	1	203.56
11153-A7465	4 1/2	3/4	1 1/4	203.56
11154-A7468	4 1/2	7/8	1	259.60
11155-A7469	4 1/2	7/8	1 1/4	259.60
11156-A7472	4 1/2	1	1	278.99
11157-A7473	4 1/2	1	1 1/4	278.99
11158-A7480	4 1/2	1 1/4	1	331.68
11159-A7481	4 1/2	1 1/4	1 1/4	331.68
11159A-A2505	5	3/16	1	164.13
11159B-A2506	5	3/16	1 1/4	164.13
11160-A2507	5	7/32	1	164.13
11161-A2508	5	7/32	1 1/4	164.13
11162-A7508	5	1/4	1	156.41
11163-A7509	5	1/4	1 1/4	156.41
11164-A2509	5	9/32	1	175.73
11165-A2510	5	9/32	1 1/4	175.73
11166-A7510	5	5/16	1	171.55
11167-A7511	5	5/16	1 1/4	171.55
11168-A2511	5	11/32	1	185.52
11169-A2512	5	11/32	1 1/4	185.52
11170-A7512	5	3/8	1	182.94
11171-A7513	5	3/8	1 1/4	182.94
11172-A2513	5	13/32	1	197.96
11173-A2514	5	13/32	1 1/4	197.96
11174-A7514	5	7/16	1	200.59
11175-A7515	5	7/16	1 1/4	200.59
11176-A2515	5	15/32	1	204.20
11177-A2516	5	15/32	1 1/4	204.20
11178-A7516	5	1/2	1	201.92
11179-A548	5	1/2	1 1/4	161.04
11180-A7518	5	9/16	1	205.81
11181-A7519	5	9/16	1 1/4	205.81



STAGGERED TOOTH SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11182-A7520	5	5/8	1	\$177.98
11183-A550	5	5/8	1 1/4	177.98
11184-A7522	5	11/16	1	220.95
11185-A7523	5	11/16	1 1/4	220.95
11186-A7524	5	3/4	1	195.63
11187-A552	5	3/4	1 1/4	195.63
11188-A7526	5	13/16	1	242.07
11189-A7527	5	13/16	1 1/4	242.07
11190-A7528	5	7/8	1	250.44
11191-A7529	5	7/8	1 1/4	250.34
11192-A7531	5	15/16	1 1/4	268.75
11193-A7533	5	1	1 1/4	268.75
11194-A7541	5	1 1/4	1 1/4	353.58
11195-A7545	5	1 1/2	1 1/4	366.22
11196-A7548	5 1/2	1/4	1	174.37
11197-A7549	5 1/2	1/4	1 1/4	174.37
11198-A7550	5 1/2	5/16	1	195.82
11199-A7551	5 1/2	5/16	1 1/4	195.82
11200-A7552	5 1/2	3/8	1	199.82
11201-A7553	5 1/2	3/8	1 1/4	199.82
11202-A7566	5 1/2	1/2	1	225.14
11203-A7557	5 1/2	1/2	1 1/4	225.14
11204-A7560	5 1/2	5/8	1	251.16
11205-A7561	5 1/2	5/8	1 1/4	251.16
11206-A7564	5 1/2	3/4	1	254.77
11207-A7565	5 1/2	3/4	1 1/4	254.77
11208-A7568	5 1/2	7/8	1	304.18
11209-A7569	5 1/2	7/8	1 1/4	304.18
11210-A7572	5 1/2	1	1	315.45
11211-A7573	5 1/2	1	1 1/4	315.45
11212-A7580	5 1/2	1 1/4	1	385.98
11213-A7581	5 1/2	1 1/4	1 1/4	385.98
11213A-A2605	6	3/16	1	220.95
11213B-A2606	6	3/16	1 1/4	220.95
11214-A2607	6	7/32	1	220.95
11215-A2608	6	7/32	1 1/4	220.95
11216-A4608	6	7/32	1 1/2	220.95
11217-A7608	6	1/4	1	211.42
11218-A7609	6	1/4	1 1/4	206.39
11219-A4609	6	1/4	1 1/2	217.14
11220-A2609	6	9/32	1	236.41
11221-A2610	6	9/32	1 1/4	236.41
11222-A4610	6	9/32	1 1/2	236.41
11223-A7610	6	5/16	1	220.37
11224-A7611	6	5/16	1 1/4	220.37
11225-A4611	6	5/16	1 1/2	220.37
11226-A2611	6	11/32	1	248.00

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11227-A2612	6	11/32	1 1/4	\$248.00
11228-A4612	6	11/32	1 1/2	248.00
11229-A7612	6	3/8	1	233.57
11230-A554	6	3/8	1 1/4	182.68
11231-A4613	6	3/8	1 1/2	250.44
11232-A2612	6	13/32	1	250.44
11233-A4612	6	13/32	1 1/4	250.44
11234-A7612	6	13/32	1 1/2	250.44
11235-A554	6	7/16	1	245.87
11236-A4613	6	7/16	1 1/4	245.87
11237-A4615	6	7/16	1 1/2	252.83
11238-A2615	6	15/32	1	259.01
11239-A2616	6	15/32	1 1/4	259.01
11240-A4616	6	15/32	1 1/2	259.01
11241-A7616	6	1/2	1	243.82
11242-A556	6	1/2	1 1/4	204.27
11243-A4617	6	1/2	1 1/2	248.52
11244-A557	6	17/32	1	272.10
11245-A7617	6	17/32	1 1/4	272.10
11246-A4618	6	17/32	1 1/2	272.10
11247-A7618	6	9/16	1	262.43
11248-A7619	6	9/16	1 1/4	262.43
11249-A4619	6	9/16	1 1/2	274.55
11250-A7620	6	5/8	1	239.50
11251-A558	6	5/8	1 1/4	239.50
11252-A4622	6	5/8	1 1/2	287.03
11253-A7622	6	11/16	1	298.76
11254-A7623	6	11/16	1 1/4	298.76
11255-A4623	6	11/16	1 1/2	298.76
11256-A7624	6	3/4	1	263.79
11257-A560	6	3/4	1 1/4	263.79
11258-A4626	6	3/4	1 1/2	315.71
11259-A7626	6	13/16	1	320.14
11260-A7627	6	13/16	1 1/4	320.14
11261-A4627	6	13/16	1 1/2	337.54
11262-A7628	6	7/8	1	307.91
11263-A562	6	7/8	1 1/4	307.91
11264-A4631	6	7/8	1 1/2	340.45
11265-A7631	6	15/16	1 1/4	391.01
11266-A4632	6	15/16	1 1/2	396.10
11267-A564	6	1	1 1/4	330.14
11268-A4637	6	1	1 1/2	376.70
11269-A7635	6	1 1/16	1 1/4	407.11
11270-A7637	6	1 1/8	1 1/4	416.13
11271-A7639	6	1 3/16	1 1/4	427.08
11272-A7641	6	1 1/4	1 1/4	426.56
11273-A7708	7	1/4	1 1/4	315.71



STAGGERED TOOTH SIDE MILLING CUTTERS HSS

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11274-A4708	7	1/4	1 1/2	\$315.71
11275-A7710	7	5/16	1 1/4	334.45
11276-A4710	7	5/16	1 1/2	334.45
11277-A7712	7	3/8	1 1/4	343.47
11278-A4712	7	3/8	1 1/2	343.47
11279-A7714	7	7/16	1 1/4	356.23
11280-A4714	7	7/16	1 1/2	356.23
11281-A7716	7	1/2	1 1/4	371.88
11282-A4716	7	1/2	1 1/2	371.88
11283-A7718	7	9/16	1 1/4	387.47
11284-A4718	7	9/16	1 1/2	387.47
11285-A7720	7	5/8	1 1/4	400.16
11286-A4720	7	5/8	1 1/2	400.16
11287-A7722	7	11/16	1 1/4	428.17
11288-A4722	7	11/16	1 1/2	428.17
11289-A7724	7	3/4	1 1/4	444.54
11290-A4724	7	3/4	1 1/2	444.54
11291-A7726	7	13/16	1 1/4	465.86
11292-A4726	7	13/16	1 1/2	465.86
11293-A7728	7	7/8	1 1/4	483.89
11294-A4728	7	7/8	1 1/2	483.89
11295-A7730	7	15/16	1 1/4	497.10
11296-A4730	7	15/16	1 1/2	497.10
11297-A7732	7	1	1 1/4	510.38
11298-A4732	7	1	1 1/2	510.38
11299-A7808	8	1/4	1 1/4	379.15
11300-A7809	8	1/4	1 1/2	391.78
11301-A7810	8	5/16	1 1/4	415.36
11302-A7811	8	5/16	1 1/2	415.36
11303-A7812	8	3/8	1 1/4	436.61
11304-A566	8	3/8	1 1/2	397.19
11305-A7814	8	7/16	1 1/4	470.69
11306-A7815	8	7/16	1 1/2	470.69
11307-A7816	8	1/2	1 1/4	482.16
11308-A568	8	1/2	1 1/2	449.17
11309-A7818	8	9/16	1 1/4	520.93
11310-A7819	8	9/16	1 1/2	520.93
11311-A7820	8	5/8	1 1/4	523.57
11312-A570	8	5/8	1 1/2	481.83
11313-A7822	8	11/16	1 1/4	549.86
11314-A7823	8	11/16	1 1/2	549.86
11315-A7824	8	3/4	1 1/4	569.17
11316-A572	8	3/4	1 1/2	520.75
11317-A7826	8	13/16	1 1/4	604.92
11318-A7827	8	13/16	1 1/2	604.92

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11319-A7828	8	7/8	1 1/4	\$618.27
11320-A574	8	7/8	1 1/2	593.86
11321-A7830	8	15/16	1 1/4	633.73
11322-A7831	8	15/16	1 1/2	633.73
11323-A7832	8	1	1 1/4	653.50
11324-A576	8	1	1 1/2	642.49
11325-A582	8	1 1/4	1 1/4	874.06
11326-A584	8	1 1/4	1 1/2	874.06
11327-A7908	9	1/4	1 1/4	486.98
11328-A7909	9	1/4	1 1/2	486.98
11329-A7912	9	3/8	1 1/4	549.73
11330-A7913	9	3/8	1 1/2	549.73
11331-A7916	9	1/2	1 1/4	627.80
11332-A7917	9	1/2	1 1/2	627.80
11333-A7920	9	5/8	1 1/4	690.28
11334-A7921	9	5/8	1 1/2	690.28
11335-A7924	9	3/4	1 1/4	745.36
11336-A7925	9	3/4	1 1/2	745.36
11337-A7932	9	1	1 1/4	835.80
11338-A7933	9	1	1 1/2	835.80
11339-A8009	10	1/4	1 1/2	701.48
11340-A8011	10	5/16	1 1/2	740.72
11341-A8013	10	3/8	1 1/2	755.02
11342-A8015	10	7/16	1 1/2	815.71
11343-A8017	10	1/2	1 1/2	841.54
11344-A8019	10	9/16	1 1/2	880.25
11345-A8021	10	5/8	1 1/2	915.73
11346-A8023	10	11/16	1 1/2	944.60
11347-A8025	10	3/4	1 1/2	948.21
11348-A8027	10	13/16	1 1/2	1022.09
11349-A8029	10	7/8	1 1/2	1119.94
11350-A8031	10	15/16	1 1/2	1208.39
11351-A8033	10	1	1 1/2	1144.09
11352-A8209	12	1/4	1 1/2	981.84
11353-A8211	12	5/16	1 1/2	936.17
11354-A8213	12	3/8	1 1/2	955.03
11355-A8215	12	7/16	1 1/2	1,030.40
11356-A8217	12	1/2	1 1/2	1,014.29
11357-A8219	12	9/16	1 1/2	1,101.51
11358-A8221	12	5/8	1 1/2	1,125.15
11359-A8223	12	11/16	1 1/2	1,133.14
11360-A8225	12	3/4	1 1/2	1,172.00
11361-A8227	12	13/16	1 1/2	1,264.62
11362-A8229	12	7/8	1 1/2	1,275.06
11363-A8231	12	15/16	1 1/2	1,320.09
11364-A8233	12	1	1 1/2	1,338.84



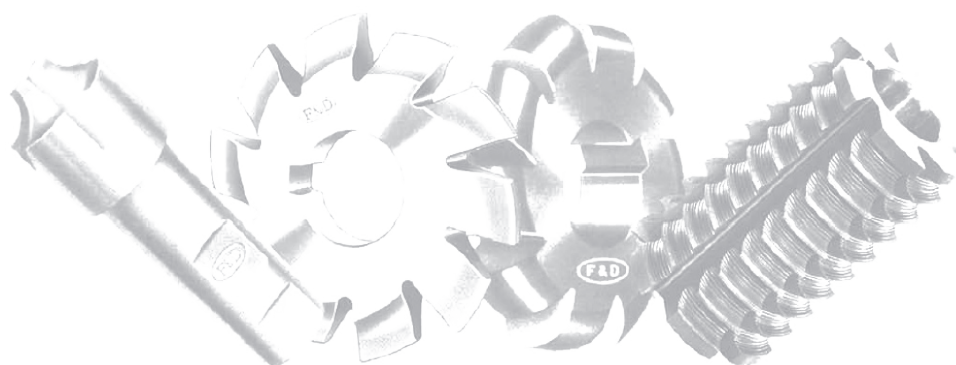
STAGGERED TOOTH FOR ALUMINUM CUTTING WITH 20° DEGREE HELIX

Catalog EDI-Number	Dia	Width of Face	Hole Size	No. of Teeth	List Price
11718-AL2408	4	7/32	1 1/4	10	\$161.95
11701-AL532	4	1/4	1 1/4	10	124.26
11719-AL2410	4	9/32	1 1/4	10	162.78
11702-AL534	4	5/16	1 1/4	10	164.71
11721-AL2412	4	11/32	1 1/4	10	176.24
11703-AL536	4	3/8	1 1/4	10	137.34
11722-AL538	4	7/16	1 1/4	10	192.10
11704-AL540	4	1/2	1 1/4	10	153.70
11723-AL7419	4	9/16	1 1/4	10	208.51
11705-AL542	4	5/8	1 1/4	10	209.42
11724-AL7423	4	11/16	1 1/4	10	218.43
11706-AL544	4	3/4	1 1/4	10	228.48
11707-AL7433	4	1	1 1/4	10	237.50
11725-AL2608	6	7/32	1 1/4	16	269.39
11708-AL7609	6	1/4	1 1/4	16	256.38

Catalog EDI-Number	Dia	Width of Face	Hole Size	No. of Teeth	List Price
11726-AL2610	6	9/32	1 1/4	16	\$270.81
11709-AL7611	6	5/16	1 1/4	16	283.94
11728-AL2612	6	11/32	1 1/4	16	292.19
11710-AL554	6	3/8	1 1/4	16	244.34
11729-AL7615	6	7/16	1 1/4	16	322.99
11711-AL556	6	1/2	1 1/4	16	276.47
11730-AL7619	6	9/16	1 1/4	16	332.97
11712-AL558	6	5/8	1 1/4	16	327.23
11731-AL7623	6	11/16	1 1/4	16	379.35
11713-AL560	6	3/4	1 1/4	16	355.38
11714-AL564	6	1	1 1/4	16	446.92
11715-AL566	8	3/8	1 1/2	20	521.71
11716-AL568	8	1/2	1 1/2	20	589.54
11717-AL572	8	3/4	1 1/2	20	688.87

Form Relieve Work That is Second to None

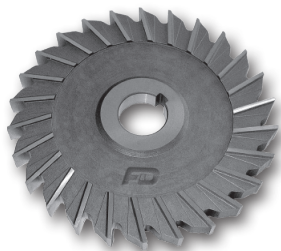
Concave, convex, corner rounding, involute gear, spur gear, serration...you name it! When it comes to form relieve work, **F & D TOOL CO.** can make you a quality form cutter in a fraction of the time. Let us quote you your form relieved specials. Call us at **(800) 338-6650** for a quote!



M-42 COBALT SIDE MILLING CUTTERS

Below, find our M-42 staggered and straight tooth side milling cutters. Today's electronic controlled heat treat and laboratory facilities produce a high hardness cutting tool material that possesses excellent resistance to cutting temperature and wear with toughness that was previously unattainable.

- Increase Tool Life
- Higher Metal Removal Rates
- Lower Inventory Costs



STRAIGHT TOOTH

Catalog EDI-Number	Cutter Dia	Width of Face	Hole Size	No. of Teeth	List Price
11551-AX5306	3	3/16	1	20	\$101.67
11552-AX430	3	1/4	1	20	79.01
11553-AX432	3	5/16	1	20	85.63
11554-AX434	3	3/8	1	20	93.38
11555-AX438	3	1/2	1	20	94.99
11556-AX5317	3	1/2	1 1/4	20	116.66
11557-AX440	4	1/4	1	24	106.22
11558-AX5409	4	1/4	1 1/4	24	106.22
11559-AX5410	4	5/16	1	24	132.89
11560-AX5411	4	5/16	1 1/4	24	132.89
11561-AX442	4	3/8	1	24	133.49
11562-AX5413	4	3/8	1 1/4	24	133.49
11563-AX444	4	1/2	1	24	135.42
11564-AX446	4	1/2	1 1/4	24	135.42
11565-AX452	4	3/4	1	24	169.26
11566-AX454	4	3/4	1 1/4	24	169.26
11567-AX5508	5	1/4	1	26	185.24
11568-AX5509	5	1/4	1 1/4	26	185.24
11569-AX5510	5	5/16	1	26	196.87
11570-AX551	5	5/16	1 1/4	26	196.87
11571-AX5512	5	3/8	1	26	211.51
11572-AX5513	5	3/8	1 1/4	26	211.51
11573-AX460	5	1/2	1	26	203.95
11574-AX462	5	1/2	1 1/4	26	203.95
11575-AX468	5	3/4	1	26	254.62
11576-AX470	5	3/4	1 1/4	26	254.62
11577-AX5609	6	1/4	1 1/4	30	214.25
11578-AX5611	6	5/16	1 1/4	30	239.85
11579-AX5613	6	3/8	1 1/4	30	239.85
11580-AX476	6	1/2	1 1/4	30	254.55
11581-AX482	6	3/4	1 1/4	30	339.52
11582-AX484	6	1	1 1/4	30	401.96



STAGGERED TOOTH

Catalog EDI-Number	Dia	Width of Face	Hole Size	No. of Teeth	List Price
11501-AX518	3	3/16	1	16	\$87.84
11502-AX520	3	1/4	1	16	93.85
11503-AX522	3	5/16	1	16	105.62
11504-AX524	3	3/8	1	16	107.22
11504A	3	3/8	1 1/4	16	118.66
11505-AX7316	3	1/2	1	16	130.49
11506-AX526	3	1/2	1 1/4	16	130.49
11507-AX7408	4	1/4	1	18	136.09
11508-AX532	4	1/4	1 1/4	18	136.09
11509-AX7410	4	5/16	1	18	138.58
11510-AX534	4	5/16	1 1/4	18	138.58
11511-AX7412	4	3/8	1	18	203.68
11512-AX536	4	3/8	1 1/4	18	142.06
11513-AX7416	4	1/2	1	18	224.28
11514-AX540	4	1/2	1 1/4	18	161.49
11515-AX7424	4	3/4	1	18	267.12
11516-AX544	4	3/4	1 1/4	18	199.94
11517-AX7433	4	1	1 1/4	18	337.18
11518-AX7441	4	1 1/4	1 1/4	18	382.90
11519-AX7442	4	1 1/2	1 1/4	18	398.61
11520-AX7508	5	1/4	1	22	267.66
11521-AX7509	5	1/4	1 1/4	22	267.66
11522-AX7510	5	5/16	1	22	298.54
11523-AX7511	5	5/16	1 1/4	22	298.54
11524-AX7512	5	3/8	1	22	302.82
11525-AX7513	5	3/8	1 1/4	22	302.82
11526-AX7516	5	1/2	1	22	344.46
11527-AX548	5	1/2	1 1/4	22	344.46
11528-AX7524	5	3/4	1	22	386.65
11529-AX552	5	3/4	1 1/4	22	386.65
11530-AX7533	5	1	1 1/4	22	461.17
11531-AX7609	6	1/4	1 1/4	24	275.47
11532-AX7611	6	5/16	1 1/4	24	362.18
11533-AX554	6	3/8	1 1/4	24	248.21
11534-AX556	6	1/2	1 1/4	24	279.82
11535-AX560	6	3/4	1 1/4	24	364.32
11536-AX564	6	1	1 1/4	24	511.27



SUPERIOR T-15 STAGGERED TOOTH CUTTERS



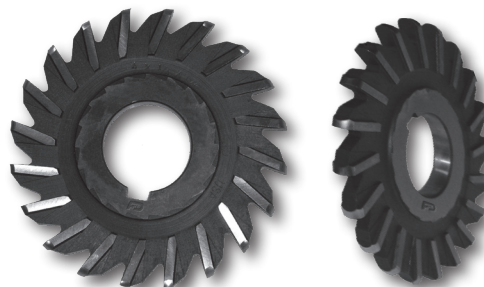
F & D performance oriented premium cutters are manufactured from superior T-15 steel and are the realistic answer to machining Hastelloy, Waspalloy, stainless steels and most other super alloys.

Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11601-AV7306	3	3/16	1	\$122.68
11601B-AV7307	3	7/32	1	150.64
11602-AV7308	3	1/4	1	134.37
11602B-AV7309	3	9/32	1	156.33
11603-AV7310	3	5/16	1	153.60
11603B-AV7311	3	11/32	1	160.36
11604-AV7312	3	3/8	1	159.44
11604B-AV7313	3	13/32	1	178.14
11605-AV7314	3	7/16	1	190.29
11605B-AV7315	3	15/32	1	183.99
11606-AV7316	3	1/2	1	194.99
11606B-AV7317	4	7/32	1 1/4	204.19
11607-AV7409	4	1/4	1 1/4	198.11
11607B-AV7410	4	9/32	1 1/4	213.84
11608-AV7411	4	5/16	1 1/4	207.14
11608B-AV7412	4	11/32	1 1/4	236.55
11609-AV7413	4	3/8	1 1/4	216.95

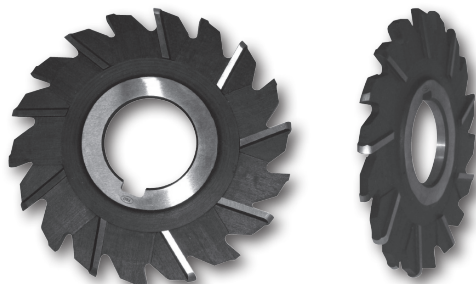
Catalog EDI-Number	Dia	Width of Face	Hole Size	List Price
11609B-AV7414	4	13/32	1 1/4	248.93
11610-AV7415	4	7/16	1 1/4	239.36
11610B-AV7416	4	15/32	1 1/4	251.52
11611-AV7417	4	1/2	1 1/4	255.69
11611B-AV7418	4	9/16	1 1/4	289.05
11612-AV7421	4	5/8	1 1/4	299.89
11612B-AV7422	4	11/16	1 1/4	328.31
11613-AV7425	4	3/4	1 1/4	329.07
11613B-AV7508	5	7/32	1 1/4	288.66
11614-AV7509	5	1/4	1 1/4	304.09
11614B-AV7510	5	9/32	1 1/4	317.68
11615-AV7511	5	5/16	1 1/4	340.47
11615B-AV7512	5	11/32	1 1/4	371.38
11616-AV7513	5	3/8	1 1/4	371.01
11616B-AV7514	5	13/32	1 1/4	372.90
11617-AV7515	5	7/16	1 1/4	400.47
11617B-AV7516	5	15/32	1 1/4	392.36
11618-AV7517	5	1/2	1 1/4	373.21
11618B-AV7518	5	9/16	1 1/4	411.95
11619-AV7521	5	5/8	1 1/4	409.28
11619B-AV7519	5	11/16	1 1/4	456.17
11620-AV7525	5	3/4	1 1/4	461.24
11620B-AV7520	5	13/16	1 1/4	509.71
11620C-AV7522	5	7/8	1 1/4	529.31
11620D-AV7523	5	15/16	1 1/4	552.48
11621-AV7526	5	1	1 1/4	582.71
11621B-AV7608	6	7/32	1 1/4	399.64
11622-AV7609	6	1/4	1 1/4	398.72
11622B-AV7610	6	9/32	1 1/4	418.48
11623-AV7611	6	5/16	1 1/4	438.53
11623B-AV7612	6	11/32	1 1/4	455.40
11624-AV7613	6	3/8	1 1/4	441.19
11624B-AV7614	6	13/32	1 1/4	474.61
11625-AV7615	6	7/16	1 1/4	496.95
11625B-AV7616	6	15/32	1 1/4	502.95
11626-AV7617	6	1/2	1 1/4	462.01
11626B-AV7618	6	9/16	1 1/4	531.21
11627-AV7621	6	5/8	1 1/4	549.44
11627B-AV7619	6	11/16	1 1/4	616.82
11628-AV7625	6	3/4	1 1/4	628.90
11628B-AV7620	6	13/16	1 1/4	679.42
11629-AV7629	6	7/8	1 1/4	729.63
11629B-AV7622	6	15/16	1 1/4	777.94
11630-AV7633	6	1	1 1/4	793.36

Diameter	Width	I.D.	Cobalt EDI #	Cobalt Price	HSS EDI #	HSS Price
3	1/4	1	11740	\$155.46	11640	\$135.62
3	1/4	1 1/4	11741	155.46	11641	135.62
3	3/8	1	11742	171.82	11642	152.12
3	3/8	1 1/4	11743	171.82	11643	152.36
3	1/2	1	11744	179.95	11644	156.33
3	1/2	1 1/4	11745	179.95	11645	156.33
4	1/4	1	11746	189.80	11646	164.94
4	1/4	1 1/4	11747	189.80	11647	164.94
4	3/8	1	11748	214.60	11648	180.07
4	3/8	1 1/4	11749	214.60	11649	180.07
4	1/2	1	11750	223.52	11650	196.55
4	1/2	1 1/4	11751	223.52	11651	196.55
6	1/4	1 1/4	11752	324.18	11652	231.02
6	3/8	1 1/4	11753	366.46	11653	260.21
6	1/2	1 1/4	11754	382.20	11654	271.07

STRAIGHT TOOTH



STAGGERED TOOTH



Diameter	Width	I.D.	Cobalt EDI #	Cobalt Price	HSS EDI #	HSS Price
3	1/4	1	11755	\$207.40	11655	\$171.64
3	1/4	1 1/4	11756	207.40	11656	171.64
3	3/8	1	11757	230.65	11657	191.34
3	3/8	1 1/4	11758	230.65	11658	191.34
3	1/2	1	11759	259.97	11659	205.98
3	1/2	1 1/4	11760	259.97	11660	205.98
4	1/4	1	11761	267.58	11661	212.74
4	1/4	1 1/4	11762	267.58	11662	212.74
4	3/8	1	11763	320.90	11663	219.55
4	3/8	1 1/4	11764	320.90	11664	219.55
4	1/2	1	11765	325.17	11665	237.47
4	1/2	1 1/4	11766	325.17	11666	237.47
6	1/4	1 1/4	11767	364.54	11667	319.72
6	3/8	1 1/4	11768	379.47	11668	337.45
6	1/2	1 1/4	11769	393.98	11669	360.76

FULL RADIUS SLITTING SAWS

HSS STRAIGHT TOOTH SIDE CHIP SLITTING SAW



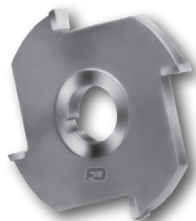
Diameter	Width	I.D.	Catalog EDI-#	List Price
2 1/2	1/8	7/8	11670	\$147.27
3	1/16	1	11671	164.51
3	3/32	1	11672	164.51
3	1/8	1	11673	164.51
3	5/32	1	11674	164.51
3	3/16	1	11675	207.71
3	1/4	1	11676	214.22
4	1/16	1	11677	199.96
4	1/16	1 1/4	11678	199.96
4	3/32	1	11679	234.68
4	3/32	1 1/4	11680	234.68
4	1/8	1	11681	234.68
4	1/8	1 1/4	11682	234.68

Diameter	Width	I.D.	Catalog EDI-#	List Price
4	5/32	1	11683	234.68
4	5/32	1 1/4	11684	234.68
4	3/16	1	11685	234.68
4	3/16	1 1/4	11686	234.68
4	1/4	1	11687	254.64
4	1/4	1 1/4	11688	254.64
6	1/8	1	11689	289.59
6	1/8	1 1/4	11690	289.59
6	5/32	1	11691	369.49
6	5/32	1 1/4	11692	369.49
6	3/16	1	11693	378.24
6	3/16	1 1/4	11694	378.24
6	1/4	1	11695	387.48
6	1/4	1 1/4	11696	387.48



CARBIDE TIPPED SIDE MILLING CUTTERS

Reap the benefits of faster speeds and feeds, maximum chip removal and longer tool life with these competitively priced, top quality, American-made F&D cutters. They're made from hardened tool steel with precision ground hubs and bores. In fact, hubs and ODs are ground to $\pm .015"$; widths are ground to $\pm .001"$. Carbide tips are brazed on, can be easily resharpened, removed and replaced. And, as with all F&D quality cutting tools, they're available "off-the-shelf" for immediate delivery.



TOLERANCE ON CARBIDE TIPPED CUTTERS

Cutter Diameter:	$\pm .015"/-.000"$
Face Width:	$\pm .001"/-.000"$
Arbor Hole:	$\pm .001"/-.000"$



FOR NON-FERROUS

Catalog EDI-Number 1" Arbor Hole	EDI Number 1-1/4" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
12001-AC3081	-	3	1/4	4	\$118.46
12002-AC3101	-	3	5/16	4	123.36
12003-AC3121	-	3	3/8	4	128.57
12004-AC3141	-	3	7/16	4	132.39
12005-AC3161	-	3	1/2	4	139.14
12006-AC4081	-	4	1/4	4	149.13
12007-AC4101	-	4	5/16	4	154.92
12008-AC4121	12009-AC4122	4	3/8	4	160.91
12010-AC4141	-	4	7/16	4	161.62
12011-AC4161	12012-AC4162	4	1/2	4	161.62
12013-AC4181	-	4	9/16	4	176.24
12014-AC4201	12015-AC4202	4	5/8	4	189.25
12016-AC4241	12017-AC4242	4	3/4	4	209.48
12017B-AC5081	-	5	1/4	6	205.62
12017D-AC5101	-	5	5/16	6	211.03
-	12017G-AC5122	5	3/8	6	215.73
-	12018-AC5142	5	7/16	6	222.30
12019-AC5161	12020-AC5162	5	1/2	6	224.75
-	12021-AC5182	5	9/16	6	233.12
-	12022-AC5202	5	5/8	6	237.31
12023-AC5241	12024-AC5242	5	3/4	6	242.92
-	12024C-AC5262	5	1	6	266.55
12024D-AC6121	-	6	3/8	6	234.80
12025-AC6161	12026-AC6162	6	1/2	6	243.69
-	12027-AC6202	6	5/8	6	268.69
12028-AC6241	12029-AC6242	6	3/4	6	293.10
-	12029C-AC6262	6	1	6	318.60
-	12030-AC7242	7	3/4	8	362.01
-	12031-AC8242	8	3/4	8	389.92
-	12031C-AC8262	8	1	8	416.46
	EDI Number 1-1/2" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
	12032C-AC8282	8	3/4	8	389.92
	12032-AC8302	8	1	8	416.46

FOR CAST IRON

Catalog EDI-Number 1" Arbor Hole	EDI Number 1-1/4" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
12033-MC3081	-	3	1/4	6	\$148.16
12034-MC3101	-	3	5/16	6	149.82
12035-MC3121	-	3	3/8	6	154.53
12036-MC3141	-	3	7/16	6	171.08
12037-MC3161	-	3	1/2	6	173.85
12038-MC4081	-	4	1/4	8	188.74
12039-MC4101	-	4	5/16	8	207.86
12040-MC4121	12041-MC4122	4	3/8	8	214.05
12042-MC4141	-	4	7/16	8	220.11
12043-MC4161	12044-MC4162	4	1/2	8	234.86
12045-MC4181	-	4	9/16	8	264.37
12046-MC4201	12047-MC4202	4	5/8	8	276.41
12048-MC4101	12049-MC4242	4	3/4	8	283.50
12049B-MC4121	-	5	1/4	10	210.96
12049D-MC4141	-	5	5/16	10	226.42
-	12049G-MC5122	5	3/8	10	251.94
-	12050-MC5142	5	7/16	10	287.68
12051-MC5161	12052-MC5162	5	1/2	10	304.43
-	12053-MC5182	5	9/16	10	318.73
-	12054-MC5202	5	5/8	10	327.17
12055-MC5241	12056-MC5242	5	3/4	10	350.94
-	12056C-MC5262	5	1	10	386.50
12056D-MC6121	-	6	3/8	12	297.67
12057-MC6161	12058-MC6162	6	1/2	12	315.90
-	12059-MC6202	6	5/8	12	339.02
12060-MC6241	12061-MC6242	6	3/4	12	351.64
-	12061C-MC6202	6	1	12	399.31
-	12062-MC7242	7	3/4	12	376.13
-	12063-MC8242	8	3/4	12	388.17
-	12063C-MC8262	8	1	12	433.21
	EDI Number 1-1/2" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
	12063A-MC8282	8	3/4	12	388.17
	12064	8	1	12	433.21

CARBIDE TIPPED SIDE MILLING CUTTERS

Non-Ferrous
For: cutting aluminum, brass, bronze, magnesium, plastics, zinc, and other non-iron metals
Cast-Iron
For: cutting malleable and cast iron
Steel
For: cutting steel
Stainless
Higher teeth count for cutting stainless steel



TOLERANCE ON CARBIDE TIPPED CUTTERS

Cutter Diameter:	+0.015"/-0.000"
Face Width:	+0.001"/-0.000"
Arbor Hole:	+0.001"/-0.000"

FOR STAINLESS STEEL

Catalog EDI-Number 1" Arbor Hole	EDI Number 1-1/4" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
12122-SSC3081	-	3	1/4	8	\$235.45
12123-SSC3101	-	3	5/16	8	246.40
12124-SSC3121	-	3	3/8	8	250.00
12125-SSC3161	-	3	1/2	8	279.56
12126-SSC4081	-	4	1/4	10	293.29
12127-SSC4101	-	4	5/16	10	309.91
12128-SSC4121	12129-SSC4122	4	3/8	10	316.02
12130-SSC4141	-	4	7/16	10	343.02
12131-SSC4161	12132-SSC4162	4	1/2	10	346.11
12133-SSC4201	12134-SSC4202	4	5/8	10	363.37
12135-SSC4241	12136-SSC4242	4	3/4	10	375.28
12137-SSC5161	12138-SSC5162	5	1/2	12	396.81
-	12139-SSC5202	5	5/8	12	433.59
12140-SSC5241	12141-SSC5242	5	3/4	12	456.06
12142-SSC6161	12143-SSC6162	6	1/2	14	512.95
-	12144-SSC6202	6	5/8	14	518.04
12145-SSC6241	12146-SSC6242	6	3/4	14	525.76
-	12147-SSC8242	8	3/4	14	559.97

FOR STEEL

Catalog EDI-Number 1" Arbor Hole	EDI Number 1-1/4" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
12084-SC3081	-	3	1/4	6	\$189.51
12085-SC3101	-	3	5/16	6	191.25
12086-SC3121	-	3	3/8	6	193.05
12087-SC3141	-	3	7/16	6	207.68
12088-SC3161	-	3	1/2	6	216.76
12089-SC4081	-	4	1/4	8	220.88
12090-SC3081	-	4	5/16	8	243.49
12091-SC3101	12092-SC4122	4	3/8	8	266.62
12093-SC3121	-	4	7/16	8	277.50
12094-SC3141	12095-SC4162	4	1/2	8	283.63
12096-SC3161	-	4	9/16	8	296.90
12097-SC4081	12098-SC4202	4	5/8	8	302.44
12098B-SC4241	12098C-SC4242	4	3/4	8	323.17
12098D-SC5081	-	5	1/4	10	326.02
12098F-SC5101	-	5	5/16	10	326.02
-	12098J-SC5122	5	3/8	10	333.61
-	12099-SC5142	5	7/16	10	353.20
12100-SC5161	12101-SC5162	5	1/2	10	355.51
-	12102-SC5182	5	9/16	10	362.99
-	12103-SC5202	5	5/8	10	378.57
12103B-5241	12103C-SC5242	5	3/4	10	403.31
-	12103E-SC5262	5	1	10	439.51
12103F-SC6121	-	6	3/8	12	389.07
12104-SC6181	12105-SC6182	6	1/2	12	398.81
-	12106-SC6202	6	5/8	12	411.62
12106B-SC6241	12106C-SC6242	6	3/4	12	436.48
-	12106E-SC6262	6	1	12	443.45
-	12106G-SC7242	7	3/4	12	478.74
-	12106J-SC8242	8	3/4	12	518.68
-	12106K-SC8262	8	1	12	541.10
	EDI Number 1-1/2" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
	12106L-SC8282	8	3/4	12	518.68
	12106M-SC8302	8	1	12	541.10



CARBIDE TIPPED SAWS

CARBIDE TIPPED SLITTING SAWS - COARSE TOOTH



TOLERANCE ON CARBIDE TIPPED CUTTERS

Cutter Diameter:	+ .015"/-.000"
Face Width:	+ .001"/-.000"
Arbor Hole:	+ .001"/-.000"

			NON-FERROUS			CAST IRON			STAINLESS STEEL			STEEL		
Dia	Width of Face	Hole Size	No. of Teeth	Catalog EDI-Number	Price	No. of Teeth	Catalog EDI-Number	Price	No. of Teeth	Catalog EDI-Number	Price	No. of Teeth	Catalog EDI-Number	Price
3	3/32	1	6	12064B-AC3031	\$182.94	6	12069B-MC3041	\$226.88	8	12083B-SSC3031	\$198.73	8	12076B-SC3031	\$212.13
3	1/8	1	6	12064C-AC3041	188.22	6	12069C-MC3041	226.88	8	12083C-SSC-3041	205.94	8	12076C-SC3041	237.38
3	3/16	1	6	12064D-AC3061	195.63	6	12069D-MC3061	237.25	8	12083D-SSC3061	214.77	6	12076D-SC3061	239.63
3	1/4	1	6	12064E-AC3086	138.24	6	12069E-MC3106	196.28	8	12083E-SSC3086	235.39	8	12076E-SC3086	196.67
3	5/16	1	6	12064F-AC3106	150.23	6	12069F-MC3106	196.28	8	12083F-SSC3106	235.39	8	12076F-SC3106	196.67
3	3/8	1	6	12064G-AC3126	146.23	6	12069G-MC3126	199.82	8	12083G-SSC3126	239.57	8	12076G-SC3126	199.95
4	3/32	1	6	12065-AC4031	225.08	6	12069H-MC4031	273.45	10	12083H-SSC4031	285.74	8	12076H-SC4031	274.41
4	1/8	1	6	12066-AC4041	234.16	8	12070-MC4041	278.21	10	12083J-SSC4041	289.68	8	12077-SC4041	264.43
4	3/16	1	6	12067-AC4061	237.83	8	12071-MC4061	285.10	10	12083K-SSC4061	294.25	8	12078-SC4061	285.10
4	1/4	1	6	12067B-AC4086	170.26	8	12071B-MC4086	254.51	10	12083L-SSC4086	306.62	8	12078B-SC4086	254.51
4	5/16	1	6	12067C-AC4106	176.56	8	12071C-MC4106	264.10	10	12083M-SSC4106	316.80	8	12078C-SC4106	264.10
4	3/8	1	6	12067D-AC4126	181.53	8	12071D-MC4126	274.28	10	12083N-SSC4126	328.08	8	12078D-SC4126	274.16
4	3/8	1 1/4	6	12067E-AC4127	181.53	8	12071E-MC4127	274.28	10	12083O-SSC4127	328.08	8	12078E-SC4127	274.16
5	3/32	1	8	12067F-AC5031	239.96	10	12071F-MC5031	369.23	12	12083P-SSC5031	389.07	10	12078F-SC5031	369.10
5	1/8	1	8	12112	298.80	10	12071G-MC5041	397.38	12	12083Q-SSC5041	396.93	10	12078G-SC5041	396.81
5	3/16	1	8	12113	324.71	10	12071H-MC5061	446.08	12	12083R-SSC5061	412.13	10	12078H-SC5061	445.83
6	1/8	1 1/4	8	12068-AC6042	333.16	12	12072-MC6042	460.06	14	12083S-SSC6042	464.71	12	12079-SC6042	460.06
6	3/16	1 1/4	8	12068B-AC6062	448.07	12	12073-MC6062	475.13	14	12083T-SSC6062	477.46	12	12080-SC6062	475.13
6	1/4	1 1/4	8	12068C-AC6082	460.64	12	12074-MC6082	485.06	14	12083U-SSC6082	484.41	12	12081-SC6082	485.06
8	1/8	1 1/4	10	12069-AC8042	428.17	-	-	-	-	-	-	-	-	-
8	3/16	1 1/4	-	-	-	16	12075-MC8062	609.82	-	-	-	16	12082-SC8062	609.82
8	1/4	1 1/4	-	-	-	16	12076-MC8082	642.74	-	-	-	16	12083-SC8082	642.74

CARBIDE TIPPED SLITTING SAWS - STANDARD TOOTH



TOLERANCE ON CARBIDE TIPPED CUTTERS

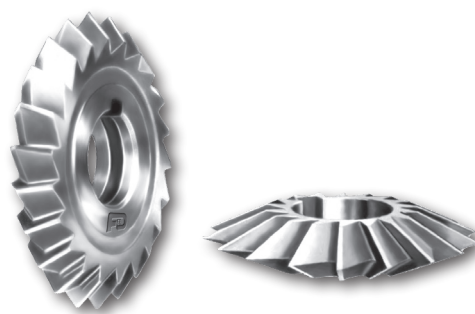
Cutter Diameter:	+0.015"/-0.000"
Face Width:	+0.001"/-0.000"
Arbor Hole:	+0.001"/-0.000"

NON-FERROUS		CAST IRON				STAINLESS STEEL				STEEL					
Catalog EDI-Number 1" Arbor Hole	Catalog EDI-Number 1-1/4" Arbor Hole	Catalog EDI-Number 1" Arbor Hole	Catalog EDI-Number 1-1/4" Arbor Hole	# of Teeth	List Price	Catalog EDI- Number 1" Arbor Hole	Catalog EDI- Number 1-1/4" Arbor Hole	# of Teeth	List Price	Catalog EDI- Number 1" Arbor Hole	Catalog EDI- Number 1-1/4" Arbor Hole	Dia	Width of Face	# of Teeth	List Price
14004	-	14004C	-	12	\$263.29	14004G	-	12	\$266.68	14004F	-	3	1/16	16	\$282.29
14005A	-	14005C	-	12	310.62	14005G	-	12	297.19	14005F	-	3	5/64	16	342.22
14006A	-	14006C	-	12	259.12	14006G	-	12	267.50	14006F	-	3	3/32	16	283.05
14007A	-	14007C	-	12	259.19	14007G	-	12	254.99	14007F	-	3	7/64	16	262.26
14005-AC3085	14006-AC3086	14105-MC3085	14106-MC2086	12	208.87	14008G	-	12	242.88	14008F	-	3	1/8	16	238.47
14007-AC3105	-	14107-MC3105	-	12	251.01	14009G	-	12	249.23	14009F	-	3	5/32	16	248.17
14008-AC3125	-	14108-MC3125	-	12	223.15	14010G	-	12	257.18	14010F	-	3	3/16	16	259.76
14009-AC3145	-	14109-MC3145	-	12	257.52	14011G	-	12	263.69	14011F	-	3	7/32	16	271.61
14010-AC3165	-	14110-MC3165	-	12	274.33	14012G	-	12	271.09	14012F	-	3	1/4	16	287.21
14011-AC3185	-	14111-MC3205	-	12	297.61	14013G	-	12	296.40	14013F	-	3	5/16	16	311.44
14012-AC3205	-	14112-MC3245	-	12	324.14	14014G	-	12	327.18	14014F	-	3	3/8	16	342.63
14020	14020B	14020C	-	14	302.42	14020G	14020H	14	302.91	14020F	-	4	1/16	20	341.45
14021A	14021B	14021C	14021D	14	358.49	14021G	14021H	14	346.01	14021F	14021J	4	5/64	20	376.69
14022A	14022B	14022C	14022D	14	306.39	14022G	14022H	14	301.21	14022F	14022J	4	3/32	20	345.04
14023A	14023B	14023C	14023D	14	308.76	14023G	14023H	14	359.32	14023F	14023J	4	7/64	20	324.99
14021-AC4085	14022-AC4086	14120-MC4085	14121-MC4086	14	275.55	14024G	14024H	14	301.18	14024F	14024J	4	1/8	20	303.56
14023-AC4105	14024-AC4106	14122-MC4105	14123-MC4106	14	310.00	14025G	14025H	14	309.55	14025F	14025J	4	5/32	20	324.26
14025-AC4125	14026-AC4126	14124-MC4125	14125-MC4126	14	293.93	14026G	14026H	14	319.90	14026F	14026J	4	3/16	20	329.84
14027-AC4145	14028-AC4146	14126-MC4145	14127-MC4146	14	330.02	14027G	14027H	14	329.27	14027F	14027J	4	7/32	20	348.37
14029-AC4165	14030-AC4166	14128-MC4165	14129-MC4166	14	336.13	14028G	14028H	14	340.23	14028F	14028J	4	1/4	20	350.86
14031-AC4205	14032-AC4206	14130-MC4205	14131-MC4206	14	364.13	14029G	14029H	14	365.87	14029F	14029J	4	5/16	20	378.35
14033-AC4245	14034-AC4246	14132-MC4245	14133-MC4246	14	394.13	14030G	14030H	14	388.44	14030F	14030J	4	3/8	20	410.22
14041A	14041B	14041C	14041D	16	448.06	14041G	14041H	16	430.44	14041F	14041J	5	5/64	24	463.63
14042A	14042B	14042C	14042D	16	370.83	14042G	14042H	16	365.78	14042F	14042J	5	3/32	24	467.76
14043A	14043B	14043C	14043D	16	416.54	14043G	14043H	16	401.76	14043F	14043J	5	7/64	24	438.32
14041-AC5085	14042-AC5086	14140-MC5085	14141-MC5086	16	339.99	14044G	14044H	16	357.07	14044F	14044J	5	1/8	24	381.28
14043-AC5105	14044-AC5106	14142-MC5085	14143-MC5106	16	368.16	14045G	14045H	16	367.33	14045F	14045J	5	5/32	24	386.31
14045-AC5125	14046-AC5145	14144-MC5125	14145-MC5126	16	382.12	14046G	14046H	16	388.53	14046F	14046J	5	3/16	24	411.75
14047-AC5145	14048-AC5146	14146-MC5145	14147-MC5146	16	408.53	14047G	14047H	16	408.79	14047F	14047J	5	7/32	24	426.09
14049-AC5165	14050-AC5166	14148-MC5165	14149-MC5166	16	426.68	14048G	14048H	16	431.82	14048F	14048J	5	1/4	24	448.67
14051-AC5205	14052-AC5206	14150-MC5205	14151-MC5206	16	462.23	14049G	14049H	16	462.67	14049F	14049J	5	5/16	24	484.24
14053-AC5245	14054-AC5246	14152-MC5245	14153-MC5246	16	500.56	14050G	14050H	16	501.70	14050F	14050J	5	3/8	24	519.00
14061A	14061B	14061C	14061D	18	498.80	14061G	14061H	18	480.03	14061F	14061J	6	5/64	28	526.55
14062A	14062B	14062C	14062D	18	448.38	14062G	14062H	18	446.34	14062F	14062J	6	3/32	28	475.43
14063A	14063B	14063C	14063D	18	506.19	14063G	14063H	18	479.85	14063F	14063J	6	7/64	28	529.38
14061-AC6085	14062-AC6086	14160-MC6085	14161-MC6086	18	426.91	14064G	14064H	18	454.77	14064F	14064J	6	1/8	28	500.02
14063-AC6105	14064-AC6106	14162-MC6105	14163-MC6106	18	482.76	14065G	14065H	18	474.41	14065F	14065J	6	5/32	28	502.61
14065-AC6125	14066-AC6126	14164-MC6125	14165-MC6126	18	464.39	14066G	14066H	18	495.21	14066F	14066J	6	3/16	28	537.86
14067-AC6145	14068-AC6146	14166-MC6145	14167-MC6146	18	524.78	14067G	14067H	18	519.74	14067F	14067J	6	7/32	28	545.59
14069-AC6165	14070-AC6166	14168-MC6165	14169-MC6166	18	549.66	14068G	14068H	18	546.65	14068F	14068J	6	1/4	28	586.33
14071-AC6205	14072-AC6206	14170-MC6205	14171-MC6206	18	567.03	14069G	14069H	18	568.37	14069F	14069J	6	5/16	28	593.43
14073-AC6245	14074-AC6246	14172-MC6245	14173-MC6246	18	589.29	14070G	14070H	18	588.78	14070F	14070J	6	3/8	28	622.48
-	14075B	-	14075D	24	704.51	-	14075H	24	674.67	-	-	8	1/8	-	-
-	14076B	-	14076D	24	717.73	-	14076H	24	679.90	-	-	8	5/32	-	-
-	14077B	-	14077D	24	717.01	-	14077H	24	688.31	-	-	8	3/16	-	-
-	14078B	-	14078D	24	769.62	-	14078H	24	730.03	-	-	8	1/4	-	-



ANGLE CUTTERS

Catalog EDI-Number	Dia	Thick	Hole Size	Included Angle	List Price
11945-A910	2 3/4	1/2	1	45	\$108.15
11946-A910	2 3/4	1/2	1	60	101.97
11947-A910	2 3/4	1/2	1	90	101.97
11948-A912	4	1/2	1 1/4	45	196.40
11949-A912	4	1/2	1 1/4	60	178.37
11950-A912	4	1/2	1 1/4	90	178.37
11951-A914	4	3/4	1 1/4	45	216.95
11952-A914	4	3/4	1 1/4	60	194.34
11953-A914	4	3/4	1 1/4	90	194.34
11954-A916	4	1	1 1/4	60	239.69
11955-A916	4	1	1 1/4	90	239.69
11956-A918	5	3/4	1 1/4	45	301.85
11957-A918	5	3/4	1 1/4	60	271.19
11958-A918	5	3/4	1 1/4	90	271.19
11959-A920	5	1	1 1/4	45	367.24
11960-A920	5	1	1 1/4	60	329.23
11961-A920	5	1	1 1/4	90	329.23
11962-A922	6	1	1 1/4	45	454.58
11963-A922	6	1	1 1/4	60	409.11
11964-A922	6	1	1 1/4	90	409.11
11965-A923	6	1 1/4	1 1/4	45	583.48
11966-A923	6	1 1/4	1 1/4	60	524.80
11967-A923	6	1 1/4	1 1/4	90	524.80
11968-A924	6	1 1/2	1 1/4	45	616.79
11969-A924	6	1 1/2	1 1/4	60	555.59
11970-A924	6	1 1/2	1 1/4	90	555.59



DOUBLE ANGLE CUTTERS HIGH SPEED STEEL

Double angle cutters are available in 45°, 60°, and 90° included angles. They are stocked in diameters from 2 3/4" through 6" and widths from 1/2" to 1 1/2".



RH



LH

SINGLE ANGLE CUTTERS HIGH SPEED STEEL

Dia	Thick	Hole Size	45RH Included Angle	List Price	45LH Included Angle	List Price	60RH Included Angle	List Price	60LH Included Angle	List Price
2 1/2	1/2	7/8	11901-A810	\$80.65	11902-A810	80.65	11903-A810	80.65	11904-A810	80.65
2 3/4	1/2	1	11905-A812	84.90	11906-A812	84.90	11907-A812	84.90	11908-A812	84.90
3	1/2	1	11901A	100.68	11901B	100.68	11901C	100.68	11901D	100.68
3	1/2	1 1/4	11909-A814	100.68	11910-A814	100.68	11911-A814	100.68	11912-A814	100.68
3	5/8	1	11905A	158.86	11905B	158.86	11905C	158.86	11905D	158.86
3	5/8	1 1/4	11906A	158.86	11906B	158.86	11906C	158.86	11906D	158.86
3	3/4	1	11907A	175.90	11907B	175.90	11907C	175.90	11907D	175.90
3	3/4	1 1/4	-	-	-	-	11908C	175.90	11908D	175.90
4	1/2	1	11909A	178.37	11909B	178.37	11909C	178.37	11909D	178.37
4	1/2	1 1/4	11913-A816	178.37	11914-A816	178.37	11915-A816	178.37	11916-A816	178.37
4	3/4	1 1/4	11917-A818	194.34	11918-A818	194.34	11919-A818	194.34	11920-A818	194.34
4	1	1 1/4	11921-A820	240.07	11922-A820	240.07	11923-A820	240.07	11924-A820	240.07
5	3/4	1 1/4	11925-A822	271.32	11926-A822	271.32	11927-A822	271.32	11928-A822	271.32
5	1	1 1/4	11929-A824	329.23	11930-A824	329.23	11931-A824	329.23	11932-A824	329.23
6	3/4	1 1/4	11933-A826	364.66	11934-A826	364.66	11935-A826	364.66	11936-A826	364.66
6	1	1 1/4	11937-A828	408.98	11938-A828	408.98	11939-A828	408.98	11940-A828	408.98
6	1 1/4	1 1/4	11941-A830	524.73	11942-A830	524.73	11943-A830	524.73	11944-A830	524.73

CARBIDE TIPPED ANGLE CUTTERS

Single Angle & Double Angle cutters manufactured with carbide tips are used for higher speeds & feeds, cutting tougher materials and increased tool life

Catalog EDI-Number	Dia	Width	Arbor Hole	# of Teeth	Included Angle	List Price
11850	3	1/2	1	8	45RH	\$382.25
11851	4	1/2	1 1/4	10	45RH	473.08
11852	4	3/4	1 1/4	10	45RH	513.20
11853	3	1/2	1	8	45LH	382.25
11854	4	1/2	1 1/4	10	45LH	473.08
11855	4	3/4	1 1/4	10	45LH	513.20
11856	3	1/2	1	8	60RH	382.25
11857	4	1/2	1 1/4	10	60RH	473.08
11858	4	3/4	1 1/4	10	60RH	513.20
11859	3	1/2	1	8	60LH	382.25
11860	4	1/2	1 1/4	10	60LH	473.08
11861	4	3/4	1 1/4	10	60LH	513.20



CARBIDE TIPPED DOUBLE ANGLE CUTTERS

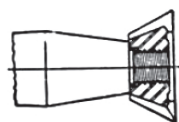
Catalog EDI-Number	Dia	Width	Arbor Hole	# of Teeth	Included Angle	List Price
11875	3	1/2	1	8	45	\$397.58
11876	4	1/2	1 1/4	10	45	492.07
11877	4	3/4	1 1/4	10	45	533.75
11878	4	1	1 1/4	10	45	624.71
11878A	2 3/4	1/2	1	8	60	318.80
11879	3	1/2	1	8	60	397.58
11880	4	1/2	1 1/4	10	60	492.07
11881	4	3/4	1 1/4	10	60	533.75
11882	4	1	1 1/4	10	60	624.71
11882A	2 3/4	1/2	1	8	90	318.80
11883	3	1/2	1	8	90	397.58
11884	4	1/2	1 1/4	10	90	492.07
11885	4	3/4	1 1/4	10	90	533.75
11886	4	1	1 1/4	10	90	624.71



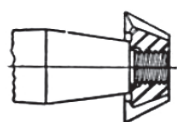


THREADED ANGLE CUTTERS

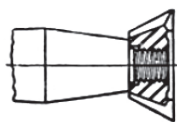
THREADED HOLE ANGLE CUTTERS



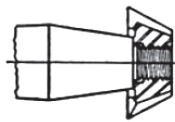
STYLE NO. 1

RH CUTTER
RH THREAD

STYLE NO. 2

RH CUTTER
LH THREAD

STYLE NO. 3

LH CUTTER
LH THREAD

STYLE NO. 4

LH CUTTER
RH THREAD

Catalog EDI-Number	Dia	Width	Threaded Hole	List Price
12217-A1010-1	1 1/4	7/16	3/8 24 N.F.	\$59.84
12218-A1010-2	1 1/4	7/16	3/8 24 N.F.	59.84
12219-A1010-3	1 1/4	7/16	3/8 24 N.F.	59.84
12220-A1010-4	1 1/4	7/16	3/8 24 N.F.	59.84
12221-A1012-1	1 5/8	9/16	1/2 20 N.F.	69.26
12222-A1012-2	1 5/8	9/16	1/2 20 N.F.	69.26
12223-A1012-3	1 5/8	9/16	1/2 20 N.F.	69.26
12224-A1012-4	1 5/8	9/16	1/2 20 N.F.	69.26

These cutters can be furnished either right or left hand and with either right or left hand threaded hole. They have an included angle of 60°

WHEN ORDERING SPECIFY STYLE NUMBER DETERMINING THE HAND OF AN ANGLE CUTTER

THREADED ARBORS FOR ANGLE CUTTERS



TAPER SHANK

Catalog EDI-Number	Size N.F. Thread on Arbor	Taper	Dia. of Cutter	List Price
12225-A1110R	3/8-24	7	1 1/4	\$45.42
12226-A1110L	3/8-24	7	1 1/4	45.42
12227-A1112R	1/2-20	9	1 5/8	70.54
12228-A1112L	1/2-20	9	1 5/8	70.54



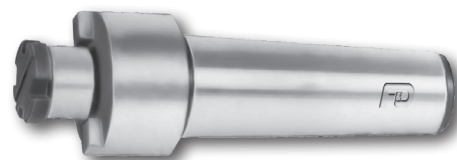
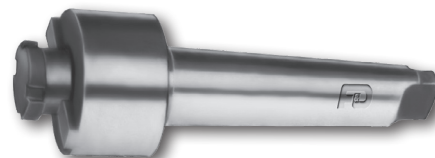
STRAIGHT SHANK

Catalog EDI-Number	Size N.F. Thread on Arbor	Shank	Dia. of Cutter	List Price
12229-A1120R	3/8-24	1/2	1 1/4	\$41.23
12230-A1120L	3/8-24	1/2	1 1/4	41.23
12231-A1122R	1/2-20	1/2	1 5/8	52.24
12232-A1122L	1/2-20	1/2	1 5/8	52.24

Shell Mills are designed for both end and face milling operations and conform to the American Standard for Milling Cutters. They will fit standard shell endmill arbors. Right hand cutters with right hand helix and left hand cutters with left hand helix are standard. New sizes are added for larger off-the-shelf selection.

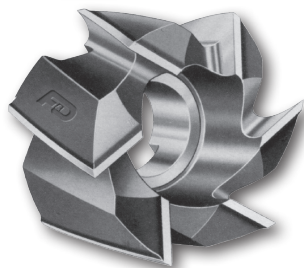
SHELL ENDMILLS HIGH SPEED STEEL

Catalog EDI-Number	Dia	Width of Face	Width of Drive Slot	Depth of Slot	Hole Size	List Price
14496-A1610R	1 1/4	1	1/4	5/32	1/2	\$72.28
14497-A1610L	1 1/4	1	1/4	5/32	1/2	77.44
14498-A1611R	1 3/8	1 1/8	1/4	5/32	1/2	112.80
14499-A1611L	1 3/8	1 1/8	1/4	5/32	1/2	112.80
14500-A1612R	1 1/2	1 1/8	1/4	5/32	1/2	74.53
14501-A1612L	1 1/2	1 1/8	1/4	5/32	1/2	79.43
14502-A1613R	1 5/8	1 1/4	5/16	3/16	3/4	138.24
14503-A1613L	1 5/8	1 1/4	5/16	3/16	3/4	138.24
14504-A1614R	1 3/4	1 1/4	5/16	3/16	3/4	94.96
14505-A1614L	1 3/4	1 1/4	5/16	3/16	3/4	101.33
14506-A1615R	1 7/8	1 3/8	5/16	3/16	3/4	156.60
14507-A1615L	1 7/8	1 3/8	5/16	3/16	3/4	156.60
14508-A1616R	2	1 3/8	5/16	3/16	3/4	106.67
14509-A1616L	2	1 3/8	5/16	3/16	3/4	114.28
14510-A1617R	2 1/8	1 1/2	3/8	7/32	1	174.37
14511-A1617L	2 1/8	1 1/2	3/8	7/32	1	174.37
14512-A1618R	2 1/4	1 1/2	3/8	7/32	1	117.31
14513-A1618L	2 1/4	1 1/2	3/8	7/32	1	125.55
14514-A1619R	2 3/8	1 5/8	3/8	7/32	1	207.15
14515-A1619L	2 3/8	1 5/8	3/8	7/32	1	207.15
14516-A1620R	2 1/2	1 5/8	3/8	7/32	1	140.76
14517-A1620L	2 1/2	1 5/8	3/8	7/32	1	151.25
14518-A1621R	2 5/8	1 5/8	3/8	7/32	1	247.87
14519-A1621L	2 5/8	1 5/8	3/8	7/32	1	247.87
14520-A1622R	2 3/4	1 5/8	3/8	7/32	1	175.59
14521-A1622L	2 3/4	1 5/8	3/8	7/32	1	187.83
14522-A1623R	2 7/8	1 3/4	1/2	9/32	1 1/4	290.45
14523-A1623L	2 7/8	1 3/4	1/2	9/32	1 1/4	290.45
14524-A1624R	3	1 3/4	1/2	9/32	1 1/4	190.67
14525-A1624L	3	1 3/4	1/2	9/32	1 1/4	205.10
14526-A1625R	3 1/4	1 7/8	1/2	9/32	1 1/4	384.63
14527-A1625L	3 1/4	1 7/8	1/2	9/32	1 1/4	384.63
14528-A1626R	3 1/2	1 7/8	1/2	9/32	1 1/4	264.17
14529-A1626L	3 1/2	1 7/8	1/2	9/32	1 1/4	282.72
14530-A1627R	3 3/4	2 1/4	5/8	3/8	1 1/2	476.30
14531-A1627L	3 3/4	2 1/4	5/8	3/8	1 1/2	476.30
14532-A1628R	4	2 1/4	5/8	3/8	1 1/2	319.51
14533-A1628L	4	2 1/4	5/8	3/8	1 1/2	344.69
14534-A1630R	4 1/2	2 1/4	5/8	3/8	1 1/2	409.24
14535-A1630L	4 1/2	2 1/4	5/8	3/8	1 1/2	437.89
14536-A1632R	5	2 1/4	5/8	3/8	1 1/2	519.26
14537-A1632L	5	2 1/4	5/8	3/8	1 1/2	553.53
14538-A1634R	5 1/2	2 1/4	3/4	7/16	2	863.30
14539-A1634L	5 1/2	2 1/4	3/4	7/16	2	863.30
14540-A1636R	6	2 1/4	3/4	7/16	2	765.33
14541-A1636L	6	2 1/4	3/4	7/16	2	797.98



**MAKE SURE TO PURCHASE ARBORS OR
HOLDERS FOR YOUR SHELL MILLS**

Find them on pages 129 - 130



SHELL ENDMILLS FOR ALUMINUM HIGH SPEED STEEL

Shell Endmills for Aluminum have a high helix and fewer number of teeth for easy chip removal.

Catalog EDI-Number	Dia	Width of Face	Width of Drive Slot	Depth of Slot	Hole Size	List Price
14586-A1710R	1 1/4	1	1/4	5/32	1/2	\$80.91
14587-A1710L	1 1/4	1	1/4	5/32	1/2	80.91
14588-A1711R	1 3/8	1 1/8	1/4	5/32	1/2	114.14
14589-A1711L	1 3/8	1 1/8	1/4	5/32	1/2	114.14
14590-A1712R	1 1/2	1 1/8	1/4	5/32	1/2	82.97
14591-A1712L	1 1/2	1 1/8	1/4	5/32	1/2	82.97
14592-A1713R	1 5/8	1 1/4	5/16	3/16	3/4	138.24
14593-A1713L	1 5/8	1 1/4	5/16	3/16	3/4	138.24
14594-A1714R	1 3/4	1 1/4	5/16	3/16	3/4	100.49
14595-A1714L	1 3/4	1 1/4	5/16	3/16	3/4	100.49
14596-A1715R	1 7/8	1 3/8	5/16	3/16	3/4	156.60
14597-A1715L	1 7/8	1 3/8	5/16	3/16	3/4	156.60
14598-A1716R	2	1 3/8	5/16	3/16	3/4	113.18
14599-A1716L	2	1 3/8	5/16	3/16	3/4	113.18
14600-A1717R	2 1/8	1 1/2	3/8	7/32	1	174.37
14601-A1717L	2 1/8	1 1/2	3/8	7/32	1	174.37
14602-A1718R	2 1/4	1 1/2	3/8	7/32	1	130.57
14603-A1718L	2 1/4	1 1/2	3/8	7/32	1	130.57
14604-A1719R	2 3/8	1 5/8	3/8	7/32	1	207.23
14605-A1719L	2 3/8	1 5/8	3/8	7/32	1	207.23
14606-A1720R	2 1/2	1 5/8	3/8	7/32	1	151.32
14607-A1720L	2 1/2	1 5/8	3/8	7/32	1	151.32
14608-A1721R	2 5/8	1 5/8	3/8	7/32	1	247.87

Catalog EDI-Number	Dia	Width of Face	Width of Drive Slot	Depth of Slot	Hole Size	List Price
14609-A1721L	2 5/8	1 5/8	3/8	7/32	1	\$247.87
14610-A1722R	2 3/4	1 5/8	3/8	7/32	1	192.22
14611-A1722L	2 3/4	1 5/8	3/8	7/32	1	192.22
14612-A1723R	2 7/8	1 3/4	1/2	9/32	1 1/4	290.45
14613-A1723L	2 7/8	1 3/4	1/2	9/32	1 1/4	290.45
14614-A1724R	3	1 3/4	1/2	9/32	1 1/4	207.15
14615-A1724L	3	1 3/4	1/2	9/32	1 1/4	207.15
14616-A1725R	3 1/4	1 7/8	1/2	9/32	1 1/4	384.63
14617-A1725L	3 1/4	1 7/8	1/2	9/32	1 1/4	384.63
14618-A1726R	3 1/2	1 7/8	1/2	9/32	1 1/4	305.33
14619-A1726L	3 1/2	1 7/8	1/2	9/32	1 1/4	305.33
14620-A1727R	3 3/4	2 1/4	5/8	3/8	1 1/2	476.30
14621-A1727L	3 3/4	2 1/4	5/8	3/8	1 1/2	476.30
14622-A1728R	4	2 1/4	5/8	3/8	1 1/2	331.88
14623-A1728L	4	2 1/4	5/8	3/8	1 1/2	331.88
14624-A1730R	4 1/2	2 1/4	5/8	3/8	1 1/2	533.88
14625-A1730L	4 1/2	2 1/4	5/8	3/8	1 1/2	533.88
14626-A1732R	5	2 1/4	5/8	3/8	1 1/2	560.87
14627-A1732L	5	2 1/4	5/8	3/8	1 1/2	560.87
14628-A1734R	5 1/2	2 1/4	3/4	7/16	2	863.30
14629-A1734L	5 1/2	2 1/4	3/4	7/16	2	863.30
14630-A1736R	6	2 1/4	3/4	7/16	2	817.00
14631-A1736L	6	2 1/4	3/4	7/16	2	817.00



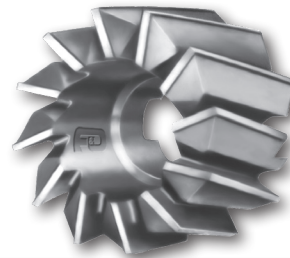
COBALT ROUGHING SHELL ENDMILLS

RIGHT HAND CUT

Cobalt Roughing Shell Endmills are used for heavy duty cuts and longer life on tougher materials. Form relieved for easy sharpening.

Catalog EDI-Number	Dia	Width of Face	Drive Slot Width	Depth of Slot	Hole Size	No. Of Teeth	Price
35100	2	1 3/8	5/16	3/16	3/4	8	\$203.98
35101	2 1/4	1 1/2	3/8	7/32	1	8	248.22
35102	2 1/2	1 5/8	3/8	7/32	1	8	301.92
35103	2 3/4	1 5/8	3/8	7/32	1	10	335.69
35104	3	1 3/4	1/2	9/32	1 1/4	10	391.29
35105	3 1/2	1 7/8	1/2	9/32	1 1/4	10	491.21
35106	4	2 1/4	5/8	3/8	1 1/2	10	682.94
35107	4 1/2	2 1/4	5/8	3/8	1 1/2	12	864.87
35108	5	2 1/4	5/8	3/8	1 1/2	12	1,004.27
35109	6	2 1/4	3/4	7/16	2	14	1,395.07

M-42 Cobalt shell end mills provide ground flutes with rake geometry and a resistance to cutting temperature for longer wear, resistance for your general purpose machining, and exotic metals.



Catalog EDI-Number	Dia	Width of Face	Width of Drive Slot	Depth of Slot	Hole Size	List Price
14542-AX1610R	1 1/4	1	1/4	5/32	1/2	\$99.40
14543-AX1610L	1 1/4	1	1/4	5/32	1/2	99.40
14544-AX1611R	1 3/8	1 1/8	1/4	5/32	1/2	167.05
14545-AX1611L	1 3/8	1 1/8	1/4	5/32	1/2	167.05
14546-AX1612R	1 1/2	1 1/8	1/4	5/32	1/2	102.88
14547-AX1612L	1 1/2	1 1/8	1/4	5/32	1/2	102.88
14548-AX1613R	1 5/8	1 1/4	5/16	3/16	3/4	165.85
14549-AX1613L	1 5/8	1 1/4	5/16	3/16	3/4	165.85
14550-AX1614R	1 3/4	1 1/4	5/16	3/16	3/4	131.29
14551-AX1614L	1 3/4	1 1/4	5/16	3/16	3/4	131.29
14552-AX1615R	1 7/8	1 3/8	5/16	3/16	3/4	232.10
14553-AX1615L	1 7/8	1 3/8	5/16	3/16	3/4	232.10
14451-AX1616R	2	1 3/8	5/16	3/16	3/4	148.46
14452-AX1616L	2	1 3/8	5/16	3/16	3/4	148.46
14554-AX1617R	2 1/8	1 1/2	3/8	7/32	1	258.23
14555-AX1617L	2 1/8	1 1/2	3/8	7/32	1	258.23
14556-AX1618R	2 1/4	1 1/2	3/8	7/32	1	163.91
14557-AX1618L	2 1/4	1 1/2	3/8	7/32	1	163.91
14558-AX1619R	2 3/8	1 5/8	3/8	7/32	1	307.57
14559-AX1619L	2 3/8	1 5/8	3/8	7/32	1	307.57
14453-AX1620R	2 1/2	1 5/8	3/8	7/32	1	197.13
14454-AX1620L	2 1/2	1 5/8	3/8	7/32	1	197.13
14560-AX1621R	2 5/8	1 5/8	3/8	7/32	1	367.20

Catalog EDI-Number	Dia	Width of Face	Width of Drive Slot	Depth of Slot	Hole Size	List Price
14561-AX1621L	2 5/8	1 5/8	3/8	7/32	1	\$367.20
14562-AX1622R	2 3/4	1 5/8	3/8	7/32	1	245.93
14563-AX1622L	2 3/4	1 5/8	3/8	7/32	1	245.93
14564-AX1623R	2 7/8	1 3/4	1/2	9/32	1 1/4	286.44
14565-AX1623L	2 7/8	1 3/4	1/2	9/32	1 1/4	286.44
14455-AX1624R	3	1 3/4	1/2	9/32	1 1/4	268.06
14456-AX1624L	3	1 3/4	1/2	9/32	1 1/4	268.06
14566-AX1625R	3 1/4	1 7/8	1/2	9/32	1 1/4	570.07
14567-AX1625L	3 1/4	1 7/8	1/2	9/32	1 1/4	570.07
14568-AX1626R	3 1/2	1 7/8	1/2	9/32	1 1/4	372.41
14569-AX1626L	3 1/2	1 7/8	1/2	9/32	1 1/4	372.41
14570-AX1627R	3 3/4	2 1/4	5/8	3/8	1 1/2	705.58
14571-AX1627L	3 3/4	2 1/4	5/8	3/8	1 1/2	705.58
14457-AX1628R	4	2 1/4	5/8	3/8	1 1/2	454.90
14458-AX1628L	4	2 1/4	5/8	3/8	1 1/2	454.90
14572-AX1630R	4 1/2	2 1/4	5/8	3/8	1 1/2	737.33
14573-AX1630L	4 1/2	2 1/4	5/8	3/8	1 1/2	737.33
14459-AX1632R	5	2 1/4	5/8	3/8	1 1/2	737.92
14460-AX1632L	5	2 1/4	5/8	3/8	1 1/2	737.92
14574-AX1634R	5 1/2	2 1/4	3/4	7/16	2	1,279.05
14575-AX1634L	5 1/2	2 1/4	3/4	7/16	2	1,279.05
14576-AX1636R	6	2 1/4	3/4	7/16	2	1,086.66
14577-AX1636L	6	2 1/4	3/4	7/16	2	1,086.66



CARBIDE TIPPED SHELL END MILL CUTTERS

FOR STEEL

Catalog EDI-Number	Dia. of Cut Inches	Width of Cutter	Min Tip Length Inches	Dia of Hole Inches	Width of Drive Slot	Depth of Slot	# of Teeth	List Price
14380-MC1610R	1 1/4	1	1/2	1/2	1/4	5/32	4	\$207.06
14381-MC1612R	1 1/2	1 1/8	1/2	1/2	1/4	5/32	4	215.59
14382-MC1614R	1 3/4	1 1/4	1/2	3/4	5/16	3/16	4	268.60
14383-MC1616R	2	1 3/8	1/2	3/4	5/16	3/16	4	300.09
14384-MC1618R	2 1/4	1 1/2	1/2	1	3/8	7/32	6	324.97
14385-MC1620R	2 1/2	1 5/8	5/8	1	3/8	7/32	6	340.58
14386-MC1622R	2 3/4	1 5/8	5/8	1	3/8	7/32	6	357.28
14387-MC1624R	3	1 3/4	3/4	1 1/4	1/2	9/32	6	388.60
14388-MC1626R	3 1/2	1 7/8	3/4	1 1/4	1/2	9/32	6	483.08
14389-MC1628R	4	2 1/4	3/4	1 1/2	5/8	3/8	6	600.07



-Right Hand Cut, Left Hand Spiral

-Designed to withstand the impact of milling steel

FOR CAST IRON

Catalog EDI-Number	Dia. of Cut Inches	Width of Cutter	Min Tip Length Inches	Dia of Hole Inches	Width of Drive Slot	Depth of Slot	# of Teeth	List Price
14465-AAC1610R	1 1/4	1	1/2	1/2	1/4	5/32	4	\$199.06
14466-AAC1612R	1 1/2	1 1/8	1/2	1/2	1/4	5/32	4	207.29
14467-AAC1614R	1 3/4	1 1/4	1/2	3/4	5/16	3/16	4	258.33
14468-AAC1616R	2	1 3/8	1/2	3/4	5/16	3/16	4	288.61
14469-AAC1618R	2 1/4	1 1/2	1/2	1	3/8	7/32	6	312.45
14470-AAC1620R	2 1/2	1 5/8	5/8	1	3/8	7/32	6	340.58
14471-AAC1622R	2 3/4	1 5/8	5/8	1	3/8	7/32	6	357.28
14472-AAC1624R	3	1 3/4	3/4	1 1/4	1/2	9/32	6	388.60
14473-AAC1626R	3 1/2	1 7/8	3/4	1 1/4	1/2	9/32	6	457.04
14474-AAC1628R	4	2 1/4	3/4	1 1/2	5/8	3/8	6	565.38

-Right Hand Cut, Right Hand Spiral

-Manufactured to allow greater metal removal at standard speeds & feeds

FOR NON-FERROUS MATERIALS

Catalog EDI-Number	Dia. of Cut Inches	Width of Cutter	Min Tip Length Inches	Dia of Hole Inches	Width of Drive Slot	Depth of Slot	# of Teeth	List Price
14480-AC1610R	1 1/4	1	1/2	1/2	1/4	5/32	4	\$199.06
14481-AC1612R	1 1/2	1 1/8	1/2	1/2	1/4	5/32	4	207.29
14482-AC1614R	1 3/4	1 1/4	1/2	3/4	5/16	3/16	4	258.33
14483-AC1616R	2	1 3/8	1/2	3/4	5/16	3/16	4	271.27
14484-AC1618R	2 1/4	1 1/2	1/2	1	3/8	7/32	6	286.58
14485-AC1620R	2 1/2	1 5/8	5/8	1	3/8	7/32	6	301.72
14486-AC1622R	2 3/4	1 5/8	5/8	1	3/8	7/32	6	318.42
14487-AC1624R	3	1 3/4	3/4	1 1/4	1/2	9/32	6	349.04
14488-AC1626R	3 1/2	1 7/8	3/4	1 1/4	1/2	9/32	6	427.23
14489-AC1628R	4	2 1/4	3/4	1 1/2	5/8	3/8	6	536.85



-Right Hand Cut, Right Hand Spiral

-Able to handle larger chiploads at higher feed rates

CONCAVE CUTTERS - HIGH SPEED STEEL ARBOR TYPE - FORM RELIEVED

Concave milling cutters are used to produce a true convex radius. These cutters are made for milling half circles and may be sharpened without changing their form by grinding the face.



Catalog EDI-Number	Radius (in.)	Cutter Dia (in.)	Hole Size	List Price
12678-C2001	1/32	2 1/4	1	\$93.78
12679-C2003	3/64	2 1/4	1	93.78
12601-C2004	3/64	3	1	86.90
12600-C2002	1/32	3	1	86.90
12602-C203	1/16	2	7/8	86.90
12603-C204	1/16	2 1/4	1	86.90
12604-C2041	1/16	3	1	221.98
12605-C2042	1/16	4	1	267.59
12606-C2043	1/16	4	1 1/4	267.59
12680-C2045	5/64	2 1/4	1	210.65
12607-C2044	5/64	3	1	228.74
12608-C205	3/32	2	7/8	96.24
12609-C206	3/32	2 1/4	1	96.24
12610-C2061	3/32	3	1	235.06
12611-C2062	3/32	4	1	285.36
12612-C2063	3/32	4	1 1/4	285.36
12681-C2065	7/64	2 1/4	1	213.22
12613-C2064	7/64	3	1	231.70
12614-C207	1/8	2	7/8	108.48
12615-C208	1/8	2 1/2	1	108.48
12616-C2081	1/8	3	1	238.72
12617-C2082	1/8	4	1	291.68
12618-C2083	1/8	4	1 1/4	291.68
12619-C2086	9/64	4	1	301.80
12620-C209	5/32	2 1/4	7/8	133.60
12621-C210	5/32	2 3/4	1	133.60
12622-C2101	5/32	3	1	247.55
12623-C2102	5/32	4	1	305.91
12624-C2103	5/32	4	1 1/4	305.91
12625-C2107	11/64	4	1	313.13
12626-C211	3/16	2 1/4	7/8	133.60
12627-C212	3/16	2 3/4	1	133.60
12628-C2122	3/16	4	1	319.95
12629-C2123	3/16	4	1 1/4	319.95

Catalog EDI-Number	Radius (in.)	Cutter Dia (in.)	Hole Size	List Price
12630-C2127	13/64	4	1	\$328.14
12631-C213	7/32	2 1/4	7/8	150.47
12632-C214	7/32	3	1	161.24
12633-C2141	7/32	4	1	333.36
12634-C2145	15/64	4	1	336.58
12635-C217	1/4	2 1/4	7/8	161.48
12636-C218	1/4	3	1	166.39
12637-C2181	1/4	4	1	340.31
12638-C2182	1/4	4	1 1/4	340.31
12639-C2184	1/4	5	1 1/4	431.27
12640-C2186	1/4	6	1 1/4	520.55
12641-C2189	17/64	4	1	344.89
12642-C2191	9/32	3	1	178.30
12643-C2193	9/32	4	1 1/4	343.98
12644-C227	5/16	2 3/4	1	206.46
12645-C228	5/16	3 1/2	1 1/4	219.34
12646-C2284	5/16	5	1 1/4	459.23
12647-C2286	5/16	6	1 1/4	582.77
12648-C2291	11/32	3	1	187.83
12649-C2293	11/32	4	1 1/4	345.98
12650-C231	3/8	3	1	254.77
12651-C232	3/8	3 3/4	1 1/4	275.90
12652-C2324	3/8	5	1 1/4	565.19
12653-C2326	3/8	6	1 1/4	704.33
12654-C2341	13/32	3 1/4	1	246.97
12655-C2343	13/32	4	1 1/4	348.82
12656-C241	7/16	3 1/4	1	314.80
12657-C242	7/16	4	1 1/4	336.77
12658-C2424	7/16	5	1 1/4	587.03
12659-C2426	7/16	6	1 1/4	734.08
12660-C2428	15/32	3 1/4	1	361.44
12661-C2430	15/32	4	1 1/4	391.20
12662-C251	1/2	3 1/4	1	375.03
12663-C252	1/2	4 1/4	1 1/4	402.40
12664-C2524	1/2	5	1 1/4	625.17
12665-C2526	1/2	6	1 1/4	791.41
12666-C256	9/16	4 1/4	1 1/4	548.76
12667-C2564	9/16	5 1/2	1 1/4	623.93
12668-C260	5/8	4 1/2	1 1/4	588.32
12669-C2604	5/8	5 1/2	1 1/4	767.84
12670-C264	11/16	4 3/4	1 1/4	665.15
12671-C2646	11/16	6	1 1/4	923.53
12672-C268	3/4	5	1 1/4	716.11
12673-C2684	3/4	6	1 1/4	988.99
12674-C272	13/16	5 1/4	1 1/4	849.39
12675-C276	7/8	5 1/2	1 1/4	923.47
12676-C280	15/16	5 3/4	1 1/2	1,113.44
12677-C284	1	6	1 1/2	1,220.05



CONVEX CUTTERS - HIGH SPEED STEEL ARBOR TYPE - FORM RELIEVED

Convex milling cutters are used to produce a true concave radius. These cutters are made for milling half circles and may be sharpened without changing their form by grinding the face.



Catalog EDI-Number	Radius (in.)	Cutter Dia (in.)	Hole Size	List Price
12493-C01	1/32	2 1/4	1	\$144.55
12500-C02	1/32	3	1	176.94
12494-C03	3/64	2 1/4	1	150.61
12501-C04	3/64	3	1	161.10
12502-C06	3/64	4	1	193.90
12503-C07	3/64	4	1 1/4	193.90
12504-C103	1/16	2	7/8	80.78
12505-C104	1/16	2 1/4	1	80.78
12506-C1041	1/16	3	1	168.26
12507-C1042	1/16	4	1	188.29
12508-C1043	1/16	4	1 1/4	188.29
12495-C1045	5/64	2 1/4	1	155.82
12509-C1044	5/64	3	1	169.35
12510-C1046	5/64	4	1	205.23
12511-C1047	5/64	4	1 1/4	205.23
12512-C105	3/32	2	7/8	77.74
12513-C106	3/32	2 1/4	1	86.90
12514-C1061	3/32	3	1	170.70
12515-C1062	3/32	4	1	203.75
12516-C1063	3/32	4	1 1/4	203.75
12496-C1065	7/64	2 1/4	1	166.97
12517-C1064	7/64	3	1	172.19
12518-C1066	7/64	4	1	210.90
12519-C1067	7/64	4	1 1/4	210.90
12520-C107	1/8	2	7/8	94.99
12521-C108	1/8	2 1/2	1	94.99
12522-C1081	1/8	3	1	173.22
12523-C1082	1/8	4	1	210.90
12524-C1083	1/8	4	1 1/4	210.90
12497-C1085	9/64	2 1/2	1	162.84
12525-C1084	9/64	3	1	176.94
12526-C1086	9/64	4	1	222.56
12527-C1087	9/64	4	1 1/4	222.56
12528-C109	5/32	2 1/4	7/8	101.91
12529-C110	5/32	2 3/4	1	104.42
12530-C1101	5/32	3	1	181.21
12531-C1102	5/32	4	1	227.71
12532-C1103	5/32	4	1 1/4	227.71
12533-C1104	5/32	5	1 1/4	247.81
12534-C1105	11/64	3	1	185.32
12535-C1107	11/64	4	1	238.15
12536-C1108	11/64	4	1 1/4	238.15
12537-C111	3/16	2 1/4	7/8	109.24
12538-C112	3/16	2 3/4	1	114.66
12539-C1122	3/16	4	1	248.52
12540-C1123	3/16	4	1 1/4	248.52

Catalog EDI-Number	Radius (in.)	Cutter Dia (in.)	Hole Size	List Price
12541-C1124	3/16	5	1 1/4	\$263.72
12542-C1125	13/64	3	1	192.87
12543-C1127	13/64	4	1	254.71
12544-C1128	13/64	4	1 1/4	254.71
12545-C113	7/32	2 1/4	7/8	120.26
12546-C114	7/32	3	1	127.99
12547-C1141	7/32	4	1	257.73
12548-C1142	7/32	5	1 1/4	279.06
12549-C1143	15/64	3	1	198.47
12550-C1145	15/64	4	1	260.04
12551-C1146	15/64	4	1 1/4	260.04
12552-C117	1/4	2 1/4	7/8	139.01
12553-C118	1/4	3	1	147.32
12554-C1181	1/4	4	1	263.27
12555-C1182	1/4	4	1 1/4	263.27
12556-C1184	1/4	5	1 1/4	284.65
12557-C1186	1/4	6	1 1/4	292.19
12558-C1187	17/64	3	1	204.00
12559-C1189	17/64	4	1	268.23
12560-C1190	17/64	4	1 1/4	268.23
12498-C1192	9/32	2 3/4	1	193.44
12561-C1191	9/32	3	1	197.38
12562-C1194	9/32	4	1 1/4	303.78
12563-C127	5/16	2 3/4	1	181.21
12564-C128	5/16	3 1/2	1 1/4	192.48
12565-C1284	5/16	5	1 1/4	304.24
12566-C1286	5/16	6	1 1/4	423.79
12567-C1291	11/32	3	1	215.93
12568-C1294	11/32	4	1 1/4	326.85
12569-C131	3/8	3	1	204.00
12570-C132	3/8	3 3/4	1 1/4	221.08
12571-C1324	3/8	5	1 1/4	352.62
12572-C1326	3/8	6	1 1/4	420.77
12573-C1341	13/32	3 1/4	1	251.09
12574-C1344	13/32	4	1 1/4	331.10
12575-C141	7/16	3 1/4	1	238.34
12576-C142	7/16	4	1 1/4	252.00
12577-C1424	7/16	5	1 1/4	407.82
12578-C1426	7/16	6	1 1/4	458.38
12579-C1428	15/32	3 1/4	1	257.92
12580-C1430	15/32	4	1 1/4	379.41
12581-C151	1/2	3 1/4	1	279.18
12582-C152	1/2	4 1/4	1 1/4	299.67
12583-C1524	1/2	5	1 1/4	414.90
12584-C1526	1/2	6	1 1/4	494.07
12585-C156	9/16	4 1/4	1 1/4	450.14
12586-C1564	9/16	5 1/2	1 1/4	556.82
12587-C160	5/8	4 1/2	1 1/4	518.68
12588-C1604	5/8	5 1/2	1 1/4	579.88
12589-C162	5/8	6	1 1/4	513.66
12590-C164	11/16	4 3/4	1 1/4	545.80
12591-C1646	11/16	6	1 1/4	734.08
12592-C168	3/4	5	1 1/4	599.01
12598-C1682	3/4	5	1 1/2	599.01
12593-C1684	3/4	6	1 1/4	759.85
12594-C172	13/16	5 1/4	1 1/4	663.56
12595-C176	7/8	5 1/2	1 1/4	743.10
12596-C180	15/16	5 3/4	1 1/2	808.29
12597-C184	1	6	1 1/2	976.23

CORNER ROUNDING CUTTERS



RH

LH

Corner rounding milling cutters are designed for radius milling on arbor type milling machines. They may be used individually or in pairs. These cutters have side and radial clearance and can be sharpened by grinding the face without changing their forms. When ordering, specify whether right hand or left hand cutters are wanted.

Catalog EDI-Number	Radius	Dia.	Width	Hole Size	List Price
12401-C303R	1/8	2	1/4	7/8	\$96.18
12402-C303L	1/8	2	1/4	7/8	96.18
12403-C304R	1/8	2 1/2	1/4	1	98.11
12404-C304L	1/8	2 1/2	1/4	1	98.11
12405-C306R	3/16	2 1/2	5/16	1	184.49
12406-C306L	3/16	2 1/2	5/16	1	184.49
12407-C307R	1/4	2 1/4	13/32	7/8	139.78
12408-C307L	1/4	2 1/4	13/32	7/8	139.78
12409-C308R	1/4	3	13/32	1	129.74
12410-C308L	1/4	3	13/32	1	129.74
12411-C310R	5/16	3	7/16	1	211.61
12412-C310L	5/16	3	7/16	1	211.61
12413-C311R	3/8	3	9/16	1	193.51
12414-C311L	3/8	3	9/16	1	193.51
12415-C312R	3/8	3 3/4	9/16	1 1/4	189.58
12416-C312L	3/8	3 3/4	9/16	1 1/4	189.58
12417-C313R	7/16	3 1/4	5/8	1	252.32
12418-C313L	7/16	3 1/4	5/8	1	252.32
12419-C317R	1/2	3 1/4	3/4	1	263.53
12420-C317L	1/2	3 1/4	3/4	1	263.53
12421-C318R	1/2	4 1/4	3/4	1 1/4	258.57
12422-C318L	1/2	4 1/4	3/4	1 1/4	258.57
12423-C320R	9/16	4 1/4	13/16	1 1/4	325.63
12424-C320L	9/16	4 1/4	13/16	1 1/4	325.63
12425-C327R	5/8	3 1/2	15/16	1	297.99
12426-C327L	5/8	3 1/2	15/16	1	297.99
12427-C328R	5/8	4 1/4	15/16	1 1/4	291.22
12428-C328L	5/8	4 1/4	15/16	1 1/4	291.22
12429-C332R	3/4	4 1/4	1 1/8	1 1/4	351.45
12430-C332L	3/4	4 1/4	1 1/8	1 1/4	351.45
12431-C336R	7/8	4 1/2	1 5/16	1 1/4	459.86
12432-C336L	7/8	4 1/2	1 5/16	1 1/4	459.86
12433-C340R	1	4 1/2	1 9/16	1 1/4	476.68
12434-C340L	1	4 1/2	1 9/16	1 1/4	476.68

CONVEX AND CONCAVE

SHANK TYPE CUTTERS

FORM RELIEVED - HIGH SPEED STEEL

See Our Concave Cutters

Arbor Type - Page 31



CONCAVE

Catalog EDI-Number	Radius (in.)	Shank (in.)	Overall Length (in.)	Cutter Dia. (in.)	# of Teeth	List Price
12476-C701	1/32	1/2	3	3/4	6	\$94.82
12477-C702	1/16	1/2	3	3/4	6	94.82
12478-C703	3/32	1/2	3	3/4	6	94.82
12479-C704	1/8	3/4	3 1/2	1	6	111.51
12480-C705	5/32	3/4	3 1/2	1	6	118.33
12481-C706	3/16	3/4	3 1/2	1	6	141.98
12482-C707	1/4	3/4	4	1 1/4	4	146.16
12482A-C707A	9/32	3/4	4	1 1/4	4	216.18
12483-C708	5/16	3/4	4	1 1/4	4	160.01
12484-C709	3/8	3/4	4	1 1/2	4	187.78

See Our Convex Cutters

Arbor Type - Page 32



CONVEX

Catalog EDI-Number	Radius (in.)	Shank (in.)	Overall Length (in.)	Cutter Dia. (in.)	# of Teeth	List Price
12451-C601	1/32	1/2	3	3/4	6	\$105.90
12452-C602	1/16	1/2	3	3/4	6	105.90
12453-C603	3/32	1/2	3	7/8	6	107.44
12454-C604	1/8	3/4	3 1/2	1 1/4	6	111.51
12455-C605	5/32	3/4	3 1/2	1 5/16	6	121.11
12456-C606	3/16	3/4	3 1/2	1 3/8	6	125.30
12457-C607	1/4	3/4	4	1 1/2	4	139.20
12458-C608	5/16	3/4	4	1 5/8	4	180.88
12459-C609	3/8	3/4	4	1 3/4	4	181.34

RADIUS CUTTERS

CARBIDE TIPPED



Cutter Radius	Tool Dia.	Shank Dia.	# of Teeth	Cutter Width	Overall Length	For N-F, Cast Iron EDI #	Price	For Steel EDI #	Price
1/32	3/4	1/2	6	1/16	3	12460	\$193.44	12467	212.84
1/16	3/4	1/2	6	1/8	3	12461	193.44	12468	212.84
3/32	7/8	1/2	6	3/16	3	12462	211.48	12469	232.52
1/8	1 1/4	3/4	6	1/4	3 1/2	12463	230.13	12470	253.18
5/32	1 5/16	3/4	6	5/16	3 1/2	12464	264.80	12471	291.34
3/16	1 3/8	3/4	6	3/8	3 1/2	12465	280.26	12472	308.27
1/4	1 1/2	3/4	6	1/2	4	12466	290.11	12473	319.16



CORNER ROUNDING ENDMILLS

Radius	Shank Dia.	Largest Dia.	Overall Length	High Speed Steel	List Price	Cobalt	List Price
1/32	3/8	7/16	2 1/2	17051-C401	\$57.43	34470-CX401	\$74.50
1/16	3/8	7/16	2 1/2	17052-C402	44.55	34471-CX402	57.78
3/32	3/8	1/2	2 1/2	17053-C403	47.96	34472-CX403	62.20
1/8	3/8	5/8	3	17053A	73.20	34472A	94.96
1/8	1/2	5/8	3	17054-C404	58.43	34473-CX404	75.80
5/32	1/2	3/4	3	17055-C405	63.93	34474-CX405	82.94
3/16	1/2	7/8	2 15/16	17056-C4051	72.39	34475-CX4051	93.91
3/16	3/4	7/8	3 1/8	17057-C406	72.39	34476-CX406	93.91
1/4	1/2	1	3 1/4	17058-C4061	80.71	34477-CX4061	104.69
1/4	3/4	1	3 1/4	17059-C408	80.71	34478-CX408	104.69
9/32	1/2	1-1/8	3-1/4	17059A	104.60	34477A	135.68
5/16	1/2	1-1/8	3-1/4	17059B	108.91	34478A	141.27
5/16	3/4	1 1/8	3 1/4	17060-C409	99.24	34479-CX409	128.74
5/16	7/8	1 1/8	3 1/2	17061-C410	99.24	34480-CX410	128.74
3/8	1/2	1-1/4	3-1/2	17061A	132.77	34480A	172.22
3/8	3/4	1 1/4	3 1/2	17062-C411	112.61	34481-CX411	146.07
3/8	7/8	1 1/4	3 3/4	17063-C412	112.61	34482-CX412	146.07
7/16	3/4	1 3/8	3 3/4	17064-C413	124.21	34483-CX413	161.11
7/16	1	1 3/8	4	17065-C414	124.21	34484-CX414	161.11
15/32	3/4	1-3/8	3-3/4	17065A	156.01	34484A	202.38
1/2	3/4	1 1/2	3 7/8	17066-C416	131.87	34485-CX416	171.06
1/2	1	1 1/2	4 1/8	17067-C418	131.87	34486-CX418	171.06
9/16	3/4	1-15/16	4	17067A	182.76	34486A	237.09
5/8	3/4	1 15/16	4	17068-C420	160.75	34487-CX420	208.53
5/8	1	1 15/16	4 1/4	17069-C422	160.75	34488-CX422	208.53
21/32	3/4	1-15/16	4	17069A	205.37	34488A	266.40
3/4	5/8	2 1/4	4 1/8	17070-C423	180.93	34489-CX423	234.71
3/4	3/4	2 1/4	4 1/8	17071-C424	180.93	34490-CX424	234.71
3/4	1	2 1/4	4 5/16	17072-C426	180.93	34491-CX426	234.71
13/16	1	2-1/4	4-5/16	17072A	213.78	34491A	277.31
7/8	1	2 1/2	4 1/2	17073-C430	211.26	34492-CX430	274.05
1	3/4	2-5/8	4-1/2	17073A	234.79	34492A	304.56
1	1	2 5/8	4 3/4	17074-C436	216.24	34493-CX436	280.51

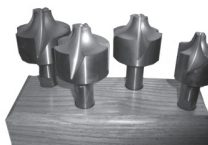
FRACTIONAL HIGH SPEED STEEL



These formed endmills are regularly furnished in right hand cut.

Radius	Shank Dia.	Largest Dia.	Overall Length	High Speed Steel	List Price	Cobalt	List Price
1 mm	3/8	7/16	2 1/2	34501-C501	\$57.32	34530-CX501	\$75.21
1.5 mm	3/8	7/16	2 1/2	34502-C502	57.32	34531-CX502	75.21
2 mm	3/8	1/2	2 1/2	34503-C503	61.30	34532-CX503	81.69
2.5 mm	3/8	1/2	2 1/2	34504-C504	61.30	34533-CX504	81.69
3 mm	1/2	5/8	3	34505-C505	70.85	34534-CX505	92.71
3.5 mm	1/2	3/4	3	34506-C506	74.54	34535-CX506	97.80
4 mm	1/2	3/4	3	34507-C507	74.54	34536-CX507	97.80
4.5 mm	1/2	7/8	3	34508-C508	84.11	34537-CX508	110.02
5 mm	1/2	7/8	3	34509-C509	84.11	34538-CX509	110.02
6 mm	3/4	1	3 1/4	34510-C510	94.96	34539-CX510	124.20
7 mm	3/4	1	3 1/4	34511-C511	94.96	34540-CX511	124.20
8 mm	3/4	1 1/8	3 1/4	34512-C512	118.54	34541-CX512	154.02
9 mm	3/4	1 1/8	3 1/4	34513-C513	118.54	34542-CX513	154.02
10 mm	3/4	1 3/8	3 3/4	34514-C514	152.90	34543-CX514	201.14
11 mm	1	1 3/8	3 3/4	34515-C515	152.90	34544-CX515	201.14
12 mm	1	1 1/2	4 1/8	34516-C516	165.53	34545-CX516	218.93
13 mm	1	1 1/2	4 1/8	34517-C517	165.53	34546-CX517	218.93
14 mm	1	1 5/8	4 1/8	34518-C518	183.80	34547-CX518	239.92
15 mm	1	1 7/8	4 1/4	34519-C519	183.80	34548-CX519	239.92
16 mm	1	2	4 1/4	34520-C520	194.93	34549-CX520	254.69
17 mm	1	2 1/8	4 1/4	34521-C521	194.93	34550-CX521	254.69
18 mm	1	2 1/4	4 1/4	34522-C522	207.40	34551-CX522	272.87
19 mm	1	2 1/4	4 1/4	34523-C523	207.40	34552-CX523	272.87
20 mm	1	2 5/16	4 1/4	34524-C524	226.25	34553-CX524	295.93

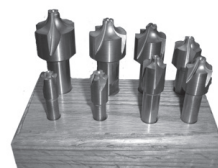
METRIC HIGH SPEED STEEL



4 PIECE HSS SET 34500A

\$754.48

Contains 1 piece of each:
1/2, 9/16, 5/8, 3/4, (x3/4shk)
Supplied in wood block.



8 PIECE HSS SET 34500B

\$673.62

Contains 1 piece of each:
1/16, 3/32, (x3/8 shk), 1/8,
5/32, 3/16, 1/4, 5/16, 3/8
(x1/2shk)
Supplied in wood block.

CORNER ROUNDING ENDMILLS

CARBIDE TIPPED



Use: Milling round corners on square edges.

Radius	Shank Dia.	Largest Dia.	End Dia.	Carb. Len.	Overall Length	For N-F, Cast Iron		For Steel	
						EDI #	Price	EDI #	Price
1/16	3/8	7/16	17/64	13/32	2 3/4	10330	\$122.52	10341	\$132.44
3/32	3/8	1/2	17/64	13/32	2 3/4	10331	122.52	10342	132.44
1/8	1/2	5/8	19/64	13/32	3	10332	126.80	10343	136.89
5/32	1/2	3/4	23/64	13/32	3	10333	134.51	10344	145.21
3/16	3/4	7/8	13/32	13/32	3 1/4	10334	142.34	10345	153.65
1/4	3/4	1	13/32	15/32	3 1/4	10335	162.20	10346	175.17
5/16	7/8	1 1/8	13/32	19/32	3 1/2	10336	166.61	10347	179.99
3/8	7/8	1 1/4	13/32	25/32	3 3/4	10337	173.09	10348	186.98
7/16	1	1 3/8	13/32	7/8	4	10338	192.71	10349	208.18
1/2	1	1 1/2	13/32	1	4	10339	214.54	10350	231.72
5/8	1 1/4	2	21/32	1 7/32	4 1/4	10340	264.01	10351	285.16

RADIUS CUTTERS

SPUR & RACK GEAR CUTTERS, SERRATION CUTTERS



ROUGHING SHELL MILL & T-SLOT CUTTERS

SPECIAL FORM CUTTERS



INVOLUTE GEAR MILLING CUTTERS

High Speed Steel

14 1/2° Pressure Angle - Form Relieved



These cutters are designed to mill spur gears having a 14 1/2 degree pressure angle. They may be sharpened repeatedly without changing the original form.

Cutter No. 1 will cut gears from 135 teeth to a rack
Cutter No. 2 will cut gears from 55 teeth to 134 teeth
Cutter No. 3 will cut gears from 35 teeth to 54 teeth
Cutter No. 4 will cut gears from 26 teeth to 34 teeth
Cutter No. 5 will cut gears from 21 teeth to 25 teeth
Cutter No. 6 will cut gears from 17 teeth to 20 teeth
Cutter No. 7 will cut gears from 14 teeth to 16 teeth
Cutter No. 8 will cut gears from 12 teeth to 13 teeth

When ordering state diametral pitch and the number of cutter desired from the above chart according to the number of teeth to be cut.

LIST NO. GC14

Diametral Pitch	Hole Size	Dia.	List Price	1	2	3	4	5	6	7	8
1	2	8 1/2	\$2,986.02	12701	12702	12703	12704	12705	12706	12707	12708
1 1/4	2	7 3/4	2,040.99	12709	12710	12711	12712	12713	12714	12715	12716
1 1/2	1 3/4	7	1,497.26	12717	12718	12719	12720	12721	12722	12723	12724
1 3/4	1 3/4	6 1/2	1,246.77	12725	12726	12727	12728	12729	12730	12731	12732
2	1 1/2	5 3/4	983.08	12733	12734	12735	12736	12737	12738	12739	12740
2	1 3/4	6 1/2	1,202.64	12741	12742	12743	12744	12745	12746	12747	12748
2 1/2	1 1/2	5 3/4	755.18	12749	12750	12751	12752	12753	12754	12755	12756
2 1/2	1 3/4	6 1/8	929.66	12757	12758	12759	12760	12761	12762	12763	12764
3	1 1/4	4 3/4	624.94	12765	12766	12767	12768	12769	12770	12771	12772
3	1 1/2	5 1/4	721.44	12773	12774	12775	12776	12777	12778	12779	12780
3	1 3/4	5 5/8	802.41	12781	12782	12783	12784	12785	12786	12787	12788
4	1	3 5/8	454.60	12789	12790	12791	12792	12793	12794	12795	12796
4	1 1/4	4 1/4	482.74	12797	12798	12799	12800	12801	12802	12803	12804
4	1 1/2	4 1/2	535.68	12805	12806	12807	12808	12809	12810	12811	12812
4	1 3/4	4 3/4	566.42	12813	12814	12815	12816	12817	12818	12819	12820
5	1	3 3/8	399.19	12821	12822	12823	12824	12825	12826	12827	12828
5	1 1/4	3 3/4	457.70	12829	12830	12831	12832	12833	12834	12835	12836
5	1 1/2	4 1/4	498.67	12837	12838	12839	12840	12841	12842	12843	12844
5	1 3/4	4 3/8	511.08	12845	12846	12847	12848	12849	12850	12851	12852
6	1	3 1/8	223.71	12853	12854	12855	12856	12857	12858	12859	12860
6	1 1/4	3 1/2	377.68	12861	12862	12863	12864	12865	12866	12867	12868
6	1 1/2	3 7/8	453.61	12869	12870	12871	12872	12873	12874	12875	12876
6	1 3/4	4 1/4	482.37	12877	12878	12879	12880	12881	12882	12883	12884
7	1	2 7/8	359.15	12885	12886	12887	12888	12889	12890	12891	12892
7	1 1/4	3 3/8	377.68	12893	12894	12895	12896	12897	12898	12899	12900
7	1 1/2	3 5/8	410.47	12901	12902	12903	12904	12905	12906	12907	12908
8	1	2 7/8	182.73	12909	12910	12911	12912	12913	12914	12915	12916
8	1 1/4	3 1/4	365.28	12917	12918	12919	12920	12921	12922	12923	12924
8	1 1/2	3 1/2	387.97	12925	12926	12927	12928	12929	12930	12931	12932
9	1	2 3/4	166.24	12933	12934	12935	12936	12937	12938	12939	12940
9	1 1/4	3 1/8	375.57	12941	12942	12943	12944	12945	12946	12947	12948
10	7/8	2 3/8	147.77	12949	12950	12951	12952	12953	12954	12955	12956
10	1	2 3/4	166.24	12957	12958	12959	12960	12961	12962	12963	12964
10	1 1/4	3	337.57	12965	12966	12967	12968	12969	12970	12971	12972
11	7/8	2 3/8	267.72	12973	12974	12975	12976	12977	12978	12979	12980
11	1	2 5/8	318.12	12981	12982	12983	12984	12985	12986	12987	12988
12	7/8	2 1/4	165.19	12989	12990	12991	12992	12993	12994	12995	12996
12	1	2 5/8	177.53	12997	12998	12999	13000	13001	13002	13003	13004
12	1 1/4	2 7/8	284.15	13005	13006	13007	13008	13009	13010	13011	13012
14	7/8	2 1/8	99.61	13013	13014	13015	13016	13017	13018	13019	13020
14	1	2 1/2	175.48	13021	13022	13023	13024	13025	13026	13027	13028
16	7/8	2 1/8	158.13	13029	13030	13031	13032	13033	13034	13035	13036
16	1	2 1/2	175.48	13037	13038	13039	13040	13041	13042	13043	13044



INVOLUTE GEAR MILLING CUTTERS

High Speed Steel

14 1/2° Pressure Angle - Form Relieved

We Also Quote
Spline & Bevel Cutters!

Diametral Pitch	Hole Size	Dia.	List Price	1	2	3	4	5	6	7	8
18	7/8	2	\$129.30	13045	13046	13047	13048	13049	13050	13051	13052
18	1	2 3/8	259.71	13053	13054	13055	13056	13057	13058	13059	13060
20	7/8	2	129.30	13061	13062	13063	13064	13065	13066	13067	13068
20	1	2 3/8	259.71	13069	13070	13071	13072	13073	13074	13075	13076
22	7/8	2	243.17	13077	13078	13079	13080	13081	13082	13083	13084
22	1	2 1/4	275.03	13085	13086	13087	13088	13089	13090	13091	13092
24	7/8	1 3/4	227.67	13093	13094	13095	13096	13097	13098	13099	13100
24	1	2 1/4	275.03	13101	13102	13103	13104	13105	13106	13107	13108
26	7/8	1 3/4	264.18	13109	13110	13111	13112	13113	13114	13115	13116
26	1	2 1/4	264.18	13117	13118	13119	13120	13121	13122	13123	13124
28	7/8	1 3/4	289.22	13125	13126	13127	13128	13129	13130	13131	13132
28	1	2 1/4	289.22	13133	13134	13135	13136	13137	13138	13139	13140
30	7/8	1 3/4	289.22	13141	13142	13143	13144	13145	13146	13147	13148
30	1	2 1/4	289.22	13149	13150	13151	13152	13153	13154	13155	13156
32	7/8	1 3/4	218.62	13157	13158	13159	13160	13161	13162	13163	13164
32	1	2 1/4	218.62	13165	13166	13167	13168	13169	13170	13171	13172
36	7/8	1 3/4	289.22	13173	13174	13175	13176	13177	13178	13179	13180
36	1	2 1/4	289.22	13181	13182	13183	13184	13185	13186	13187	13188
40	7/8	1 3/4	289.22	13189	13190	13191	13192	13193	13194	13195	13196
40	1	2 1/4	289.22	13197	13198	13199	13200	13201	13202	13203	13204
48	7/8	1 3/4	218.62	13205	13206	13207	13208	13209	13210	13211	13212
48	1	2 1/4	218.62	13213	13214	13215	13216	13217	13218	13219	13220

INVOLUTE GEAR MILLING CUTTERS

High Speed Steel

20° Pressure Angle - Form Relieved

Diametral Pitch	Hole Size	Dia.	List Price	1	2	3	4	5	6	7	8
1	2	8 1/2	\$458.09	13251	13252	13253	13254	13255	13256	13257	13258
1 1/4	2	7 3/4	896.67	13259	13260	13261	13262	13263	13264	13265	13266
1 1/2	1 3/4	7	451.35	13267	13268	13269	13270	13271	13272	13273	13274
1 3/4	1 3/4	6 1/2	219.49	13275	13276	13277	13278	13279	13280	13281	13282
2	1 1/2	5 3/4	1005.18	13283	13284	13285	13286	13287	13288	13289	13290
2	1 3/4	6 1/2	161.30	13291	13292	13293	13294	13295	13296	13297	13298
2 1/2	1 1/2	5 3/4	959.34	13299	13300	13301	13302	13303	13304	13305	13306
2 1/2	1 3/4	6 1/8	1015.22	13307	13308	13309	13310	13311	13312	13313	13314
3	1 1/4	4 3/4	762.05	13315	13316	13317	13318	13319	13320	13321	13322
3	1 1/2	5 1/4	805.77	13323	13324	13325	13326	13327	13328	13329	13330
3	1 3/4	5 5/8	903.46	13331	13332	13333	13334	13335	13336	13337	13338
4	1	3 5/8	605.13	13339	13340	13341	13342	13343	13344	13345	13346
4	1 1/4	4 1/4	642.10	13347	13348	13349	13350	13351	13352	13353	13354
4	1 1/2	4 1/2	657.66	13355	13356	13357	13358	13359	13360	13361	13362
4	1 3/4	4 3/4	674.50	13363	13364	13365	13366	13367	13368	13369	13370
5	1	3 3/8	537.81	13371	13372	13373	13374	13375	13376	13377	13378
5	1 1/4	3 3/4	598.64	13379	13380	13381	13382	13383	13384	13385	13386
5	1 1/2	4 1/4	626.55	13387	13388	13389	13390	13391	13392	13393	13394
5	1 3/4	4 3/8	635.30	13395	13396	13397	13398	13399	13400	13401	13402
6	1	3 1/8	520.00	13403	13404	13405	13406	13407	13408	13409	13410
6	1 1/4	3 1/2	535.34	13411	13412	13413	13414	13415	13416	13417	13418
6	1 1/2	3 7/8	586.69	13419	13420	13421	13422	13423	13424	13425	13426
6	1 3/4	4 1/4	615.12	13427	13428	13429	13430	13431	13432	13433	13434
7	1	2 7/8	507.53	13435	13436	13437	13438	13439	13440	13441	13442
7	1 1/4	3 3/8	531.02	13443	13444	13445	13446	13447	13448	13449	13450
7	1 1/2	3 5/8	543.38	13451	13452	13453	13454	13455	13456	13457	13458



INVOLUTE GEAR MILLING CUTTERS

High Speed Steel - 20° Pressure Angle - Form Relieved

Diametrical Pitch	Hole Size	Dia.	List Price	1	2	3	4	5	6	7	8
8	1	2 7/8	486.11	13459	13460	13461	13462	13463	13464	13465	13466
8	1 1/4	3 1/4	514.33	13467	13468	13469	13470	13471	13472	13473	13474
8	1 1/2	3 1/2	524.37	13475	13476	13477	13478	13479	13480	13481	13482
9	1	2 3/4	482.92	13483	13484	13485	13486	13487	13488	13489	13490
9	1 1/4	3 1/8	518.76	13491	13492	13493	13494	13495	13496	13497	13498
10	7/8	2 3/8	463.86	13499	13500	13501	13502	13503	13504	13505	13506
10	1	2 3/4	476.07	13507	13508	13509	13510	13511	13512	13513	13514
10	1 1/4	3	487.55	13515	13516	13517	13518	13519	13520	13521	13522
11	7/8	2 3/8	461.70	13523	13524	13525	13526	13527	13528	13529	13530
11	1	2 5/8	470.86	13531	13532	13533	13534	13535	13536	13537	13538
12	7/8	2 1/4	457.37	13539	13540	13541	13542	13543	13544	13545	13546
12	1	2 5/8	470.86	13547	13548	13549	13550	13551	13552	13553	13554
12	1 1/4	2 7/8	479.52	13555	13556	13557	13558	13559	13560	13561	13562
14	7/8	2 1/8	455.93	13563	13564	13565	13566	13567	13568	13569	13570
14	1	2 1/2	457.06	13571	13572	13573	13574	13575	13576	13577	13578
16	7/8	2 1/8	440.27	13579	13580	13581	13582	13583	13584	13585	13586
16	1	2 1/2	457.06	13587	13588	13589	13590	13591	13592	13593	13594
18	7/8	2	436.87	13595	13596	13597	13598	13599	13600	13601	13602
18	1	2 3/8	458.35	13603	13604	13605	13606	13607	13608	13609	13610
20	7/8	2	432.45	13611	13612	13613	13614	13615	13616	13617	13618
20	1	2 3/8	432.45	13619	13620	13621	13622	13623	13624	13625	13626
22	7/8	2	432.45	13627	13628	13629	13630	13631	13632	13633	13634
22	1	2 1/4	438.06	13635	13636	13637	13638	13639	13640	13641	13642
24	7/8	1 3/4	428.02	13643	13644	13645	13646	13647	13648	13649	13650
24	1	2 1/4	434.20	13651	13652	13653	13654	13655	13656	13657	13658
26	7/8	1 3/4	428.02	13659	13660	13661	13662	13663	13664	13665	13666
26	1	2 1/4	428.02	13667	13668	13669	13670	13671	13672	13673	13674
28	7/8	1 3/4	428.02	13675	13676	13677	13678	13679	13680	13681	13682
28	1	2 1/4	428.02	13683	13684	13685	13686	13687	13688	13689	13690
30	7/8	1 3/4	428.02	13691	13692	13693	13694	13695	13696	13697	13698
30	1	2 1/4	428.02	13699	13700	13701	13702	13703	13704	13705	13706
32	7/8	1 3/4	428.02	13707	13708	13709	13710	13711	13712	13713	13714
32	1	2 1/4	428.02	13715	13716	13717	13718	13719	13720	13721	13722
36	7/8	1 3/4	428.02	13723	13724	13725	13726	13727	13728	13729	13730
36	1	2 1/4	428.02	13731	13732	13733	13734	13735	13736	13737	13738
40	7/8	1 3/4	428.02	13739	13740	13741	13742	13743	13744	13745	13746
40	1	2 1/4	428.02	13747	13748	13749	13750	13751	13752	13753	13754
48	7/8	1 3/4	428.02	13755	13756	13757	13758	13759	13760	13761	13762
48	1	2 1/4	428.02	13763	13764	13765	13766	13767	13768	13769	13770

INVOLUTE GEAR MILLING CUTTERS FOR BEVEL GEARS

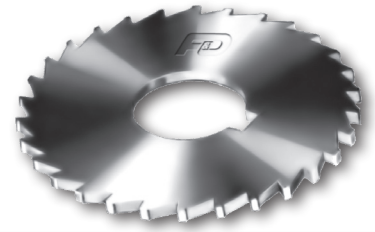
High Speed Steel - 14 1/2° Pressure Angle

Diametrical Pitch	Hole Size	Dia.	List Price	1	2	3	4	5	6	7	8
3	1 1/4	4	*	13800	13801	13802	13803	13804	13805	13806	13807
4	1 1/4	3 5/8	*	13808	13809	13810	13811	13812	13813	13814	13815
5	1 1/4	3 3/8	*	13816	13817	13818	13819	13820	13821	13822	13823
6	1	3 1/8	*	13824	13825	13826	13827	13828	13829	13830	13831
7	1	2 7/8	*	13832	13833	13834	13835	13836	13837	13838	13839
8	1	2 7/8	*	13840	13841	13842	13843	13844	13845	13846	13847
10	7/8	2 3/8	*	13848	13849	13850	13851	13852	13853	13854	13855
12	7/8	2 1/4	*	13856	13857	13858	13859	13860	13861	13862	13863
14	7/8	2 1/8	*	13864	13865	13866	13867	13868	13869	13870	13871
16	7/8	2 1/8	*	13872	13873	13874	13875	13876	13877	13878	13879
20	7/8	2	*	13880	13881	13882	13883	13884	13885	13886	13887
24	7/8	1 3/4	*	13888	13889	13890	13891	13892	13893	13894	13895

* Call for Pricing

PLAIN SLITTING SAWS HIGH SPEED STEEL

Regularly furnished with 5°-7° clearance for general purpose slitting.



Catalog EDI-Number	Dia.	Face Width	# of Teeth	Hole Size	List Price
14676-B2000	1 1/4	1/32	28	1/2	\$30.42
14677-B2002	1 1/4	1/16	28	1/2	30.42
14678-B2010	1 1/2	1/32	32	1/2	34.14
14679-B2012	1 1/2	1/16	26	1/2	34.14
14680-B2014	1 1/2	3/32	26	1/2	35.32
14681-B2016	1 1/2	1/8	26	1/2	36.74
14682-B2020	1 3/4	1/32	30	1/2	37.15
14683-B2022	1 3/4	1/16	24	1/2	37.15
14684-B2024	1 3/4	3/32	24	1/2	37.87
14685-B2026	1 3/4	1/8	30	1/2	39.03
14686-B2030	2	1/32	38	1/2	39.03
14687-B2032	2	1/16	28,34	1/2	39.03
14688-B2034	2	3/32	28,34	1/2	32.25
14689-B2036	2	1/8	28,34	1/2	42.7
14690-B2038	2	5/32	34	1/2	44.58
14691-B2040	2	3/16	34	1/2	48.7
14692-B210	2 1/2	1/32	28	7/8	45.9
14693-B212	2 1/2	3/64	28	7/8	45.9
14694-B214	2 1/2	1/16	28	7/8	45.9
14695-B216	2 1/2	3/32	28	7/8	47.35
14696-B218	2 1/2	1/8	28	7/8	48.47
14697-B219	3	1/64	30	1	48.1
14698-B220	3	1/32	30	1	50.68
14699-B222	3	3/64	30	1	50.68
14700-B224	3	1/16	30	1	51.8
14701-B225	3	5/64	30	1	52.68
14702-B226	3	3/32	30	1	54.62
14703-B227	3	7/64	30	1	55.08
14704-B228	3	1/8	30	1	55.39
14705-B229	3	9/64	30	1	58.34
14706-B230	3	5/32	30	1	63.72
14707-B2302	3	11/64	30	1	63.26
14708-B2304	3	3/16	30	1	72.29
14709-B2305	3 1/2	1/32	30	1	55.43
14710-B2306	3 1/2	3/64	30	1	56.42
14711-B2307	3 1/2	1/16	30	1	57.74
14712-B2308	3 1/2	3/32	30	1	61.29
14713-B2309	3 1/2	1/8	30	1	66.6
14713B-B2309B	3 1/2	3/16	36	1	72.75
14714-B231	4	1/64	36	1	55.93
14715-B232	4	1/32	36	1	60.55
14716-B234	4	3/64	36	1	61.8
14717-B236	4	1/16	36	1	63.72
14718-B237	4	5/64	36	1	61.22
14719-B238	4	3/32	36	1	67.97
14720-B239	4	7/64	36	1	66.6
14721-B240	4	1/8	36	1	77.87
14722-B241	4	9/64	36	1	84.57
14723-B242	4	5/32	36	1	94.92
14724-B243	4	11/64	36	1	86.19

Catalog EDI-Number	Dia.	Face Width	# of Teeth	Hole Size	List Price
14725-B244	4	3/16	36	1	102.16
14726-B2451	4 1/2	1/32	36	1	60.77
14727-B2452	4 1/2	3/64	36	1	62.53
14728-B2453	4 1/2	1/16	36	1	68.64
14729-B2454	4 1/2	3/32	36	1	77.59
14730-B2455	4 1/2	1/8	36	1	91.06
14761-B2456	5	1/32	40	1	65.57
14762-B2457	5	1/32	40	1 1/4	65.57
14731-B2458	5	3/64	40	1	70.8
14763-B2459	5	3/64	40	1 1/4	70.8
14732-B246	5	1/16	40	1	79.17
14764-B2461	5	1/16	40	1 1/4	79.17
14733-B247	5	5/64	40	1	83.24
14734-B248	5	3/32	40	1	90.1
14765-B2481	5	3/32	40	1 1/4	90.1
14735-B249	5	7/64	40	1	97.17
14766-B2491	5	7/64	40	1 1/4	97.17
14736-B250	5	1/8	40	1	104.25
14738-B252	5	1/8	40	1 1/4	104.25
14737-B251	5	9/64	40	1	115.63
14739-B253	5	9/64	40	1 1/4	115.63
14740-B254	5	5/32	40	1	127.24
14767-B255	5	5/32	40	1 1/4	127.24
14741-B256	5	3/16	40	1	132.32
14768-B2561	5	3/16	40	1 1/4	132.32
14742-B257	6	3/64	42,44	1	90.29
14743-B258	6	1/16	42,44	1	100.7
14743A-B2581	6	1/16	42,44	1 1/4	100.7
14744-B259	6	5/64	42,44	1	104.33
14745-B260	6	3/32	42,44	1	107.96
14746-B261	6	7/64	42,44	1	123.85
14747-B262	6	1/8	42,44	1	139.78
14748-B264	6	1/8	42,44	1 1/4	139.78
14749-B2650	6	9/64	42,44	1	155.82
14750-B2655	6	5/32	42,44	1	164.24
14751-B266	6	3/16	42,44	1	184.48
14752-B268	6	3/16	42,44	1 1/4	184.48
14752A-B269	8	3/32	48	1	242.05
14752B-B270	8	3/32	48	1 1/4	242.05
14753-B272	8	1/8	48	1	229.51
14754-B274	8	1/8	48	1 1/4	229.51
SP14754A-B275	8	3/16	48	1	*
14755-B276	8	3/16	48	1 1/4	267.26
14755A-B277	8	1/4	48	1 1/4	322.13
14756-B282	10	3/32	56	1 1/4	400.61
14757-B284	10	1/8	56	1 1/4	410.91
14758-B286	10	3/16	56	1 1/4	438.93
14759-B299	10	1/4	62	1 1/4	526.61

SLITTING SAWS WITH SIDE CHIP CLEARANCE HIGH SPEED STEEL

This type of saw is similar to a thin side milling cutter, especially designed for slotting and particularly well adapted for deep cuts in steel. For wider cuts we recommend a staggered tooth saw.



Catalog EDI-Number	Dia.	Face Width	Hole Size	List Price
14808-B411	2	3/32	5/8	\$69.26
14809-B412	2	1/8	5/8	73.17
14810-B413	2	5/32	5/8	76.92
14811-B414	2 1/2	1/16	7/8	57.64
14812-B414A	2 1/2	1/16	1	67.84
14813-B415	2 1/2	5/64	7/8	63.07
14814-B416	2 1/2	3/32	7/8	54.37
14815-B416A	2 1/2	3/32	1	67.84
14816-B417	2 1/2	7/64	7/8	64.35
14817-B418	2 1/2	1/8	7/8	54.37
14818-B418A	2 1/2	1/8	1	83.75
14819-B419	2 1/2	9/64	7/8	65.70
14820-B420	2 1/2	11/64	7/8	68.93
14821-B421	2 1/2	3/16	7/8	74.41
14823-B424	3	1/16	1	71.63
14824-B425	3	5/64	1	83.22
14825-B425A	3	5/64	1 1/4	121.04
14826-B426	3	3/32	1	63.90
14827-B427	3	7/64	1	84.45
14828-B427A	3	7/64	1 1/4	123.17
14829-B428	3	1/8	1	67.53
14830-B429	3	9/64	1	84.39
14831-B429A	3	9/64	1 1/4	124.84
14832-B430	3	5/32	1	63.90
14833-B431	3	11/64	1	92.31
14834-B431A	3	11/64	1 1/4	128.12
14835-B432	3	3/16	1	94.96
14836-B432A	3	3/16	1 1/4	130.70
14836B-B433	3	13/64	1	97.65
14836C-B433A	3	13/64	1 1/4	133.34
14837-B434	3	7/32	1	95.14
14838-B434A	3	7/32	1 1/4	112.66
14838B-B434B	3	15/64	1	98.62
14838C-B434C	3	15/64	1 1/4	122.26
14839-B435	3	1/4	1	95.67
14840-B435A	3	1/4	1 1/4	131.09
14841-B436	4	1/16	1	88.15
14842-B436A	4	1/16	1 1/4	111.37

Catalog EDI-Number	Dia.	Face Width	Hole Size	List Price
14843-B437	4	5/64	1	\$115.89
14844-B437A	4	5/64	1 1/4	115.89
14845-B438	4	3/32	1	84.51
14846-B438A	4	3/32	1 1/4	111.31
14847-B439	4	7/64	1	121.61
14848-B439A	4	7/64	1 1/4	121.61
14849-B440	4	1/8	1	83.48
14850-B440A	4	1/8	1 1/4	115.57
14851-B441	4	9/64	1	124.32
14852-B441A	4	9/64	1 1/4	124.32
14853-B442	4	5/32	1	86.70
14854-B442A	4	5/32	1 1/4	120.84
14855-B443	4	11/64	1	127.68
14856-B443A	4	11/64	1 1/4	127.68
14857-B444	4	3/16	1	92.05
14858-B444A	4	3/16	1 1/4	115.43
14858B-B444B	4	13/64	1	131.35
14858C-B444C	4	13/64	1 1/4	131.35
14859-B445	4	7/32	1	123.81
14860-B445A	4	7/32	1 1/4	123.81
14860B-B4451	4	15/64	1	131.74
14860C-B4452	4	15/64	1 1/4	131.74
14861-B445B	4	1/4	1	124.84
14862-B445C	4	1/4	1 1/4	124.84
14863-B446	5	1/16	1	113.75
14864-B446A	5	1/16	1 1/4	136.30
14865-B448	5	3/32	1	110.15
14866-B448A	5	3/32	1 1/4	144.81
14867-B449	5	7/64	1	146.55
14868-B449A	5	7/64	1 1/4	146.55
14869-B450	5	1/8	1	112.73
14870-B452	5	1/8	1 1/4	112.73
14871-B453	5	9/64	1	150.09
14872-B453A	5	9/64	1 1/4	150.09
14873-B454	5	5/32	1	117.04
14874-B454A	5	5/32	1 1/4	155.11
14875-B455	5	11/64	1	152.09
14876-B455A	5	11/64	1 1/4	152.09
14877-B456	5	3/16	1	121.61

**SLITTING SAWS WITH SIDE CHIP CLEARANCE
HIGH SPEED STEEL**


Catalog EDI-Number	Dia.	Face Width	Hole Size	List Price
14878-B456A	5	3/16	1 1/4	\$153.38
14878B-B456B	5	7/32	1 1/4	153.38
14878C-B456C	5	7/32	1	153.38
14878D-B457	5	1/4	1 1/4	161.89
14878E-B457A	5	1/4	1	161.89
14879-B458	6	1/16	1	141.09
14880-B458A	6	1/16	1 1/4	206.21
14880B-B459	6	5/64	1 1/4	206.97
14880C-B459A	6	5/64	1	206.97
14881-B460	6	3/32	1	139.07
14882-B460A	6	3/32	1 1/4	205.04
14883-B461	6	7/64	1	210.96
14884-B461A	6	7/64	1 1/4	210.96
14885-B462	6	1/8	1	143.58
14886-B464	6	1/8	1 1/4	143.58
14887-B464A	6	9/64	1	217.79
14888-B464B	6	9/64	1 1/4	217.79
14889-B465	6	5/32	1	201.37
14890-B465B	6	5/32	1 1/4	201.37
14891-B465C	6	11/64	1	214.89
14892-B465F	6	11/64	1 1/4	214.89
14893-B466	6	3/16	1	159.69
14894-B468	6	3/16	1 1/4	159.69
14894B-B4681	6	13/64	1 1/4	215.86
14894C-B4682	6	13/64	1	215.86
14894D-B4683	6	7/32	1 1/4	200.53
14894E-B4684	6	7/32	1	200.53
14895F-B4685	6	15/64	1 1/4	219.28
14895G-B4686	6	15/64	1	219.28
14895H-B4687	6	1/4	1 1/4	203.36
14895I-B4688	6	1/4	1	203.36
14895J-B469	6	17/64	1 1/4	230.61
14895K-B4691	6	17/64	1	230.61
14895L-B4692	6	9/32	1 1/4	221.14
14895M-B4693	6	9/32	1	221.14
14895N-B4694	6	19/64	1 1/4	230.68
14895O-B4695	6	19/64	1	230.68
14895P-B4696	6	5/16	1 1/4	222.23
14895Q-B4697	6	5/16	1	222.23
14895R-B470	6	21/64	1 1/4	234.16
14895S-B4701	6	21/64	1	234.16
14895T-B4702	6	11/32	1 1/4	225.71
14895U-B4703	6	11/32	1	225.71

Catalog EDI-Number	Dia.	Face Width	Hole Size	List Price
14894V-B4704	6	23/64	1 1/4	\$244.07
14894W-B4705	6	23/64	1	244.07
14894X-B4706	6	3/8	1 1/4	235.77
14894Y-B4707	6	3/8	1	235.77
14894Z-B4708	7	1/8	1 1/4	317.19
14895B-B4709	7	1/8	1	317.19
14895C-B471	7	3/16	1 1/4	317.19
14895D-B4712	7	3/16	1	317.19
14895-B471A	8	3/32	1	413.33
14896-B471B	8	3/32	1 1/4	413.33
14897-B472	8	1/8	1	331.79
14898-B474	8	1/8	1 1/4	331.79
14898B-B474A	8	1/8	1 1/2	352.68
14898C-B475	8	5/32	1 1/4	375.74
14898D-B475A	8	5/32	1 1/2	375.74
14899-B476	8	3/16	1 1/4	326.80
14899B-B476A	8	3/16	1 1/2	372.65
14899C-B476B	8	7/32	1 1/4	386.24
14899D-B476C	8	7/32	1 1/2	386.24
14900-B477	8	1/4	1 1/4	375.99
14900B-B477A	8	1/4	1 1/2	407.56
14900C-B478	8	3/8	1 1/4	426.88
14900D-B478A	8	3/8	1 1/2	436.80
14901-B480	10	3/32	1 1/4	858.61
14902-B482	10	3/32	1 1/2	976.30
14903-B484	10	1/8	1 1/4	818.48
14904-B484A	10	1/8	1 1/2	818.48
14904B-B485	10	5/32	1 1/4	713.22
14905-B486	10	3/16	1 1/4	645.78
14906-B486A	10	3/16	1 1/2	645.78
14906B-B487	10	7/32	1 1/4	698.27
14906C-B487A	10	7/32	1 1/2	698.27
14907-B488	10	1/4	1 1/4	616.66
14908-B488A	10	1/4	1 1/2	681.46
14908B-B489	10	3/8	1 1/4	788.97
14908C-B489A	10	3/8	1 1/2	788.97
14909-B490	12	1/8	1 1/4	1,306.04
14910-B490A	12	1/8	1 1/2	1,306.04
14911-B494	12	3/16	1 1/4	1,210.25
14912-B494A	12	3/16	1 1/2	1,210.25
14913-B496	12	1/4	1 1/4	957.35
14914-B498	12	1/4	1 1/2	845.65
14914B-B499	12	5/16	1 1/2	990.27
14914C-B499A	12	3/8	1 1/2	1,060.02

Catalog EDI-Number	Dia.	Width of Face	Hole Size	List Price
14966-B618	2 1/2	1/16	1	\$94.98
14967-B620	2 1/2	3/32	1	98.18
14968-B622	2 1/2	1/8	1	98.18
14969-B624	3	1/16	1	112.06
14970-B624A	3	1/16	1 1/4	112.06
14971-B625	3	5/64	1	112.73
14972-B625A	3	5/64	1 1/4	112.73
14973-B626	3	3/32	1	87.74
14974-B626A	3	3/32	1 1/4	99.40
14975-B627	3	7/64	1	114.14
14976-B627A	3	7/64	1 1/4	114.14
14977-B628	3	1/8	1	89.28
14978-B628A	3	1/8	1 1/4	101.52
14979-B629	3	9/64	1	116.85
14980-B629A	3	9/64	1 1/4	116.85
14981-B630	3	5/32	1	91.21
14982-B630A	3	5/32	1 1/4	103.91
14983-B630B	3	11/64	1	105.19
14984-B630C	3	11/64	1 1/4	105.19
14985-B631	3	3/16	1	73.12
14986-B631A	3	3/16	1 1/4	119.04
14987-B633	3	7/32	1	98.24
14988-B633A	3	7/32	1 1/4	125.09
14988B-B634	3	1/4	1	98.11
14989-B636	4	1/16	1	159.56
14990-B636A	4	1/16	1 1/4	159.56
14991-B637	4	5/64	1	140.87
14992-B637A	4	5/64	1 1/4	140.87
14993-B638	4	3/32	1	116.40
14994-B638A	4	3/32	1 1/4	116.40
14995-B639	4	7/64	1	145.14
14996-B639A	4	7/64	1 1/4	145.14
14997-B640	4	1/8	1	116.72
14998-B640A	4	1/8	1 1/4	116.72
14999-B641	4	9/64	1	149.06
15000-B641A	4	9/64	1 1/4	149.06
15001-B642	4	5/32	1	125.23
15002-B642A	4	5/32	1 1/4	125.23
15003-B643	4	11/64	1	151.32
15004-B643A	4	11/64	1 1/4	151.32
15005-B644	4	3/16	1	95.85
15006-B644A	4	3/16	1 1/4	120.65
15007-B645	4	7/32	1	144.35
15008-B645A	4	7/32	1 1/4	144.35
15009-B646	4	1/4	1	141.40
15010-B646A	4	1/4	1 1/4	141.40
15010B-B648	5	3/32	1	173.47
15010C-B648A	5	3/32	1 1/4	173.47
15011-B652	5	1/8	1	168.64
15012-B652A	5	1/8	1 1/4	168.64
15013-B653	5	9/64	1	181.14
15014-B653A	5	9/64	1 1/4	181.14
15015-B654	5	5/32	1	178.37
15016-B654A	5	5/32	1 1/4	178.37
15017-B655	5	11/64	1	206.46
15018-B655A	5	11/64	1 1/4	206.46
15019-B656	5	3/16	1	126.32
15020-B656A	5	3/16	1 1/4	152.73
15020B-B656B	5	7/32	1	184.56

Catalog EDI-Number	Dia.	Width of Face	Hole Size	List Price
15020C-B656C	5	7/32	1 1/4	\$184.56
15021-B657	5	1/4	1	131.21
15022-B657A	5	1/4	1 1/4	153.76
15023A-B660A	6	1/16	1	406.47
15023-B660	6	1/16	1 1/4	406.47
15024-B662	6	1/8	1	207.94
15025-B664	6	1/8	1 1/4	207.94
15026-B664A	6	9/64	1	239.43
15027-B664B	6	9/64	1 1/4	239.43
15028-B665A	6	5/32	1	228.48
15029-B665B	6	5/32	1 1/4	228.48
15030-B665C	6	11/64	1	258.44
15031-B665F	6	11/64	1 1/4	258.44
15032-B666	6	3/16	1	162.46
15033-B668	6	3/16	1 1/4	162.46
15033B-B668A	6	7/32	1	227.32
15033C-B668B	6	7/32	1 1/4	227.32
15034-B669	6	1/4	1	171.22
15035-B670	6	1/4	1 1/4	171.22
15035B-B670A	6	3/8	1	257.09
15035C-B670B	6	3/8	1 1/4	257.09
15036-B6701	7	1/8	1	337.98
15037-B6702	7	1/8	1 1/4	337.98
15038-B6705	7	3/16	1	343.72
15039-B6706	7	3/16	1 1/4	343.72
15041-B6715	8	1/16	1 1/4	514.84
15042-B6718	8	3/32	1	508.38
15043-B6719	8	3/32	1 1/4	508.38
15044-B672	8	1/8	1	357.31
15045-B672A	8	1/8	1 1/4	357.31
15045B-B672B	8	5/32	1 1/4	389.53
15045C-B672C	8	5/32	1 1/2	389.53
15046-B675	8	3/16	1	345.30
15047-B676	8	3/16	1 1/4	414.97
15047B-B676A	8	7/32	1 1/4	415.17
15047C-B676B	8	7/32	1 1/2	415.17
15048-B677	8	1/4	1 1/4	418.38
15048B-B678	8	1/4	1 1/2	418.38
15048C-B679	8	3/8	1 1/4	461.35
15048D-B680	8	3/8	1 1/2	461.35
15048E-B681	10	3/32	1 1/4	992.59
15049-B682	10	1/8	1 1/4	873.17
15050-B682A	10	1/8	1 1/2	873.17
15050B-B685	10	5/32	1 1/4	787.61
15051-B686	10	3/16	1 1/4	626.46
15052-B686A	10	3/16	1 1/2	626.46
15052B-B687	10	7/32	1 1/4	697.43
15052C-B687A	10	7/32	1 1/2	697.43
15053-B688	10	1/4	1 1/4	655.44
15054-B688A	10	1/4	1 1/2	655.44
15054B-B689	10	3/8	1 1/4	872.33
15054C-B689A	10	3/8	1 1/2	872.33
15055-B690	12	1/8	1 1/4	1,365.28
15056-B690A	12	1/8	1 1/2	1,365.28
15057-B691	12	3/16	1 1/4	1,324.35
15058-B691A	12	3/16	1 1/2	1,324.35
15059-B692	12	1/4	1 1/2	891.65
15060-B694	12	5/16	1 1/2	1,024.70
15061-B695	12	3/8	1 1/2	1,181.77

SLITTING SAW WITH STAGGERED TEETH HIGH SPEED STEEL

This type of saw resembles a staggered tooth side milling cutter. It is a fast, easy cutting saw due to the alternate helical tooth form which provides a shearing action and plenty of chip space between the side teeth. It is made specifically for deeper cuts and coarser feeds.



SLITTING SAWS WITH STAGGERED TEETH M42 COBALT

Cobalt staggered tooth saws with alternate helical teeth are manufactured for heavy duty cutting.



Catalog EDI-Number	Dia.	Width	Hole Size	List Price
16164-BX628	3	1/8	1	\$129.36
16166-BX630	3	5/32	1	135.57
16168-BX631	3	3/16	1	139.11
16170-BX634	3	1/4	1	141.78
16172-BX640	4	1/8	1	173.20
16174-BX640A	4	1/8	1 1/4	173.20
16176-BX642	4	5/32	1	185.44
16178-BX642A	4	5/32	1 1/4	185.44
16180-BX644	4	3/16	1	190.37
16182-BX644A	4	3/16	1 1/4	190.37
16184-BX646	4	1/4	1	198.40
16186-BX646A	4	1/4	1 1/4	198.40
16188-BX664	6	1/8	1 1/4	331.30
16190-BX665B	6	5/32	1 1/4	342.05
16192-BX668	6	3/16	1 1/4	347.61
16194-BX670	6	1/4	1 1/4	369.56

SLITTING SAWS WITH SIDE CHIP CLEARANCE M42 COBALT

Cobalt slitting saws with straight side teeth are for finer finishing & longer life. They are manufactured to make deep slotting cuts in harder machining materials.



Catalog EDI-Number	Dia.	Width	Hole Size	List Price
16120-BX424	3	1/16	1	\$101.90
16122-BX426	3	3/32	1	102.15
16124-BX428	3	1/8	1	108.63
16126-BX430	3	5/32	1	111.57
16128-BX432	3	3/16	1	119.06
16130-BX434	3	1/4	1	124.48
16132-BX436	4	1/16	1	165.24
16134-BX436A	4	1/16	1 1/4	165.24
16136-BX438	4	3/32	1	162.50
16138-BX438A	4	3/32	1 1/4	162.50
16140-BX440	4	1/8	1	170.06
16142-BX440A	4	1/8	1 1/4	170.06
16144-BX442	4	5/32	1	177.42
16146-BX442A	4	5/32	1 1/4	177.42
16148-BX444	4	3/16	1	179.28
16150-BX444A	4	3/16	1 1/4	179.28
16152-BX445B	4	1/4	1	187.31
16154-BX445C	4	1/4	1 1/4	187.31
16156-BX462	6	1/8	1 1/4	321.91
16158-BX465B	6	5/32	1 1/4	337.21
16160-BX468	6	3/16	1 1/4	340.61
16162-BX470	6	1/4	1 1/4	343.29

SLITTING & SLOTTING SAW ARBORS FOR SCREW AND JEWELER'S SAWS

These hardened and ground arbors provide an extended reach for general purpose slitting applications. These arbors are **not** keyed.

Standard Arbor tolerance is .002"

Premium Arbor tolerance is .0004"



STANDARD ARBORS					
Catalog EDI-Number	Hole Dia.	Shank Dia.	Arbor Dia.	Overall Length	List Price
56001	1/4	1/2	1/2	2 3/4	\$43.10
56002	3/8	1/2	5/8	2 7/8	54.56
56003	1/2	1/2	3/4	3 1/16	57.39
56004	Set of Three 1/4 - 1/2				148.67
56005	5/8	3/4	1	3 1/2	61.71
56006	1	3/4	1 1/2	3 3/4	66.80
56007	1 1/4	3/4	1 3/4	4 1/16	76.34
56008	Set of Three 5/8 - 1 1/4				196.20

PREMIUM ARBORS					
Catalog EDI-Number	Hole Dia.	Shank Dia.	Arbor Dia.	Overall Length	List Price
56101	1/4	1/2	1/2	2 3/4	\$118.66
56102	3/8	1/2	5/8	2 7/8	126.90
56103	1/2	1/2	3/4	3 1/16	128.45
56104	Set of Three 1/4 - 1/2				360.47
56105	5/8	3/4	1	3 1/2	145.32
56106	1	3/4	1 1/2	3 3/4	165.55
56107	1 1/4	3/4	1 3/4	4 1/16	173.99
56108	Set of Three 5/8 - 1 1/4				457.48

SCREW SLOTTING SAWS - HIGH SPEED STEEL

Catalog EDI-Number 72 Teeth	Catalog EDI-Number 56 Teeth	Dia.	Width	Hole	Gauge	List Price
15111-B810	15203-B810	2 3/4	.182	1	5	\$56.06
15112-B812	15204-B812	2 3/4	.162	1	6	46.97
15113-B814	15205-B814	2 3/4	.144	1	7	39.02
15114-B816	15206-B816	2 3/4	.128	1	8	33.05
15115-B817	-	2 3/4	.128	3/4	8	39.23
15116-B818	15207-B818	2 3/4	.114	1	9	32.09
15117-B819	-	2 3/4	.114	3/4	9	37.89
15118-B820	15208-B820	2 3/4	.102	1	10	28.96
15119-B821	-	2 3/4	.102	3/4	10	33.27
15120-B822	15209-B822	2 3/4	.091	1	11	30.67
15121-B823	-	2 3/4	.091	3/4	11	36.47
15122-B824	15210-B824	2 3/4	.081	1	12	28.59
15123-B825	-	2 3/4	.081	3/4	12	35.07
15124-B826	15211-B826	2 3/4	.072	1	13	24.72
15125-B827	-	2 3/4	.072	3/4	13	33.27
15126-B828	15212-B828	2 3/4	.064	1	14	24.72
15127-B829	-	2 3/4	.064	3/4	14	30.67
15128-B830	15213-B830	2 3/4	.057	1	15	24.72
15129-B831	-	2 3/4	.057	3/4	15	30.67
15130-B832	15214-B832	2 3/4	.051	1	16	23.60
15131-B833	-	2 3/4	.051	3/4	16	29.47
15132-B834	15215-B834	2 3/4	.045	1	17	23.60
15133-B835	-	2 3/4	.045	3/4	17	27.54
15134-B836	15216-B836	2 3/4	.040	1	18	21.37
15135-B837	-	2 3/4	.040	3/4	18	27.54
15136-B838	15217-B838	2 3/4	.036	1	19	20.11
15137-B839	-	2 3/4	.036	3/4	19	26.57
15138-B840	15218-B840	2 3/4	.032	1	20	18.39
15139-B841	-	2 3/4	.032	3/4	20	18.39
15140-B842	15219-B842	2 3/4	.028	1	21	20.11
15141-B843	-	2 3/4	.028	3/4	21	26.57
15142-B844	15220-B844	2 3/4	.025	1	22	20.11
15143-B845	-	2 3/4	.025	3/4	22	27.54
15144-B846	15221-B846	2 3/4	.023	1	23	20.11
15145-B847	-	2 3/4	.023	3/4	23	28.96
15146-B848	15222-B848	2 3/4	.020	1	24	20.40
15147-B849	-	2 3/4	.020	3/4	24	28.06
15148-B8481	-	2 3/4	.018	3/4	25	21.59
15149-B8491	15223-B8491	2 3/4	.018	1	25	22.77
15150-B8482	-	2 3/4	.016	3/4	26	23.60
15151-B8492	15224-B8492	2 3/4	.016	1	26	23.97
15152-B8483	-	2 3/4	.014	3/4	27	26.57
15153-B8493	15225-B8493	2 3/4	.014	1	27	26.35
15154-B8484	-	2 3/4	.012	3/4	28	28.06
15155-B8494	15226-B8494	2 3/4	.012	1	28	27.18
15156-B8485	-	2 3/4	.010	3/4	30	29.47
15157-B8495	15227-B8495	2 3/4	.010	1	30	31.12
15158-B8486	-	2 3/4	.008	3/4	32	33.94
15159-B8486	15228-B8486	2 3/4	.008	1	32	36.33
15160-B8487	-	2 3/4	.006	3/4	34	39.23
15161-B8488	15229-B8488	2 3/4	.006	1	34	29.18



These cutters are made from finely tempered high speed steel and designed for efficient milling of slots such as those on heads of screws or any other similar operations. Standard screw slotting saws are available in 1 3/4" dia. with 90T, 2 1/4" dia. with 60T and 2 3/4" dia. with 72T. Also available in a 2 3/4" dia. and 1" hole with 56T at no additional cost.

Catalog EDI-Number	Dia.	Width	Hole	Gauge	List Price
15162-B8496	2 1/4	.102	5/8	10	\$27.54
15163-B8497	2 1/4	.091	5/8	11	25.62
15164-B8498	2 1/4	.081	5/8	12	24.12
15165-B8499	2 1/4	.072	5/8	13	23.60
15166-B850	2 1/4	.064	5/8	14	20.92
15167-B852	2 1/4	.057	5/8	15	20.92
15168-B854	2 1/4	.051	5/8	16	23.00
15169-B856	2 1/4	.045	5/8	17	23.00
15170-B858	2 1/4	.040	5/8	18	21.43
15171-B860	2 1/4	.036	5/8	19	18.61
15172-B862	2 1/4	.032	5/8	20	18.61
15173-B864	2 1/4	.028	5/8	21	20.33
15174-B866	2 1/4	.025	5/8	22	19.58
15175-B868	2 1/4	.023	5/8	23	19.58
15176-B870	2 1/4	.020	5/8	24	21.37
15177-B8701	2 1/4	.018	5/8	25	20.78
15178-B8702	2 1/4	.016	5/8	26	21.43
15179-B8703	2 1/4	.014	5/8	27	23.22
15180-B8704	2 1/4	.012	5/8	29	23.97
15181-B8705	2 1/4	.010	5/8	30	26.13
15182-B8706	2 1/4	.008	5/8	32	29.47
15183-B8707	2 1/4	.006	5/8	34	32.60
15184-B8719	1 3/4	.072	5/8	13	22.18
15185-B872	1 3/4	.064	5/8	14	19.43
15186-B874	1 3/4	.057	5/8	15	18.16
15187-B876	1 3/4	.051	5/8	16	15.12
15188-B878	1 3/4	.045	5/8	17	15.12
15189-B880	1 3/4	.040	5/8	18	15.12
15190-B882	1 3/4	.036	5/8	19	15.12
15191-B884	1 3/4	.032	5/8	20	15.12
15192-B886	1 3/4	.028	5/8	21	15.12
15193-B888	1 3/4	.025	5/8	22	15.12
15194-B890	1 3/4	.023	5/8	23	15.12
15195-B892	1 3/4	.020	5/8	24	16.53
15196-B8921	1 3/4	.018	5/8	25	20.40
15197-B8922	1 3/4	.016	5/8	26	21.37
15198-B8923	1 3/4	.014	5/8	27	22.18
15199-B8924	1 3/4	.012	5/8	28	22.10
15200-B8925	1 3/4	.010	5/8	30	23.97
15201-B8926	1 3/4	.008	5/8	32	26.13
15202-B8927	1 3/4	.006	5/8	31	28.59



JEWELER'S SLOTTING SAWS - HIGH SPEED STEEL

These saws are designed for cutting off thin tubing, wire or like materials and for slotting very thin material.

SOME SAWS SUPPLIED WITHOUT KEYWAYS

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15251-J101	1	.006	1/4	30	98	\$16.28
15252-J101	1	.006	5/16	30	98	16.28
15253-J101	1	.006	3/8	30	98	16.28
15254-J101	1	.006	1/2	30	98	16.28
15255-J102	1	.008	1/4	30	98	13.77
15256-J102	1	.008	5/16	30	98	13.77
15257-J102	1	.008	3/8	30	98	13.77
15258-J102	1	.008	1/2	30	98	13.77
15259-J103	1	.010	1/4	30	98	12.04
15260-J103	1	.010	5/16	30	98	12.04
15261-J103	1	.010	3/8	30	98	12.04
15262-J103	1	.010	1/2	30	98	12.04
15263-J104	1	.012	1/4	30	98	12.04
15264-J104	1	.012	5/16	30	98	12.04
15265-J104	1	.012	3/8	30	98	12.04
15266-J104	1	.012	1/2	30	98	12.04
15267-J105	1	.014	1/4	24	76	11.48
15268-J105	1	.014	5/16	24	76	11.48
15269-J105	1	.014	3/8	24	76	11.48
15270-J105	1	.014	1/2	24	76	11.48
15271-J106	1	.016	1/4	24	76	10.93
15272-J106	1	.016	5/16	24	76	10.93
15273-J106	1	.016	3/8	24	76	10.93
15274-J106	1	.016	1/2	24	76	10.93
15275-J107	1	.018	1/4	24	76	10.29
15276-J107	1	.018	5/16	24	76	10.29
15277-J107	1	.018	3/8	24	76	10.29
15278-J107	1	.018	1/2	24	76	10.29
15279-J108	1	.020	1/4	24	76	10.29
15280-J108	1	.020	5/16	24	76	10.29
15281-J108	1	.020	3/8	24	76	10.29
15282-J108	1	.020	1/2	24	76	10.29
15283-J109	1	.023	1/4	24	76	8.90
15284-J109	1	.023	5/16	24	76	8.90
15285-J109	1	.023	3/8	24	76	8.90
15286-J109	1	.023	1/2	24	76	8.90
15287-J110	1	.025	1/4	24	76	8.90
15288-J110	1	.025	5/16	24	76	8.90
15289-J110	1	.025	3/8	24	76	8.90
15290-J110	1	.025	1/2	24	76	8.90

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15291-J111	1	.028	1/4	24	76	\$10.93
15292-J111	1	.028	5/16	24	76	10.93
15293-J111	1	.028	3/8	24	76	10.93
15294-J111	1	.028	1/2	24	76	10.93
15295-J112	1	.032	1/4	24	76	10.93
15296-J112	1	.032	5/16	24	76	10.93
15297-J112	1	.032	3/8	24	76	10.93
15298-J112	1	.032	1/2	24	76	10.93
15299-J113	1 1/4	.006	5/16	30	120	18.79
15300-J113	1 1/4	.006	3/8	30	120	18.79
15301-J113	1 1/4	.006	1/2	30	120	18.79
15302-J114	1 1/4	.008	5/16	30	120	16.28
15303-J114	1 1/4	.008	3/8	30	120	16.28
15304-J114	1 1/4	.008	1/2	30	120	16.28
15305-J115	1 1/4	.010	5/16	30	120	14.97
15306-J115	1 1/4	.010	3/8	30	120	14.97
15307-J115	1 1/4	.010	1/2	30	120	14.97
15308-J116	1 1/4	.012	5/16	30	120	13.08
15309-J116	1 1/4	.012	3/8	30	120	13.08
15310-J116	1 1/4	.012	1/2	30	120	13.08
15311-J117	1 1/4	.014	5/16	24	98	13.77
15312-J117	1 1/4	.014	3/8	24	98	13.77
15313-J117	1 1/4	.014	1/2	24	98	13.77
15314-J118	1 1/4	.016	5/16	24	98	13.01
15315-J118	1 1/4	.016	3/8	24	98	13.01
15316-J118	1 1/4	.016	1/2	24	98	13.01
15317-J119	1 1/4	.018	5/16	24	98	12.04
15318-J119	1 1/4	.018	3/8	24	98	12.04
15319-J119	1 1/4	.018	1/2	24	98	12.04
15320-J120	1 1/4	.020	5/16	24	98	11.48
15321-J120	1 1/4	.020	3/8	24	98	11.48
15322-J120	1 1/4	.020	1/2	24	98	11.48
15323-J121	1 1/4	.023	5/16	24	98	10.93
15324-J121	1 1/4	.023	3/8	24	98	10.93
15325-J121	1 1/4	.023	1/2	24	98	10.93
15326-J122	1 1/4	.025	5/16	24	98	10.93
15327-J122	1 1/4	.025	3/8	24	98	10.93
15328-J122	1 1/4	.025	1/2	24	98	10.93
15329-J123	1 1/4	.028	5/16	24	98	11.48
15330-J123	1 1/4	.028	3/8	24	98	11.48



JEWELER'S SLOTTING SAWS - HIGH SPEED STEEL

SOME SAWS SUPPLIED WITHOUT KEYWAYS

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15331-J123	1 1/4	.028	1/2	24	98	\$11.48
15332-J124	1 1/4	.032	5/16	24	98	11.48
15333-J124	1 1/4	.032	3/8	24	98	11.48
15334-J124	1 1/4	.032	1/2	24	98	11.48
15335-J125	1 1/2	.006	3/8	30	140	21.64
15336-J125	1 1/2	.006	1/2	30	140	21.64
15337-J126	1 1/2	.008	3/8	30	140	20.18
15338-J126	1 1/2	.008	1/2	30	140	20.18
15339-J127	1 1/2	.010	3/8	30	140	18.79
15340-J127	1 1/2	.010	1/2	30	140	18.79
15341-J128	1 1/2	.012	3/8	30	140	16.28
15342-J128	1 1/2	.012	1/2	30	140	16.28
15343-J129	1 1/2	.014	3/8	24	110	14.97
15344-J129	1 1/2	.014	1/2	24	110	14.97
15345-J130	1 1/2	.016	3/8	24	110	14.40
15346-J130	1 1/2	.016	1/2	24	110	14.40
15347-J131	1 1/2	.018	3/8	24	110	13.77
15348-J131	1 1/2	.018	1/2	24	110	13.77
15349-J132	1 1/2	.020	3/8	24	110	13.01
15350-J132	1 1/2	.020	1/2	24	110	13.01
15351-J133	1 1/2	.023	3/8	24	110	12.04
15352-J133	1 1/2	.023	1/2	24	110	12.04
15353-J134	1 1/2	.025	3/8	24	110	12.04
15354-J134	1 1/2	.025	1/2	24	110	12.04
15355-J135	1 1/2	.028	3/8	24	110	13.01
15356-J135	1 1/2	.028	1/2	24	110	13.01
15357-J136	1 1/2	.032	3/8	24	110	13.01
15358-J136	1 1/2	.032	1/2	24	110	13.01
15359-J137	1 3/4	.006	5/16	30	160	23.73
15360-J137	1 3/4	.006	3/8	30	160	23.73
15361-J137	1 3/4	.006	1/2	30	160	23.73
15362-J138	1 3/4	.008	5/16	30	160	21.64
15363-J138	1 3/4	.008	3/8	30	160	21.64
15364-J138	1 3/4	.008	1/2	30	160	21.64
15365-J138	1 3/4	.010	5/16	30	160	20.18
15366-J139	1 3/4	.010	3/8	30	160	20.18
15367-J139	1 3/4	.010	1/2	30	160	20.18
15368-J140	1 3/4	.012	5/16	30	160	20.18
15369-J140	1 3/4	.012	3/8	30	160	20.18
15370-J140	1 3/4	.012	1/2	30	160	20.18
15371-J141	1 3/4	.014	3/8	24	132	19.89
15372-J141	1 3/4	.014	1/2	24	132	19.89
15373-J142	1 3/4	.016	3/8	24	132	16.28
15374-J142	1 3/4	.016	1/2	24	132	16.28
15375-J143	1 3/4	.018	3/8	24	132	14.97
15376-J143	1 3/4	.018	1/2	24	132	14.97
15377-J144	1 3/4	.020	3/8	24	132	14.40
15378-J144	1 3/4	.020	1/2	24	132	14.40

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15379-J145	1 3/4	.023	3/8	24	132	13.01
15380-J145	1 3/4	.023	1/2	24	132	13.01
15381-J146	1 3/4	.025	3/8	24	132	13.01
15382-J146	1 3/4	.025	1/2	24	132	13.01
15383-J147	1 3/4	.028	3/8	24	132	13.77
15384-J147	1 3/4	.028	1/2	24	132	13.77
15385-J148	1 3/4	.032	3/8	24	132	13.77
15386-J148	1 3/4	.032	1/2	24	132	13.77
15387-J149	2	.006	1/2	30	190	28.18
15388-J150	2	.008	1/2	30	190	25.74
15389-J151	2	.010	1/2	30	190	23.73
15390-J152	2	.012	1/2	30	190	22.34
15391-J153	2	.014	3/8	24	152	20.72
15392-J153	2	.014	1/2	24	152	20.72
15393-J154	2	.016	3/8	24	152	19.62
15394-J154	2	.016	1/2	24	152	19.62
15395-J155	2	.018	3/8	24	152	18.03
15396-J155	2	.018	1/2	24	152	18.03
15397-J156	2	.020	3/8	24	152	16.28
15398-J156	2	.020	1/2	24	152	16.28
15399-J157	2	.023	3/8	24	152	14.97
15400-J157	2	.023	1/2	24	152	14.97
15401-J158	2	.025	3/8	24	152	16.28
15402-J158	2	.025	1/2	24	152	16.28
15403-J159	2	.028	3/8	24	152	16.28
15404-J159	2	.028	1/2	24	152	16.28
15405-J160	2	.032	3/8	18	110	16.28
15406-J160	2	.032	1/2	18	110	16.28
15407-J161	2	.035	3/8	18	110	16.28
15408-J161	2	.035	1/2	18	110	16.28
15409-J162	2	.040	3/8	18	110	17.06
15410-J162	2	.040	1/2	18	110	17.06
15411-J163	2	.045	3/8	18	110	17.06
15412-J163	2	.045	1/2	18	110	17.06
15413-J164	2	.051	3/8	18	110	19.42
15414-J164	2	.051	1/2	18	110	19.42
15415-J165	2	.057	3/8	18	110	19.42
15416-J165	2	.057	1/2	18	110	19.42
15417-J166	2 1/4	.008	1/2	30	210	32.77
15418-J167	2 1/4	.010	1/2	30	210	29.99
15419-J168	2 1/4	.012	1/2	30	210	25.74
15420-J169	2 1/2	.006	1/2	30	240	42.85
15421-J170	2 1/2	.008	1/2	30	240	37.01
15422-J171	2 1/2	.010	1/2	30	240	30.68
15423-J172	2 1/2	.012	1/2	30	240	26.44
15424-J173	2 1/2	.014	1/2	24	190	23.73
15425-J174	2 1/2	.016	1/2	24	190	21.64
15426-J175	2 1/2	.018	1/2	24	190	20.18



JEWELER'S SLOTTING SAWS - HIGH SPEED STEEL

SOME SAWS SUPPLIED WITHOUT KEYWAYS

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15427-J176	2 1/2	.020	1/2	24	190	18.79
15428-J177	2 1/2	.023	1/2	24	190	16.97
15429-J178	2 1/2	.025	1/2	24	190	16.97
15430-J179	2 1/2	.028	1/2	24	190	19.42
15431-J180	2 1/2	.032	1/2	18	140	19.42
15432-J181	2 1/2	.035	1/2	18	140	20.72
15433-J182	2 1/2	.040	1/2	18	140	22.33
15434-J183	2 1/2	.045	1/2	18	140	22.33
15435-J184	2 1/2	.051	1/2	18	140	28.73
15436-J185	2 1/2	.057	1/2	18	140	28.73
15437-J186	3	.006	1/2	30	280	56.06
15438-J186	3	.006	3/4	30	280	56.06
15439-J186	3	.006	1	30	280	56.06
15440-J187	3	.008	1/2	30	280	56.06
15441-J187	3	.008	3/4	30	280	50.16
15442-J187	3	.008	1	30	280	50.16
15443-J188	3	.010	1/2	30	280	36.67
15444-J188	3	.010	3/4	30	280	36.67
15445-J188	3	.010	1	30	280	36.67
15446-J189	3	.012	1/2	30	280	32.77
15447-J189	3	.012	3/4	30	280	32.77
15448-J189	3	.012	1	30	280	32.77
15449-J190	3	.014	1/2	24	230	29.99
15450-J190	3	.014	3/4	24	230	29.99
15451-J190	3	.014	1	24	230	29.99
15452-J191	3	.016	1/2	24	230	28.18
15453-J191	3	.016	3/4	24	230	28.18
15454-J191	3	.016	1	24	230	28.18
15455-J192	3	.018	1/2	24	230	25.74
15456-J192	3	.018	3/4	24	230	25.74
15457-J192	3	.018	1	24	230	25.74
15458-J193	3	.020	1/2	24	230	31.45
15459-J193	3	.020	3/4	24	230	31.45
15460-J193	3	.020	1	24	230	31.45
15461-J194	3	.023	1/2	24	230	20.72
15462-J194	3	.023	3/4	24	230	20.72
15463-J194	3	.023	1	24	230	20.72
15464-J195	3	.025	1/2	24	230	20.72
15465-J195	3	.025	3/4	24	230	20.72
15466-J195	3	.025	1	24	230	20.72
15467-J196	3	.028	1/2	24	230	23.73
15468-J196	3	.028	3/4	24	230	23.73
15469-J196	3	.028	1	24	230	23.73
15470-J197	3	.032	1/2	18	168	23.73
15471-J197	3	.032	3/4	18	168	23.73
15472-J197	3	.032	1	18	168	23.73
15473-J198	3	.035	1/2	18	168	26.85
15474-J198	3	.035	3/4	18	168	26.85
15475-J198	3	.035	1	18	168	26.85

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15476-J199	3	.040	1/2	18	168	26.85
15477-J199	3	.040	3/4	18	168	26.85
15478-J199	3	.040	1	18	168	26.85
15479-J200	3	.045	1/2	18	168	26.85
15480-J200	3	.045	3/4	18	168	26.85
15481-J200	3	.045	1	18	168	26.85
15482-J201	3	.051	1/2	18	168	28.18
15483-J201	3	.051	3/4	18	168	28.18
15484-J201	3	.051	1	18	168	28.18
15485-J202	3	.057	1/2	18	168	28.18
15486-J202	3	.057	3/4	18	168	28.18
15487-J202	3	.057	1	18	168	28.18
15488-J203	4	.012	1/2	24	310	60.67
15489-J203	4	.012	3/4	24	310	60.67
15490-J203	4	.012	1	24	310	60.67
15491-J204	4	.014	1/2	24	310	49.25
15492-J204	4	.014	3/4	24	310	49.25
15493-J204	4	.014	1	24	310	49.25
15494-J205	4	.016	1/2	24	310	47.79
15495-J205	4	.016	3/4	24	310	47.79
15496-J205	4	.016	1	24	310	47.79
15497-J206	4	.018	1/2	24	310	45.22
15498-J206	4	.018	3/4	24	310	45.22
15499-J206	4	.018	1	24	310	45.22
15500-J207	4	.020	1/2	24	310	41.95
15501-J207	4	.020	3/4	24	310	41.95
15502-J207	4	.020	1	24	310	41.95
15503-J208	4	.023	1/2	24	310	38.40
15504-J208	4	.023	3/4	24	310	38.40
15505-J208	4	.023	1	24	310	38.40
15506-J209	4	.025	1/2	24	310	35.70
15507-J209	4	.025	3/4	24	310	35.70
15508-J209	4	.025	1	24	310	35.70
15509-J210	4	.028	1/2	24	310	35.70
15510-J210	4	.028	3/4	24	310	35.70
15511-J210	4	.028	1	24	310	35.70
15512-J211	4	.032	1/2	18	220	38.48
15513-J211	4	.032	3/4	18	220	38.48
15514-J211	4	.032	1	18	220	38.48
15515-J212	4	.035	1/2	18	220	40.02
15516-J212	4	.035	3/4	18	220	40.02
15517-J212	4	.035	1	18	220	40.02
15518-J213	4	.040	1/2	18	220	40.02
15519-J213	4	.040	3/4	18	220	40.02
15520-J213	4	.040	1	18	220	40.02
15521-J214	4	.045	1/2	18	220	45.22
15522-J214	4	.045	3/4	18	220	45.22
15523-J214	4	.045	1	18	220	45.22
15524-J215	4	.051	1/2	18	220	45.22



JEWELER'S SLOTTING SAWS - HIGH SPEED STEEL

SOME SAWS SUPPLIED WITHOUT KEYWAYS

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15525-J215	4	.051	3/4	18	220	45.22
15526-J215	4	.051	1	18	220	45.22
15527-J216	4	.057	1/2	18	220	46.82
15528-J216	4	.057	3/4	18	220	46.82
15529-J216	4	.057	1	18	220	46.82
15530-J217	4	.064	1/2	18	220	46.82
15531-J217	4	.064	3/4	18	220	46.82
15532-J217	4	.064	1	18	220	46.82
15533-J218	5	.016	1/2	24	380	75.13
15534-J218	5	.016	3/4	24	380	75.13
15535-J218	5	.016	1	24	380	75.13
15536-J219	5	.018	1/2	24	380	68.54
15537-J219	5	.018	3/4	24	380	68.54
15538-J219	5	.018	1	24	380	68.54
15539-J220	5	.020	1/2	24	380	62.13
15540-J220	5	.020	3/4	24	380	62.13
15541-J220	5	.020	1	24	380	62.13
15542-J221	5	.023	1/2	24	380	58.72
15543-J221	5	.023	3/4	24	380	58.72
15544-J221	5	.023	1	24	380	58.72
15545-J222	5	.025	1/2	24	380	54.75
15546-J222	5	.025	3/4	24	380	54.75
15547-J222	5	.025	1	24	380	54.75
15548-J223	5	.028	1/2	18	280	54.75
15549-J223	5	.028	3/4	18	280	54.75
15550-J223	5	.028	1	18	280	54.75
15551-J224	5	.032	1/2	18	280	53.70
15552-J224	5	.032	3/4	18	280	53.70
15553-J224	5	.032	1	18	280	53.70
15554-J225	5	.035	1/2	18	280	53.70
15555-J225	5	.035	3/4	18	280	53.70
15556-J225	5	.035	1	18	280	53.70
15557-J226	5	.040	1/2	18	280	53.70
15558-J226	5	.040	3/4	18	280	53.70
15559-J226	5	.040	1	18	280	53.70
15560-J227	5	.045	1/2	18	280	59.82
15561-J227	5	.045	3/4	18	280	59.82
15562-J227	5	.045	1	18	280	59.82
15563-J228	5	.051	1/2	18	280	59.82
15564-J228	5	.051	3/4	18	280	59.82
15565-J228	5	.051	1	18	280	59.82
15566-J229	5	.057	1/2	18	280	62.47
15567-J229	5	.057	3/4	18	280	62.47
15568-J229	5	.057	1	18	280	62.47
15569-J230	5	.064	1/2	18	280	62.47
15570-J230	5	.064	3/4	18	280	62.47
15571-J230	5	.064	1	18	280	62.47
15572-J231	6	.020	1/2	24	460	96.70
15573-J231	6	.020	3/4	24	460	96.70

Catalog EDI-Number	Dia.	Width	Hole	Teeth Per Inch	Teeth Per Saw	List Price
15574-J231	6	.020	1	24	460	96.70
15575-J232	6	.023	1/2	24	460	93.63
15576-J232	6	.023	3/4	24	460	93.63
15577-J232	6	.023	1	24	460	93.63
15578-J233	6	.025	1/2	24	460	85.50
15579-J233	6	.025	3/4	24	460	85.50
15580-J233	6	.025	1	24	460	85.50
15581-J234	6	.028	1/2	18	340	80.83
15582-J234	6	.028	3/4	18	340	80.83
15583-J234	6	.028	1	18	340	80.83
15584-J235	6	.032	1/2	18	340	75.13
15585-J235	6	.032	3/4	18	340	75.13
15586-J235	6	.032	1	18	340	75.13
15587-J236	6	.035	1/2	18	340	75.13
15588-J236	6	.035	3/4	18	340	75.13
15589-J236	6	.035	1	18	340	75.13
15590-J237	6	.040	1/2	18	340	75.13
15591-J237	6	.040	3/4	18	340	75.13
15592-J237	6	.040	1	18	340	75.13
15593-J238	6	.045	1/2	18	340	75.13
15594-J238	6	.045	3/4	18	340	75.13
15595-J238	6	.045	1	18	340	75.13
15596-J239	6	.051	1/2	12	232	82.09
15597-J239	6	.051	3/4	12	232	82.09
15598-J239	6	.051	1	12	232	82.09
15599-J240	6	.057	1/2	12	232	82.09
15600-J240	6	.057	3/4	12	232	82.09
15601-J240	6	.057	1	12	232	82.09
15602-J241	6	.064	1/2	12	232	82.09
15603-J241	6	.064	3/4	12	232	82.09
15604-J241	6	.064	1	12	232	82.09
15605-J242	6	.072	1/2	12	232	96.91
15606-J242	6	.072	3/4	12	232	96.91
15607-J242	6	.072	1	12	232	96.91
15608-J243	6	.081	1/2	12	232	96.91
15609-J243	6	.081	3/4	12	232	96.91
15610-J243	6	.081	1	12	232	96.91
15611-J244	6	.091	1/2	12	232	96.91
15612-J244	6	.091	3/4	12	232	96.91
15613-J244	6	.091	1	12	232	96.91
15614-J245	6	.102	1/2	12	232	96.91
15615-J245	6	.102	3/4	12	232	96.91
15616-J245	6	.102	1	12	232	96.91
15617-J246	6	.114	1/2	12	232	111.66
15618-J246	6	.114	3/4	12	232	111.66
15619-J246	6	.114	1	12	232	111.66
15620-J247	6	.128	1/2	12	232	111.66
15621-J247	6	.128	3/4	12	232	111.66
15622-J247	6	.128	1	12	232	111.66

SOLID CARBIDE SLITTING SAWS

To order - Specify saw diameter, thickness & hole diameter.

Example: 1-1/4" x .053 x 1/2"

Tolerances

Saw Diameter: $\pm .011"$
Hole Diameter: $\pm .0015"-.000"$
Width: $\pm .0003$



SAWS **F&D**

CARBIDE/HSS CUTTERS & SAWS

Catalog EDI-No.	Dia.	Width Range	Hole Size	# of Teeth	List Price (1 Pc)
16001	1/4	.005-.009	1/8	10	\$147.39
16002	1/4	.010-.035	1/8	10	70.97
16003	5/16	.005-.009	1/8	12	150.67
16004	5/16	.010-.035	1/8	12	72.06
16005	3/8	.005-.009	1/8	14	151.76
16006	3/8	.010-.025	1/8	14	74.24
16007	3/8	.026-.045	1/8	14	43.95
16008	1/2	.005-.014	3/16	14	136.48
16009	1/2	.015-.035	3/16	14	45.32
16010	1/2	.036-.045	3/16	14	42.58
16011	9/16	.005-.014	3/16	16	136.48
16012	9/16	.015-.035	3/16	16	53.78
16013	9/16	.036-.045	3/16	16	42.47
16014	5/8	.005-.014	1/4	16	147.39
16015	5/8	.015-.040	1/4	16	51.47
16016	5/8	.041-.062	1/4	16	48.31
16017	3/4	.006-.014	1/4	18	147.39
16018	3/4	.015-.040	1/4	18	53.17
16019	3/4	.041-.062	1/4	18	50.77
16020	7/8	.006-.019	5/16	18	156.13
16021	7/8	.020-.040	5/16	18	80.95
16022	7/8	.041-.062	5/16	18	79.81
16023	1	.008-.019	5/16	20	139.75
16024	1	.008-.019	3/8	20	139.75
16025	1	.020-.040	5/16	20	86.31
16026	1	.020-.040	3/8	20	86.31
16027	1	.041-.062	5/16	20	85.14
16028	1	.041-.062	3/8	20	85.14
16029	1 1/4	.010-.019	5/16	24	151.76
16030	1 1/4	.010-.019	3/8	24	151.76
16031	1 1/4	.020-.029	5/16	24	146.30
16032	1 1/4	.020-.029	3/8	24	146.30
16033	1 1/4	.030-.045	5/16	24	139.75
16034	1 1/4	.030-.045	3/8	24	139.75
16035	1 1/4	.046-.062	5/16	24	135.38
16036	1 1/4	.046-.062	3/8	24	135.38
16037	1 1/2	.010-.019	1/2	32	201.98
16038	1 1/2	.020-.035	1/2	32	142.64
16039	1 1/2	.036-.050	1/2	32	140.84
16040	1 1/2	.051-.070	1/2	32	141.88
16041	1 3/4	.010-.019	1/2	32	216.18
16042	1 3/4	.020-.035	1/2	32	160.82
16043	1 3/4	.036-.050	1/2	32	158.31
16044	1 3/4	.051-.070	1/2	32	163.11
16045	2	.012-.019	1/2	36	239.10
16046	2	.012-.019	5/8	36	239.10
16047	2	.020-.039	1/2	36	200.27
16048	2	.020-.039	5/8	36	200.27
16049	2	.040-.055	1/2	36	188.31
16050	2	.040-.055	5/8	36	188.31
16051	2	.056-.065	1/2	36	193.99
16052	2	.056-.065	5/8	36	193.99
16053	2 1/4	.015-.024	1/2	40	274.55
16054	2 1/4	.015-.024	5/8	40	274.55
16055	2 1/4	.025-.039	1/2	40	232.98

Catalog EDI-No.	Dia.	Width Range	Hole Size	# of Teeth	List Price (1 Pc)
16056	2 1/4	.025-.039	5/8	40	232.98
16057	2 1/4	.040-.055	1/2	40	216.85
16058	2 1/4	.040-.055	5/8	40	216.85
16059	2 1/4	.056-.065	1/2	40	226.89
16060	2 1/4	.056-.065	5/8	40	226.89
16061	2 1/2	.015-.024	5/8	48	269.38
16062	2 1/2	.015-.024	1	48	269.38
16063	2 1/2	.025-.039	5/8	48	261.44
16064	2 1/2	.025-.039	1	48	261.44
16065	2 1/2	.040-.065	5/8	48	248.14
16066	2 1/2	.040-.065	1	48	248.14
16067	2 3/4	.015-.024	5/8	60	315.18
16068	2 3/4	.015-.024	1	60	315.18
16069	2 3/4	.025-.039	5/8	60	307.26
16070	2 3/4	.025-.039	1	60	307.26
16071	2 3/4	.040-.065	5/8	60	293.90
16072	2 3/4	.040-.065	1	60	293.90
16073	3	.015-.024	1	60	326.93
16074	3	.015-.024	1	72	326.93
16075	3	.025-.039	1	60	308.69
16076	3	.025-.039	1	72	308.69
16077	3	.040-.065	1	60	290.87
16078	3	.040-.065	1	72	290.87
16079	3	.066-.080	1	60	335.33
16080	3	.066-.080	1	72	335.33
16081	3	.081-.100	1	60	364.56
16082	3	.081-.100	1	72	364.56
16083	3	.101-.125	1	60	379.17
16084	3	.101-.125	1	72	379.17
16085	3 1/4	.020-.029	1	72	330.01
16086	3 1/4	.030-.039	1	72	320.31
16087	3 1/4	.040-.065	1	72	314.50
16088	3 1/2	.020-.029	1	72	348.86
16089	3 1/2	.030-.039	1	72	342.56
16090	3 1/2	.040-.065	1	72	324.55
16091	3 1/2	.066-.080	1	72	334.24
16092	3 3/4	.020-.029	1	84	388.45
16093	3 3/4	.030-.039	1	84	381.90
16094	3 3/4	.040-.080	1	84	372.21
16095	4	.020-.029	1	96	446.69
16096	4	.030-.039	1	96	437.54
16097	4	.040-.065	1	96	419.53
16098	4	.066-.080	1	96	432.14
16099	4	.081-.100	1	96	485.20
16100	4	.101-.125	1	96	511.22
16101	5	.030-.039	1	110	568.50
16102	5	.040-.065	1	110	585.45
16103	5	.066-.080	1	110	603.07
16104	5	.081-.100	1	110	615.21
16105	5	.101-.125	1	110	627.44
16106	6	.060-.080	1	120	666.22
16107	6	.081-.100	1	120	686.02
16108	6	.101-.125	1	120	706.56
16109	6	.126-.156	1	120	720.92

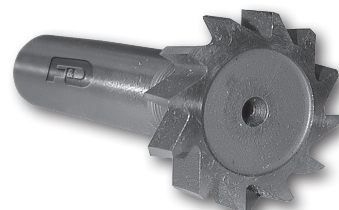
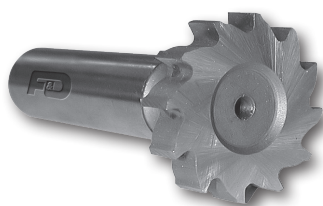
* Call for 3 & 6 piece pricing



WOODRUFF KEYSEAT CUTTERS

WOODRUFF KEYSEAT CUTTERS SHANK TYPE - HIGH SPEED STEEL

All sizes have a uniform 1/2" diameter shank. Right hand cutters are standard. Left hand cutters are made to order with prices on application.



HIGH SPEED STEEL - K600 COBALT - KX600

HIGH SPEED STEEL - K700 COBALT - KX700

				Straight Tooth				Staggered Tooth			
				HSS		COBALT		HSS		COBALT	
American Standard	Dia.	Width of Face	Overall Length	Catalog EDI-No.	List Price	Catalog EDI-No.	List Price	Catalog EDI-No.	List Price	Catalog EDI-No.	List Price
202	1/4	1/16	2 1/16	12301	\$25.12	35270	\$31.89	12342	\$27.70	35311	42.45
202 1/2	5/16	1/16	2 1/16	12302	25.12	35271	31.89	12343	27.70	35312	42.45
302 1/2	5/16	3/32	2 3/32	12303	25.12	35272	31.89	12344	27.70	35313	42.45
203	3/8	1/16	2 1/16	12304	25.12	35273	31.89	12345	27.70	35314	42.45
303	3/8	3/32	2 3/32	12305	25.12	35274	31.89	12346	27.70	35315	42.45
403	3/8	1/8	2 1/8	12306	25.12	35275	31.89	12347	27.70	35316	42.45
204	1/2	1/16	2 1/16	12307	25.12	35276	31.89	12348	27.70	35317	37.81
304	1/2	3/32	2 3/32	12308	25.12	35277	31.89	12349	27.70	35318	37.81
305	5/8	3/32	2 3/32	12309	25.12	35278	31.89	12350	27.70	35319	37.81
404	1/2	1/8	2 1/8	12310	25.12	35279	31.89	12351	27.70	35320	37.81
405	5/8	1/8	2 1/8	12311	25.12	35280	31.89	12352	27.70	35321	37.81
406	3/4	1/8	2 1/8	12312	27.32	35281	33.50	12353	30.60	35322	44.25
505	5/8	5/32	2 5/32	12313	25.12	35282	33.50	12354	27.70	35323	37.81
605	5/8	3/16	2 3/16	12314	25.12	35283	33.50	12355	27.70	35324	37.81
506	3/4	5/32	2 5/32	12315	27.32	35284	33.50	12356	30.60	35325	44.25
806	3/4	1/4	2 1/4	12316	27.32	35285	36.65	12357	30.60	35326	44.25
507	7/8	5/32	2 5/32	12317	30.47	35286	36.65	12358	34.07	35327	48.38
606	3/4	3/16	2 3/16	12318	27.32	35287	36.65	12359	34.07	35328	44.25
607	7/8	3/16	2 3/16	12319	30.47	35288	36.65	12360	34.07	35329	48.38
707	7/8	7/32	2 7/32	12320	30.47	35289	36.65	12361	34.07	35330	48.38
608	1	3/16	2 3/16	12321	34.07	35290	40.14	12362	37.87	35331	54.24
708	1	7/32	2 7/32	12322	34.07	35291	40.14	12363	37.87	35332	54.24
1208	1	3/8	2 3/8	12323	35.43	35292	41.61	12364	40.72	35333	55.20
609	1 1/8	3/16	2 3/16	12324	37.87	35293	45.16	12365	41.67	35334	62.75
807	7/8	1/4	2 1/4	12325	30.60	35294	36.65	12366	34.07	35335	48.38
808	1	1/4	2 1/4	12326	34.07	35295	40.14	12367	37.87	35336	54.24
709	1 1/8	7/32	2 7/32	12327	37.87	35296	45.16	12368	41.67	35337	62.75
809	1 1/8	1/4	2 1/4	12328	37.87	35297	45.16	12369	41.67	35338	62.75
610	1 1/4	3/16	2 3/16	12329	41.49	35298	50.31	12370	46.19	35339	65.19
710	1 1/4	7/32	2 7/32	12330	41.49	35299	50.31	12371	46.19	35340	65.19
810	1 1/4	1/4	2 1/4	12331	41.49	35300	50.31	12372	46.19	35341	68.79
811	1 3/8	1/4	2 1/4	12332	44.64	35301	58.30	12373	50.38	35342	76.59
812	1 1/2	1/4	2 1/4	12333	48.96	35302	60.29	12374	54.69	35343	82.01
1008	1	5/16	2 5/16	12334	34.98	35303	41.61	12375	38.78	35344	55.20
1009	1 1/8	5/16	2 5/16	12335	40.32	35304	48.05	12376	44.00	35345	63.84
1010	1 1/4	5/16	2 5/16	12336	43.73	35305	53.91	12377	47.73	35346	70.60
1011	1 3/8	5/16	2 5/16	12337	48.70	35306	58.30	12378	53.98	35347	76.59
1012	1 1/2	5/16	2 5/16	12338	50.24	35307	62.17	12379	53.01	35348	82.07
1210	1 1/4	3/8	2 3/8	12339	43.73	35308	53.91	12380	47.61	35349	70.60
1211	1 3/8	3/8	2 3/8	12340	48.70	35309	58.30	12381	53.98	35350	77.63
1212	1 1/2	3/8	2 3/8	12341	51.27	35310	62.17	12382	58.56	35351	86.39

HSS WOODRUFF KEYSEAT CUTTER SET

10 Piece Set

Contains one of each American Standard: 204, 305, 403, 404, 406, 505, 606, 608, 806, 808.

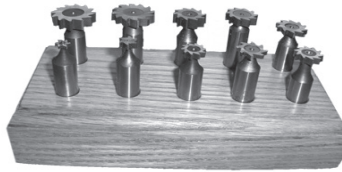
Supplied in a wooden box.

Straight Tooth EDI#-12300

\$301.35

Staggered Tooth EDI#-12299

\$336.39



Woodruff Keyseat Cutters

Narrow Width

HIGH SPEED STEEL

1/2" Shank - Right Hand Cut **NEW!**

Catalog No.	Dia. x Width	Price
70000	1/4 x 1/64	\$37.47
70001	1/4 x 1/32	37.47
70002	1/4 x 3/64	37.47
70003	5/16 x 1/64	37.47
70004	5/16 x 1/32	37.47
70005	5/16 x 3/64	37.47
70006	3/8 x 1/64	37.47
70007	3/8 x 1/32	37.47
70008	3/8 x 3/64	37.47
70009	1/2 x 1/64	37.47
70010	1/2 x .020	37.47
70011	1/2 x 1/32	37.47
70012	1/2 x 3/64	37.47
70013	5/8 x 1/64	37.47
70014	5/8 x .020	37.47
70015	5/8 x 1/32	37.47
70016	5/8 x 3/64	37.47
70017	5/8 x 1/16	37.47
70018	5/8 x 5/64	37.47
70019	3/4 x 1/32	39.75
70020	3/4 x 3/64	39.75
70021	3/4 x 1/16	39.75
70022	3/4 x 5/64	39.75
70023	3/4 x 3/32	39.75
70024	3/4 x 7/64	39.75
70025	7/8 x 3/64	39.75
70026	7/8 x 1/16	39.75

Catalog No.	Dia. x Width	Price
70027	7/8 x 5/64	\$39.75
70028	7/8 x 3/32	39.75
70029	7/8 x 7/64	39.75
70030	7/8 x 1/8	39.75
70031	7/8 x 9/64	39.75
70032	1 x 3/64	40.53
70033	1 x 1/16	40.53
70034	1 x 5/64	40.53
70035	1 x 3/32	40.53
70036	1 x 7/64	40.53
70037	1 x 1/8	40.53
70038	1 x 9/64	40.53
70039	1 x 5/32	40.53
70040	1 x 11/64	40.53
70041	1-1/8 x 3/64	47.26
70042	1-1/8 x 1/16	47.26
70043	1-1/8 x 5/64	47.26
70044	1-1/8 x 3/32	47.26
70045	1-1/8 x 7/64	47.26
70046	1-1/8 x 1/8	47.26
70047	1-1/8 x 9/64	47.26
70048	1-1/8 x 5/32	47.26
70049	1-1/8 x 11/64	47.26
70050	1-1/4 x 3/64	58.03
70051	1-1/4 x 1/16	58.03
70052	1-1/4 x 5/64	58.03
70053	1-1/4 x 3/32	58.03

Catalog No.	Diam. x Width	Price
70054	1-1/4 x 7/64	\$58.03
70055	1-1/4 x 1/8	58.03
70056	1-1/4 x 9/64	58.03
70057	1-1/4 x 5/32	58.03
70058	1-1/4 x 11/64	58.03
70059	1-1/4 x 3/16	58.03
70060	1-1/4 x 7/32	58.03
70061	1-3/8 x 1/16	63.92
70062	1-3/8 x 5/64	63.92
70063	1-3/8 x 3/32	63.92
70064	1-3/8 x 7/64	63.92
70065	1-3/8 x 1/8	63.92
70066	1-3/8 x 9/64	63.92
70067	1-3/8 x 5/32	63.92
70068	1-3/8 x 11/64	63.92
70069	1-3/8 x 3/16	63.92
70070	1-3/8 x 7/32	63.92
70071	1-1/2 x 1/16	74.37
70072	1-1/2 x 5/64	74.37
70073	1-1/2 x 3/32	74.37
70074	1-1/2 x 7/64	74.37
70075	1-1/2 x 1/8	74.37
70076	1-1/2 x 9/64	74.37
70077	1-1/2 x 5/32	74.37
70078	1-1/2 x 11/64	74.37
70079	1-1/2 x 3/16	74.37
70080	1-1/2 x 7/32	74.37

Large Diameter Keyseat Cutters

HIGH SPEED STEEL

Catalog EDI-Number	Dia x Width	Shank	List Price
70096	1-3/4 x 1/8	1/2	\$165.18
70097	1 3/4 x 3/16	1/2	165.18
70098	1 3/4 x 1/4	1/2	165.18
70099	1 3/4 x 5/16	1/2	165.18
70100	1 3/4 x 3/8	1/2	165.18
70101	1 3/4 x 1/2	1/2	165.18

Catalog EDI-Number	Dia x Width	Shank	List Price
70108	2 x 1/8	1/2	177.46
70109	2 x 3/16	1/2	177.46
70110	2 x 1/4	1/2	177.46
70111	2 x 5/16	1/2	177.46
70112	2 x 3/8	1/2	177.46
70113	2 x 1/2	1/2	177.46



CARBIDE WOODRUFF KEYSEAT CUTTERS

WOODRUFF KEYSEAT CUTTERS SHANK TYPE - CARBIDE TIPPED

All sizes have uniform 1/2" diameter shank. Right hand cutters are standard. Chip breakers are on all tools 5/32" wide and greater.

KCT-600 & 650



KCT-700 & 750



American Standard	Dia.	Width of Face	Overall Length	Number of Teeth	FOR STEEL							
					KCT-600 Straight Tooth		KCT-700 Staggered Tooth		KCT-650 Straight Tooth		KCT-750 Staggered Tooth	
					Catalog EDI-No.	List Price	Catalog EDI-No.	List Price	Catalog EDI-No.	List Price	Catalog EDI-No.	List Price
204	1/2	1/16	2 1/16	6	35200	\$128.57	35235	\$156.72	35200S	\$147.90	35235S	\$180.23
304	1/2	3/32	2 3/32	6	35201	128.57	35236	156.72	35201S	147.90	35236S	180.23
404	1/2	1/8	2 1/8	6	35202	128.57	35237	156.72	35202S	147.90	35237S	180.23
305	5/8	3/32	2 3/32	6	35203	133.15	35238	163.95	35203S	153.11	35238S	188.54
405	5/8	1/8	2 1/8	6	35204	133.15	35239	163.95	35204S	153.11	35239S	188.54
505	5/8	5/32	2 5/32	6	35205	133.15	35240	163.95	35205S	153.11	35240S	188.54
605	5/8	3/16	2 3/16	6	35206	133.15	35241	163.95	35206S	153.11	35241S	188.54
406	3/4	1/8	2 1/8	6	35207	139.01	35242	171.22	35207S	159.89	35242S	196.92
506	3/4	5/32	2 5/32	6	35208	139.01	35243	171.22	35208S	159.89	35243S	196.92
606	3/4	3/16	2 3/16	6	35209	139.01	35244	171.22	35209S	159.89	35244S	196.92
806	3/4	1/4	2 1/4	6	35210	139.01	35245	171.22	35210S	159.89	35245S	196.92
507	7/8	5/32	2 5/32	6	35211	145.52	35246	179.08	35211S	167.35	35246S	205.94
607	7/8	3/16	2 3/16	6	35212	145.52	35247	179.08	35212S	167.35	35247S	205.94
707	7/8	7/32	2 7/32	6	35213	145.52	35248	179.08	35213S	167.35	35248S	205.94
807	7/8	1/4	2 1/4	6	35214	145.52	35249	179.08	35214S	167.35	35249S	205.94
608	1	3/16	2 3/16	8	35215	164.13	35250	202.14	35215S	188.81	35250S	232.48
708	1	7/32	2 7/32	8	35216	164.13	35251	202.14	35216S	188.81	35251S	232.48
808	1	1/4	2 1/4	8	35217	164.13	35252	202.14	35217S	188.81	35252S	232.48
1008	1	5/16	2 5/16	8	35218	164.13	35253	202.14	35218S	188.81	35253S	232.48
1208	1	3/8	2 3/8	8	35219	164.13	35254	202.14	35219S	188.81	35254S	232.48
609	1 1/8	3/16	2 3/16	8	35220	172.57	35255	213.80	35220S	198.47	35255S	245.87
709	1 1/8	7/32	2 7/32	8	35221	172.57	35256	213.80	35221S	198.47	35256S	245.87
809	1 1/8	1/4	2 1/4	8	35222	172.57	35257	213.80	35222S	198.47	35257S	245.87
1009	1 1/8	5/16	2 5/16	8	35223	172.57	35258	213.80	35223S	198.47	35258S	245.87
610	1 1/4	3/16	2 3/16	8	35224	181.14	35259	223.02	35224S	208.33	35259S	256.51
710	1 1/4	7/32	2 7/32	8	35225	181.14	35260	223.02	35225S	208.33	35260S	256.51
810	1 1/4	1/4	2 1/4	8	35226	181.14	35261	223.02	35226S	208.33	35261S	256.51
1010	1 1/4	5/16	2 5/16	8	35227	181.14	35262	223.02	35227S	208.33	35262S	256.51
1210	1 1/4	3/8	2 3/8	8	35228	181.14	35263	223.02	35228S	208.33	35263S	256.51
811	1 3/8	1/4	2 1/4	8	35229	190.10	35264	234.09	35229S	218.64	35264S	269.19
1011	1 3/8	5/16	2 5/16	8	35230	190.10	35265	234.09	35230S	218.64	35265S	269.19
1211	1 3/8	3/8	2 3/8	8	35231	190.10	35266	234.09	35231S	218.64	35266S	269.19
812	1 1/2	1/4	2 1/4	8	35232	199.69	35267	249.23	35232S	229.65	35267S	286.65
1012	1 1/2	5/16	2 5/16	8	35233	199.69	35268	249.23	35233S	229.65	35268S	286.65
1212	1 1/2	3/8	2 3/8	8	35234	199.69	35269	249.23	35234S	229.65	35269S	286.65

WOODRUFF KEYSEAT CUTTERS SHANK TYPE - SOLID CARBIDE

Solid Carbide construction, made with side cutting teeth.

+0.001-.002 tolerance on ODs, +0.0005-.0005 tolerance on widths



Catalog EDI-Number	Amer. Std.	Dia	Face Width	OAL	No. of Flutes	List Price
35353	203	3/8	1/16	2 1/4	6	\$139.47
35355	303	3/8	3/32	2 1/4	6	144.12
35357	403	3/8	1/8	2 1/4	6	145.66
35359	204	1/2	1/16	2 1/4	8	170.47
35361	304	1/2	3/32	2 1/4	8	172.01
35363	404	1/2	1/8	2 1/4	8	173.56
35365	305	5/8	3/32	2 1/4	8	201.46
35367	405	5/8	1/8	2 1/4	8	203.00
35369	505	5/8	5/32	2 1/4	8	204.55
35371	605	5/8	3/16	2 1/4	8	207.65
35373	406	3/4	1/8	2 1/4	8	247.94
35375	506	3/4	5/32	2 1/4	8	251.04

Catalog EDI-Number	Amer. Std.	Dia	Face Width	OAL	No. of Flutes	List Price
35377	606	3/4	3/16	2 1/4	8	\$254.14
35379	806	3/4	1/4	2 1/4	8	257.24
35381	507	7/8	5/32	2 1/4	10	297.53
35383	607	7/8	3/16	2 1/4	10	299.08
35385	707	7/8	7/32	2 1/4	10	305.28
35387	807	7/8	1/4	2 1/4	10	306.83
35389	608	1	3/16	2 1/4	10	326.97
35391	708	1	7/32	2 1/4	10	340.92
35393	808	1	1/4	2 1/4	10	347.12
35395	610	1 1/4	3/16	2 1/4	12	356.42
35397	710	1 1/4	7/32	2 1/4	12	361.07
35399	810	1 1/4	1/4	2 1/4	12	364.17

CARBIDE TIPPED

High Performance - For Aluminum

These straight tooth cutters are designed primarily for use on aluminum. The fewer flute geometry allows higher speeds and feeds and better finishes. Tools up to 1 1/2" diameter, 1/2" shank. Tools 1 3/4" diameter and larger, 3/4" shank

Face width tolerance: +.0005" / -.0005"

Tool diameter tolerance: +.020" / +.015"



American Standard	Dia.	Width of Face	Neck Dia	No. Of Teeth	Catalog EDI-No.	List Price
-	5/8	1/16	.160	2	10100	\$123.57
305	5/8	3/32	.191	2	10101	123.57
405	5/8	1/8	.223	2	10102	123.57
505	5/8	5/32	.252	2	10103	123.57
605	5/8	3/16	.279	2	10104	123.57
-	5/8	7/32	.342	2	10105	123.57
-	5/8	1/4	.342	2	10106	123.57
-	3/4	1/16	.160	2	10107	129.74
-	3/4	3/32	.191	2	10108	129.74
406	3/4	1/8	.217	2	10109	129.74
506	3/4	5/32	.246	2	10110	129.74
606	3/4	3/16	.279	2	10111	129.74
-	3/4	7/32	.342	2	10112	129.74
806	3/4	1/4	.342	2	10113	129.74
-	7/8	1/16	.160	2	10114	139.03
-	7/8	3/32	.191	2	10115	139.03
-	7/8	1/8	.217	2	10116	139.03
507	7/8	5/32	.246	2	10117	139.03
607	7/8	3/16	.279	2	10118	139.03
707	7/8	7/32	.312	2	10119	139.03
807	7/8	1/4	.342	2	10120	139.03
-	1	3/32	.191	2	10121	146.73
-	1	1/8	.217	2	10122	146.73
-	1	5/32	.246	2	10123	146.73
608	1	3/16	.279	2	10124	146.73
708	1	7/32	.312	2	10125	146.73
808	1	1/4	.342	2	10126	146.73
-	1	9/32	.401	2	10127	146.73
1008	1	5/16	.401	2	10128	146.73
-	1	11/32	.467	2	10129	146.73
1208	1	3/8	.467	2	10130	146.73
-	1 1/8	3/32	.217	2	10131	146.73
-	1 1/8	1/8	.246	2	10132	146.73
-	1 1/8	5/32	.279	2	10133	146.73
609	1 1/8	3/16	.312	2	10134	146.73
709	1 1/8	7/32	.342	2	10135	146.73
809	1 1/8	1/4	.374	2	10136	146.73
-	1 1/8	9/32	.435	2	10137	146.73
1009	1 1/8	5/16	.435	2	10138	146.73
-	1 1/8	11/32	.467	2	10139	146.73
-	1 1/8	3/8	.467	2	10140	146.73
-	1 1/4	3/32	.217	3	10141	154.45
-	1 1/4	1/8	.246	3	10142	154.45
-	1 1/4	5/32	.279	3	10143	154.45
610	1 1/4	3/16	.312	3	10144	154.45
710	1 1/4	7/32	.342	3	10145	154.45
810	1 1/4	1/4	.374	3	10146	154.45
-	1 1/4	9/32	.435	3	10147	154.45
1010	1 1/4	5/16	.435	3	10148	154.45
-	1 1/4	11/32	.467	3	10149	154.45
1210	1 1/4	3/8	.467	3	10150	154.45

American Standard	Dia.	Width of Face	Neck Dia	No. Of Teeth	Catalog EDI-No.	List Price
-	1 3/8	3/32	.312	3	10151	169.85
-	1 3/8	1/8	.342	3	10152	169.85
-	1 3/8	5/32	.374	3	10153	169.85
-	1 3/8	3/16	.401	3	10154	169.85
-	1 3/8	7/32	.401	3	10155	169.85
811	1 3/8	1/4	.401	3	10156	169.85
-	1 3/8	9/32	.467	3	10157	169.85
1011	1 3/8	5/16	.467	3	10158	169.85
-	1 3/8	11/32	.467	3	10159	169.85
1211	1 3/8	3/8	.467	3	10160	169.85
-	1 1/2	3/32	.435	3	10161	193.08
-	1 1/2	1/8	.435	3	10162	193.08
-	1 1/2	5/32	.435	3	10163	193.08
-	1 1/2	3/16	.435	3	10164	193.08
-	1 1/2	7/32	.435	3	10165	193.08
812	1 1/2	1/4	.435	3	10166	193.08
-	1 1/2	11/32	.467	3	10167	193.08
1012	1 1/2	5/16	.467	3	10168	193.08
-	1 1/2	13/32	.467	3	10169	193.08
1212	1 1/2	3/8	.467	3	10170	231.66
-	1 1/2	7/16	.467	3	10171	231.66
-	1 1/2	15/32	.467	3	10172	231.66
-	1 1/2	1/2	.467	3	10173	231.66
-	1 1/2	1/8	.718	4	10174	231.66
-	1 3/4	5/32	.718	4	10175	213.14
-	1 3/4	3/16	.718	4	10176	213.14
-	1 3/4	7/32	.718	4	10177	213.14
-	1 3/4	1/4	.718	4	10178	213.14
-	1 3/4	9/32	.718	4	10179	213.14
-	1 3/4	5/16	.718	4	10180	213.14
-	1 3/4	11/32	.718	4	10181	213.14
-	1 3/4	3/8	.718	4	10182	213.14
-	1 3/4	13/32	.718	4	10183	250.25
-	1 3/4	7/16	.718	4	10184	250.25
-	1 3/4	15/32	.718	4	10185	250.25
-	1 3/4	1/2	.718	4	10186	250.25
-	1 3/4	1/8	.718	4	10187	250.25
-	2	5/32	.718	4	10188	247.08
-	2	3/16	.718	4	10189	247.08
-	2	7/32	.718	4	10190	247.08
-	2	1/4	.718	4	10191	247.08
-	2	9/32	.718	4	10192	247.08
-	2	5/16	.718	4	10193	247.08
-	2	11/32	.718	4	10194	247.08
-	2	3/8	.718	4	10195	247.08
-	2	13/32	.718	4	10196	285.76
-	2	7/16	.718	4	10197	285.76
-	2	15/32	.718	4	10198	285.76
-	2	1/2	.718	4	10199	285.76

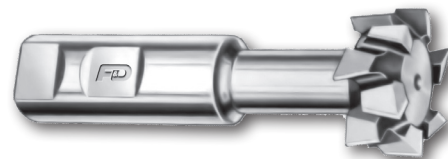


T-SLOT CUTTERS HIGH SPEED STEEL

Regularly furnished right hand cut with staggered teeth.

Catalog EDI-Number	Bolt Size	Cutter Dia	Shank Dia	Width	Neck Dia	Overall Length	# of Teeth	List Price
14426-A1310	1/4	9/16	1/2	15/64	17/64	2 19/32	8	\$62.24
14427-A1312	5/16	21/32	1/2	17/64	21/64	2 11/16	8	65.62
14428-A1314	3/8	25/32	3/4	21/64	13/32	3 1/4	8	97.79
14429-A1316	1/2	31/32	3/4	25/64	17/32	3 7/16	8	107.13
14410-A1327	-	1	3/4	3/32	1/2	3 1/8	8	122.39
14411-A1328	-	1	3/4	1/8	1/2	3 1/8	8	123.00
14412-A1329	-	1	3/4	5/32	1/2	3 3/16	8	128.35
14413-A1330	-	1	3/4	3/16	1/2	3 3/16	8	126.65
14414-A1331	-	1	3/4	1/4	1/2	3 1/4	8	130.17
14415-A1332	-	1	3/4	5/16	1/2	3 5/16	8	129.42
14416-A1333	-	1	3/4	3/8	1/2	3 3/8	8	134.59
14417-A1334	-	1	3/4	1/2	1/2	3 1/2	8	130.89
14430-A1318	5/8	1 1/4	1	31/64	21/32	3 15/16	10	153.63
14431-A1320	3/4	1 15/32	1	5/8	25/32	4 7/16	10	172.03
14418-A1335	-	1 1/2	1	3/32	3/4	4 1/8	10	184.47
14419-A1336	-	1 1/2	1	1/8	3/4	4 1/8	10	179.43
14420-A1337	-	1 1/2	1	5/32	3/4	4 3/16	10	184.89
14421-A1338	-	1 1/2	1	3/16	3/4	4 3/16	10	182.93
14422-A1339	-	1 1/2	1	1/4	3/4	4 1/4	10	194.08
14423-A1340	-	1 1/2	1	5/16	3/4	4 5/16	10	188.76
14424-A1341	-	1 1/2	1	3/8	3/4	4 3/8	10	203.55
14425-A1342	-	1 1/2	1	1/2	3/4	4 1/2	10	199.53
14432-A1322	1	1 27/32	1 1/4	53/64	1 1/32	4 13/16	12	280.40
14435-A1343	-	2	1 1/4	3/32	1 1/8	4 1/2	12	293.20
14436-A1344	-	2	1 1/4	1/8	1 1/8	4 1/2	12	298.50
14437-A1345	-	2	1 1/4	5/32	1 1/8	4 9/16	12	297.59
14438-A1346	-	2	1 1/4	3/16	1 1/8	4 9/16	12	306.59
14439-A1347	-	2	1 1/4	1/4	1 1/8	4 5/8	12	326.57
14440-A1348	-	2	1 1/4	5/16	1 1/8	4 11/16	12	332.47
14441-A1349	-	2	1 1/4	3/8	1 1/8	4 3/4	12	336.82
14442-A1350	-	2	1 1/4	1/2	1 1/8	4 7/8	12	346.99
14433-A1324	1 1/4	2 7/32	1 1/4	1 3/32	1 7/32	5 3/8	12	361.99
14434-A1326	1 1/2	2 21/32	1 1/4	1 11/32	1 17/32	5 29/32	12	460.79

STRAIGHT SHANK



Catalog EDI-Number	Bolt Size	Cutter Dia.	Width	Neck Dia.	Overall Length	B&S Taper Shank No.	# of Teeth	List Price
14401-A1210	1/4	9/16	15/64	17/64	2 5/8	5	8	\$72.85
14402-A1212	5/16	21/32	17/64	21/64	2 23/32	5	8	78.46
14403-A1214	3/8	25/32	21/64	13/32	4 13/16	7	8	133.27
14404-A1216	1/2	31/32	25/64	17/32	5	7	8	147.14
14405-A1218	5/8	1 1/4	31/64	21/32	5 1/4	7	10	201.62
14406-A1220	3/4	1 15/32	5/8	25/32	6 7/8	9	10	226.81
14407-A1222	1	1 27/32	53/64	1 1/32	7 1/4	9	10	355.77
14408-A1224	1 1/4	2 7/32	1 3/32	1 9/32	7 13/16	9	12	449.49
14409-A1226	1 1/2	2 21/32	1 11/32	1 17/32	10 3/8	10	12	712.13

TAPER SHANK



* Sizes other than listed are special.
If special sizes are needed, please call (800) 338-6650 for quote.

HEAVY DUTY COBALT ROUGHING T-SLOT CUTTERS

Catalog EDI-Number	Bolt Size	Cutter Dia	Cutter Width	Overall Length	Shank Dia	List Price
34920	1/2	31/32	25/64	3 7/16	3/4	\$159.74
34921	5/8	1 1/4	31/64	3 15/16	1	198.99
34922	3/4	1 15/32	5/8	4 7/16	1	250.77
34923	1	1 27/32	53/64	4 13/16	1 1/4	335.39
34924	1 1/4	2 7/32	1 3/32	5 3/8	1 1/4	436.17
34925	1 1/2	2 21/32	1 11/32	5 29/32	1 1/4	651.26



CARBIDE TIPPED T-SLOT CUTTERS

Bolt Size	Cutter Dia	Cutter Width	Neck Dia	Shank Dia	Overall Length	Non-Ferrous/ Cast Iron EDI-#	List Price	Steel EDI-#	List Price
1/4	9/16	15/64	17/64	1/2	2 19/32	12191	\$145.52	12280	\$157.18
5/16	21/32	17/64	21/64	1/2	2 11/16	12192	150.35	12281	162.27
3/8	25/32	21/64	13/32	3/4	3 1/4	12193	193.19	12282	208.45
1/2	31/32	25/64	17/32	3/4	3 7/16	12194	207.56	12283	224.23
5/8	1 1/4	31/64	21/32	1	3 15/16	12195	272.28	12284	294.07
3/4	1 15/32	5/8	25/32	1	4 7/16	12196	304.11	12285	328.21
1	1 27/32	53/64	1 1/32	1 1/4	4 13/16	12197	413.75	12286	445.89
1 1/4	2 7/32	1 3/32	1 7/32	1 1/4	5 3/8	12198	534.33	12287	577.23
1 1/2	2 21/32	1 11/32	1 17/32	1 1/4	5 29/32	12199	643.07	12288	693.96

SINGLE ANGLE CHAMFERING CUTTERS

Catalog EDI-Number	Included Chamfer Angle	Cutter Dia	Face Width	Shank Dia	Overall Length	No. of Teeth	List Price
26301	45°	1/2	1/8	3/8	2 1/8	8	\$46.25
26302	45°	3/4	3/16	3/8	2 1/8	8	54.30
26303	45°	1	5/16	1/2	2 1/2	10	67.44
26304	45°	1 1/2	1/2	3/4	2 3/4	12	87.02
26305	60°	1/2	7/32	3/8	2 1/8	8	46.25
26306	60°	3/4	5/16	3/8	2 1/8	8	54.30
26307	60°	1	7/16	1/2	2 1/2	10	67.44
26308	60°	1 1/2	5/8	3/4	2 3/4	12	87.02



Furnished in 45° and 60°

CARBIDE TIPPED CHAMFERING CUTTERS

Chamfer Angle	Cutter Dia.	Shank Dia.	No. Of Teeth	Overall Length	Cutter Width	Non-Ferrous/ Cast Iron EDI-# (10°-12° OD Clear)	List Price	Steel EDI-# (10°-12° OD Clear)	List Price
45°	1/2	3/8	4	2 1/8	1/8	69901	\$165.99	69921	\$183.32
45°	3/4	3/8	6	2 1/8	3/16	69902	179.41	69922	197.63
45°	1	1/2	6	2 1/2	5/16	69903	192.73	69923	212.13
45°	1 1/2	3/4	8	2 3/4	1/2	69904	243.36	69924	268.04
60°	1/2	3/8	4	2 1/8	7/32	69905	165.99	69925	183.32
60°	3/4	3/8	6	2 1/8	5/16	69906	179.41	69926	197.63
60°	1	1/2	6	2 1/2	7/16	69907	192.73	69927	212.13
60°	1 1/2	3/4	8	2 3/4	5/8	69908	243.36	69928	268.04



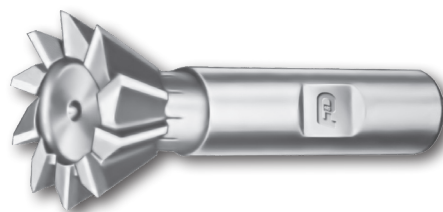


DOVETAIL - ANGLE CUTTERS - SHANK TYPE

Catalog EDI #	Dia.	Cutter Width	Shank Dia.	Overall Length	Included Angle	List Price
12201-A1406-45	3/8	1/8	3/8	2 1/8	45°	\$49.86
12202-A1408-45	1/2	1/8	3/8	2 1/8	45°	54.30
12203-A1410-45	3/4	3/16	3/8	2 1/8	45°	63.46
12204-A1420-45	1 3/8	3/8	5/8	2 7/8	45°	99.00
12205-A1424-45	1 3/8	3/8	1/2	2 7/8	45°	99.00
12206-A1430-45	1 7/8	1/2	7/8	3 1/4	45°	215.86
12207-A1440-45	2 1/4	11/16	1	3 3/4	45°	257.22
12208-A1460-45	2 1/2	3/4	1	3 3/4	45°	304.30
12209-A1406-60	3/8	3/16	3/8	2 1/8	60°	50.11
12210-A1408-60	1/2	7/32	3/8	2 1/8	60°	54.30
12211-A1410-60	3/4	5/16	3/8	2 1/8	60°	63.46
12212-A1420-60	1 3/8	9/16	5/8	2 7/8	60°	99.00
12213-A1424-60	1 3/8	9/16	1/2	2 7/8	60°	99.00
12214-A1430-60	1 7/8	13/16	7/8	3 1/4	60°	215.86
12215-A1440-60	2 1/4	1 1/16	1	3 3/4	60°	257.22
12216-A1460-60	2 1/2	1 1/8	1	3 3/4	60°	304.30

DOVETAIL MILLING CUTTERS SHANK TYPE HIGH SPEED STEEL

New range of sizes will aid in reducing set up time and increasing production of dovetail milling. Recommended for use in place of arbor and threaded hole type cutters.



CARBIDE TIPPED DOVETAIL CUTTERS

Catalog EDI #	Dia.	Width	Shank	# of Teeth	Overall Length	Inc. Angle	List Price
12175	1/2	5/32	3/8	3	2 1/8	45°	\$165.04
12176	3/4	1/4	3/8	3	2 1/4	45°	178.56
12177	1	5/16	1/2	4	2 1/2	45°	190.81
12178	1 1/4	3/8	5/8	4	2 3/4	45°	216.76
12179	1 1/2	1/2	3/4	4	3 1/4	45°	242.46
12180	2	5/8	1	6	4 1/4	45°	306.82
12181	2 1/2	3/4	1 1/4	6	4 3/8	45°	396.93
12182	3	1	1 1/4	6	4 1/2	45°	489.05
12183	1/2	7/32	3/8	3	2 1/8	60°	165.04
12184	3/4	1/4	3/8	3	2 1/4	60°	178.56
12185	1	3/8	1/2	4	2 1/2	60°	190.81
12186	1 1/4	1/2	5/8	4	2 3/4	60°	216.76
12187	1 1/2	5/8	3/4	4	3 1/4	60°	242.46
12188	2	3/4	1	6	4 1/4	60°	306.82
12189	2 1/2	7/8	1 1/4	6	4 3/8	60°	396.93
12190	3	1 1/8	1 1/4	6	4 1/2	60°	489.05

DOUBLE ANGLE SHANK TYPE CUTTERS

Furnished in 60° and 90°

Catalog EDI #	Dia.	Cutter Width	Shank Dia.	Overall Length	Inc. Angle	List Price
11981-A952-60	3/4	3/16	3/8	2 3/8	60°	\$35.11
11982-A952-90	3/4	1/4	3/8	2 7/16	90°	35.11
11983-A954-60	1	5/16	1/2	2 17/32	60°	56.04
11984-A954-90	1	3/8	1/2	2 29/32	90°	56.04
11987-A956-60	1 3/8	7/16	5/8	3 7/32	60°	74.65
11988-A956-90	1 3/8	1/2	5/8	3 9/32	90°	74.65
11989-A958-60	1 1/2	1/2	5/8	3 3/8	60°	97.97
11990-A958-90	1 1/2	9/16	5/8	3 7/16	90°	97.97
11993-A960-60	1 7/8	5/8	3/4	3 25/32	60°	113.57
11994-A960-90	1 7/8	5/8	3/4	3 25/32	90°	113.57
11995-A962-60	2 1/4	3/4	7/8	4 5/32	60°	166.32
11996-A962-90	2 1/4	3/4	7/8	4 5/32	90°	166.32

CARBIDE TIPPED DOUBLE ANGLE SHANK TYPE CUTTERS

Corn radius: .010"-.015"



Tool Dia	Shank Dia	# of Teeth	60° INCLUDED ANGLE						90° INCLUDED ANGLE					
			OAL	Cutter Width	N-F, Cast Iron		Steel		OAL	Cutter Width	N-F, Cast Iron		Steel	
					EDI #	List Price	EDI #	List Price			EDI #	List Price	EDI #	List Price
3/4	3/8	6	2 3/8	3/16	10300	\$145.58	10307	\$160.19	2 3/8	1/4	10313	\$145.58	10320	\$160.19
1	1/2	6	2 27/32	5/16	10301	171.93	10308	189.17	2 29/32	3/8	10314	171.93	10321	189.17
1 3/8	5/8	6	3 7/32	7/16	10302	199.20	10309	219.19	3 9/32	1/2	10315	199.20	10322	219.19
1 1/2	5/8	6	3 3/8	1/2	10304	209.22	10310	230.13	3 7/16	9/16	10316	209.22	10323	230.13
1 7/8	3/4	6	3 25/32	5/8	10305	317.69	10311	349.49	3 25/32	5/8	10317	317.69	10324	349.49
2 1/4	7/8	6	4 5/32	3/4	10306	430.00	10312	472.99	4 5/32	3/4	10319	430.00	10325	472.99

F&D Hollow Mills are manufactured right here in Three Rivers, Massachusetts. These solid type hollow mills are made from high speed steel and are used principally in screw machines or turret lathes for sizing material such as studs, screw blanks, etc. on production work. They're tough, hard, wear resistant cutting tools. They will assure faster cuts and longer life for productive, cost effective turning operations.

F&D hollow mills are available with either 3 or 4 teeth, undercut with a 10° rake for milling steel, in diameters from 5/8" to 1-1/4" and hole diameters from 3/32" to 1".

At F&D, we know the importance of getting a reliable quality-built product to you on time. That's why we have 21 different types of hollow mills and over 9,100 standard and special cutting tools in stock, ready for prompt delivery from regional warehouses and authorized industrial distributors nationwide. At F&D "the best just keeps on getting better" in performance... and profit potential.



21 different Hollow Mills to meet any job requirement.

Catalog EDI-Number	Hole Dia.	Shank Dia.	Overall Length	# of Teeth	List Price	Catalog EDI-Number	Hole Dia.	Shank Dia.	Overall Length	# of Teeth	List Price
17001-HM1003	3/32	5/8	1 1/2	3	\$131.79	17012-HM1014	7/16	1	1 3/4	4	\$146.74
17002-HM1004	1/8	5/8	1 1/2	3	125.42	17013-HM1018	1/2	1	1 3/4	4	146.74
17003-HM1005	5/32	5/8	1 1/2	3	119.45	17014-HM1019	17/32	1	1 3/4	4	146.74
17004-HM1006	3/16	5/8	1 1/2	3	115.51	17015-HM1020	9/16	1 1/4	2	4	177.99
17005-HM1007	7/32	5/8	1 1/2	3	115.51	17017-HM1028	5/8	1 1/4	2	4	177.99
17006-HM1008	1/4	5/8	1 1/2	3	115.51	17016-HM1024	21/32	1 1/4	2	4	177.99
17007-HM1009	9/32	3/4	1 1/2	4	125.09	17018-HM1032	3/4	1 1/2	2	4	218.56
17008-HM1010	5/16	3/4	1 1/2	4	125.09	17019-HM1040	25/32	1 1/2	2	4	218.56
17009-HM1011	11/32	3/4	1 1/2	4	125.09	17020-HM1042	7/8	1 3/4	2	4	283.98
17010-HM1012	3/8	1	1 3/4	4	146.74	17021-HM1052	1	1 3/4	2	4	295.61
17011-HM1013	13/32	1	1 3/4	4	146.74						



ANNULAR CUTTERS

ANNULAR CUTTERS

- Eliminate multi-step drilling.
- Lower cost per hole.
- Better finishing.
- More accurate, cleaner holes.
- Longer tool life.
- 3/4" shank diameter with two flats for both inch and metric cutters.
- Cutters are interchangeable with other standard hole cutting systems.



HIGH SPEED STEEL							COBALT					
Inch Sizes	1" Depth EDI-Number	List Price	2" Depth EDI-Number	List Price	3" Depth EDI-Number	List Price	1" Depth EDI-Number	List Price	2" Depth EDI-Number	List Price	3" Depth EDI-Number	List Price
7/16	50002-HC2002	\$50.24	50030-HC2030	\$66.08	--	--	50086-HCX2002	\$52.82	50114-HCX2030	\$69.31	--	--
1/2	50003-HC2003	51.27	50031-HC2031	67.37	--	--	50087-HCX2003	53.80	50115-HCX2031	70.73	--	--
9/16	50004-HC2004	56.81	50032-HC2032	76.46	--	--	50088-HCX2004	59.65	50116-HCX2032	80.26	--	--
5/8	50005-HC2005	61.07	50033-HC2033	82.45	--	--	50089-HCX2005	64.16	50117-HCX2033	86.64	--	--
11/16	50006-HC2006	65.32	50034-HC2034	91.54	--	--	50090-HCX2006	68.55	50118-HCX2034	96.11	--	--
3/4	50007-HC2007	69.57	50035-HC2035	100.62	50063-HC2063	\$144.55	50091-HCX2007	73.05	50119-HCX2035	105.58	50147-HCX2063	\$151.82
13/16	50008-HC2008	73.82	50036-HC2036	106.55	50064-HC2064	151.64	50092-HCX2008	77.56	50120-HCX2036	111.83	50148-HCX2064	159.30
7/8	50009-HC2009	78.21	50037-HC2037	112.99	50065-HC2065	159.95	50093-HCX2009	82.07	50121-HCX2037	118.66	50149-HCX2065	167.99
15/16	50010-HC2010	82.32	50038-HC2038	121.49	50066-HC2066	172.64	50094-HCX2010	86.45	50122-HCX2038	127.61	50150-HCX2066	181.27
1	50011-HC2011	86.51	50039-HC2039	131.98	50067-HC2067	189.72	50095-HCX2011	90.90	50123-HCX2039	138.56	50151-HCX2067	199.18
1 1/16	50012-HC2012	90.44	50040-HC2040	135.15	50068-HC2068	193.63	50096-HCX2012	95.02	50124-HCX2040	141.85	50152-HCX2068	203.36
1 1/8	50013-HC2013	103.97	50041-HC2041	156.09	50069-HC2069	224.61	50097-HCX2013	109.13	50125-HCX2041	163.88	50153-HCX2069	235.89
1 3/16	50014-HC2014	109.64	50042-HC2042	165.28	50070-HC2070	232.99	50098-HCX2014	115.11	50126-HCX2042	173.54	50154-HCX2070	244.65
1 1/4	50015-HC2015	112.53	50043-HC2043	168.90	50071-HC2071	242.01	50099-HCX2015	118.21	50127-HCX2043	177.02	50155-HCX2071	254.18
1 5/16	50016-HC2016	118.33	50044-HC2044	177.41	50072-HC2072	254.82	50100-HCX2016	124.32	50128-HCX2044	186.30	50156-HCX2072	267.59
1 3/8	50017-HC2017	152.22	50045-HC2045	186.30	50073-HC2073	256.57	50101-HCX2017	159.75	50129-HCX2045	195.63	50157-HCX2073	269.39
1 7/16	50018-HC2018	164.39	50046-HC2046	204.33	50074-HC2074	257.28	50102-HCX2018	172.64	50130-HCX2046	212.95	50158-HCX2074	270.17
1 1/2	50019-HC2019	178.05	50047-HC2047	223.90	50075-HC2075	270.10	50103-HCX2019	187.01	50131-HCX2047	235.18	50159-HCX2075	283.63
1 9/16	50020-HC2020	192.34	50048-HC2048	241.89	50076-HC2076	302.11	50104-HCX2020	202.00	50132-HCX2048	254.00	50160-HCX2076	317.25
1 5/8	50021-HC2021	209.74	50049-HC2049	265.78	50077-HC2077	322.99	50105-HCX2021	220.17	50133-HCX2049	279.06	50161-HCX2077	339.09
1 11/16	50022-HC2022	226.55	50050-HC2050	287.03	50078-HC2078	339.68	50106-HCX2022	237.77	50134-HCX2050	301.40	50162-HCX2078	356.67
1 3/4	50023-HC2023	233.57	50051-HC2051	294.64	50079-HC2079	356.42	50107-HCX2023	245.29	50135-HCX2051	309.46	50163-HCX2079	374.26
1 13/16	50024-HC2024	247.68	50052-HC2052	313.96	50080-HC2080	375.61	50108-HCX2024	260.04	50136-HCX2052	328.08	50164-HCX2080	394.55
1 7/8	50025-HC2025	262.51	50053-HC2053	332.83	50081-HC2081	397.64	50109-HCX2025	275.64	50137-HCX2053	347.72	50165-HCX2081	417.42
1 15/16	50026-HC2026	285.94	50054-HC2054	359.51	50082-HC2082	423.08	50110-HCX2026	299.22	50138-HCX2054	375.55	50166-HCX2082	444.28
2	50027-HC2027	296.96	50055-HC2055	376.84	50083-HC2083	444.80	50111-HCX2027	312.62	50139-HCX2055	394.93	50167-HCX2083	467.02
2 1/16	50028-HC2028	332.71	50056-HC2056	431.32	50084-HC2084	--	--	--	--	--	--	--
Set of 5 Includes 9/16, 11/16, 13/16, 15/16, 1 1/16	50029-HC2029	346.62	50057-HC2057	472.38	--	--	50113-HCX2029	382.89	50141-HCX2057	517.77	--	--

METRIC SIZES

HIGH SPEED STEEL					COBALT			
Inch Sizes	1" Depth EDI-#	List Price	2" Depth EDI-#	List Price	1" Depth EDI-#	List Price	2" Depth EDI-#	List Price
14mm	50170-HCM2002	\$54.82	50181-HCM2013	\$85.41	50192-HCMX2002	\$59.19	50203-HCMX2013	\$92.31
16mm	50171-HCM2003	60.04	50182-HCM2014	99.40	50193-HCMX2003	64.86	50204-HCMX2014	120.26
18mm	50172-HCM2004	64.86	50183-HCM2015	108.86	50194-HCMX2004	70.08	50205-HCMX2015	117.56
20mm	50173-HCM2005	68.35	50184-HCM2016	115.63	50195-HCMX2005	70.54	50206-HCMX2016	124.97
22mm	50174-HCM2006	77.44	50185-HCM2017	128.26	50196-HCMX2006	83.74	50207-HCMX2017	138.49
24mm	50175-HCM2007	83.81	50186-HCM2018	138.30	50197-HCMX2007	90.51	50208-HCMX2018	149.44
25mm	50176-HCM2008	86.45	50187-HCM2019	141.01	50198-HCMX2008	93.40	50209-HCMX2019	152.29
26mm	50177-HCM2009	87.99	50188-HCM2020	141.72	50199-HCMX2009	95.07	50210-HCMX2020	154.34
28mm	50178-HCM2010	95.20	50189-HCM2021	157.69	50200-HCMX2010	102.87	50211-HCMX2021	170.44
30mm	50179-HCM2011	100.75	50190-HCM2022	173.02	50201-HCMX2011	109.71	50212-HCMX2022	184.36
32mm	50180-HCM2012	133.08	50191-HCM2023	196.28	50202-HCMX2012	145.00	50213-HCMX2023	212.06

The background of the entire page is a collage of various metal cutting tools, including endmills and drill bits, arranged in a dynamic, overlapping fashion. The tools are rendered in a light blue, semi-transparent style, creating a sense of depth and movement. The overall color palette is a range of blues, from light sky blue to deep navy blue.

CARBIDE / HIGH SPEED STEEL

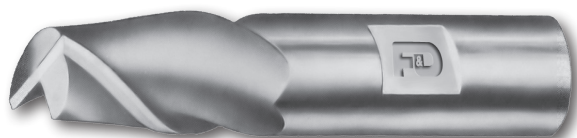
ENDMILLS



F&D 2 FLUTE ENDMILLS

TWO FLUTE ENDMILL SINGLE END HIGH SPEED STEEL

Regularly furnished with right hand cut - right hand spiral.
(Endmills with left hand cut - left hand spiral shown in following series.)



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17431-T304	1/8	3/8	3/8	2 5/16	\$10.39
17432-T305	5/32	3/8	3/8	2 5/16	11.39
17433-T306	3/16	3/8	3/8	2 5/16	11.45
17434-T307	7/32	3/8	1/2	2 5/16	11.57
17435-T308	1/4	3/8	1/2	2 5/16	11.79
17436-T309	9/32	3/8	9/16	2 5/16	12.04
17437-T310	5/16	3/8	9/16	2 5/16	12.25
17438-T311	11/32	3/8	9/16	2 5/16	12.47
17439-T312	3/8	3/8	9/16	2 3/8	12.76
17440-T314	7/16	3/8	13/16	2 1/2	13.80
17441-T316	1/2	3/8	13/16	2 1/2	14.04
17442-T318	1/2	1/2	1	3	14.36
17443-T320	9/16	1/2	1 1/8	3 1/8	19.23
17444-T322	5/8	1/2	1 1/8	3 1/8	21.59
17447-T328	5/8	5/8	1 5/16	3 7/16	22.08
17445-T324	11/16	1/2	1 5/16	3 5/16	23.55
17448-T330	11/16	5/8	1 5/16	3 7/16	23.91
17446-T326	3/4	1/2	1 5/16	3 5/16	25.10
17449-T332	3/4	5/8	1 5/16	3 7/16	25.27
17458-T341	3/4	3/4	1 5/16	3 9/16	27.22
17450-T333	13/16	1/2	1 1/2	3 5/8	30.77
17451-T334	13/16	5/8	1 1/2	3 5/8	30.80
17459-T341A	13/16	3/4	1 1/2	3 3/4	30.85
17452-T335	7/8	1/2	1 1/2	3 1/2	30.92
17453-T336	7/8	5/8	1 1/2	3 5/8	32.33
17460-T341B	7/8	3/4	1 1/2	3 3/4	34.24

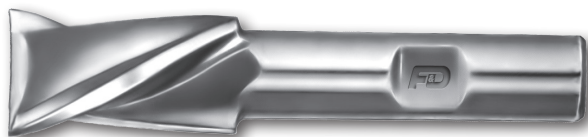
Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17461-T342	7/8	7/8	1 1/2	3 3/4	\$34.24
17454-T337	15/16	1/2	1 1/2	3 1/2	34.93
17455-T338	15/16	5/8	1 1/2	3 5/8	35.02
17462-T343	15/16	3/4	1 1/2	3 3/4	35.23
17463-T344	15/16	7/8	1 1/2	3 3/4	35.23
17456-T339	1	1/2	1 1/2	3 1/2	35.31
17457-T340	1	5/8	1 1/2	3 5/8	35.44
17464-T345	1	3/4	1 1/2	3 3/4	35.57
17465-T346	1	7/8	1 1/2	3 3/4	35.70
17472-T352	1	1	1 5/8	4 1/8	39.76
17466-T347	1 1/8	3/4	1 5/8	3 7/8	56.02
17467-T348	1 1/8	7/8	1 5/8	3 7/8	56.32
17473-T354	1 1/8	1	1 5/8	4 1/8	56.83
17468-T349	1 1/4	3/4	1 5/8	3 7/8	56.02
17469-T350	1 1/4	7/8	1 5/8	3 7/8	57.68
17474-T356	1 1/4	1	1 5/8	4 1/8	63.14
17477-T362	1 1/4	1 1/4	1 5/8	4 1/8	63.75
17470-T351	1 3/8	3/4	1 5/8	3 7/8	68.98
17475-T358	1 3/8	1	1 5/8	4 1/8	69.07
17471-T351A	1 1/2	3/4	1 5/8	3 7/8	77.74
17476-T360	1 1/2	1	1 5/8	4 1/8	75.60
17478-T364	1 1/2	1 1/4	1 5/8	4 1/8	77.43
17479-T366	1 5/8	1 1/4	1 5/8	4 1/8	83.47
17480-T368	1 3/4	1 1/4	1 5/8	4 1/8	93.06
17481-T370	1 7/8	1 1/4	1 5/8	4 1/8	100.23
17482-T372	2	1 1/4	1 5/8	4 1/8	109.78
17483-T374	2	2	2	5 3/4	168.95

TWO FLUTE ENDMILL - SINGLE END - LONG HIGH SPEED STEEL



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17701-TL308	1/4	3/8	1	3 1/16	\$13.35
17702-TL310	5/16	3/8	1 1/4	3 5/16	13.49
17703-TL312	3/8	3/8	1	2 13/16	13.86
17704-TL712	3/8	3/8	1 1/2	3 5/16	14.43
17705-TL314	7/16	1/2	1 1/2	3 9/16	16.73
17706-TL318	1/2	1/2	1 1/2	3 9/16	17.72
17707-TL718	1/2	1/2	2	4 1/16	20.85
17708-TL818	1/2	1/2	2 1/2	4 9/16	23.09
17709-TL918	1/2	1/2	3	5 1/16	24.09
17710-TL322	5/8	1/2	2 3/8	4 1/2	28.51
17711-TL326	3/4	1/2	3 1/8	5 1/8	39.55
17712-TL328	5/8	5/8	2	4 1/8	39.73
17713-TL728	5/8	5/8	2 1/2	4 5/8	40.07
17714-TL928	5/8	5/8	3	5 1/8	40.20
17715-TL341	3/4	3/4	2 1/4	4 1/2	40.32
17716-TL741	3/4	3/4	2 1/2	5	40.46
17717-TL841	3/4	3/4	3	5 1/2	40.50
17718-TL941	3/4	3/4	3 1/2	6	40.54
17719-TL342	7/8	7/8	2 1/2	4 3/4	40.66

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17720-TL742	7/8	7/8	3 5/8	6 1/16	\$48.80
17721-TL352	1	1	2	4 7/16	45.98
17722-TL552	1	1	2 1/2	5 1/16	48.03
17723-TL652	1	1	3	5 9/16	50.50
17724-TL752	1	1	3 1/2	6 1/16	57.33
17725-TL852	1	1	4	6 9/16	62.64
17726-TL952	1	1	4 5/8	7 5/16	68.11
17727-TL354	1 1/8	1	3	5 1/2	71.69
17728-TL356	1 1/4	1	3	5 1/2	81.37
17729-TL362	1 1/4	1 1/4	3	5 9/16	78.60
17730-TL762	1 1/4	1 1/4	3 1/2	6 1/16	86.18
17731-TL962	1 1/4	1 1/4	4 3/4	7 5/16	98.27
17732-TL358	1 3/8	1	3	5 1/2	101.16
17733-TL764	1 1/2	1 1/4	3	5 1/2	106.48
17734-TL766	1 5/8	1 1/4	3	5 1/2	107.82
17735-TL768	1 3/4	1 1/4	3	5 1/2	117.90
17736-TL770	1 7/8	1 1/4	3	5 1/2	133.82
17737-TL772	2	1 1/4	3	5 1/2	142.26



TWO FLUTE ENDMILL SINGLE END HIGH SPEED STEEL

LH

Regularly furnished with left hand cut-left hand spiral.
(Endmills with right hand cut-right hand spiral are shown in preceding series.)

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17551-T304L	1/8	3/8	3/8	2 3/8	\$18.17
17552-T306L	3/16	3/8	3/8	2 3/8	18.51
17553-T308L	1/4	3/8	1/2	2 3/8	18.97
17554-T310L	5/16	3/8	9/16	2 3/8	19.23
17555-T312L	3/8	3/8	9/16	2 3/8	19.39
17556-T314L	7/16	3/8	13/16	2 1/2	23.55
17557-T318L	1/2	1/2	1	3	23.82
17558-T328L	5/8	5/8	1 5/16	3 7/16	37.49
17559-T332L	3/4	5/8	1 1/2	3 7/16	42.67
17560-T334L	13/16	5/8	1 1/2	3 5/8	52.55
17561-T336L	7/8	5/8	1 1/2	3 5/8	54.11
17562-T338L	15/16	5/8	1 1/2	3 5/8	63.46
17563-T340L	1	5/8	1 1/2	3 5/8	63.89
17564-T342L	7/8	7/8	1 1/2	3 3/4	64.36
17565-T344L	15/16	7/8	1 1/2	3 3/4	64.49
17566-T346L	1	7/8	1 1/2	3 3/4	67.64



TWO FLUTE ENDMILL SINGLE END - STRAIGHT FLUTE HIGH SPEED STEEL

Regularly furnished with right hand straight flutes.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17611-T608	1/4	1/4	3/8	1 7/16	\$14.34
17612-T610	5/16	5/16	15/32	1 9/16	15.82
17613-T612	3/8	3/8	9/16	1 5/8	16.41
17614-T614	7/16	7/16	21/32	2	18.98
17615-T618	1/2	1/2	3/4	2 1/16	21.97
17616-T628	5/8	5/8	15/16	2 5/16	26.91
17617-T632	3/4	3/4	1 1/8	2 1/2	28.91
17618-T642	7/8	7/8	1 1/2	3 3/4	47.67
17619-T646	1	7/8	1 1/2	3 3/4	62.64
17620-T648	1 1/8	7/8	1 5/8	3 7/8	78.35
17621-T650	1 1/4	7/8	1 5/8	3 7/8	87.19



TWO FLUTE ENDMILL SINGLE END - SHORT SERIES HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.
Diameter of shank is the same as diameter of cut.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17581-T508	1/4	1/4	3/8	1 7/16	\$14.80
17582-T510	5/16	5/16	15/32	1 9/16	16.63
17583-T512	3/8	3/8	9/16	1 5/8	16.87
17584-T514	7/16	7/16	21/32	2	20.01
17585-T518	1/2	1/2	3/4	2 1/16	22.95
17586-T528	5/8	5/8	15/16	2 5/16	28.05
17587-T532	3/4	3/4	1 1/8	2 1/2	30.00



TWO FLUTE ENDMILL SINGLE END LONG - EXTENSION TYPE HIGH SPEED STEEL

These mills are designed for longer reach required to mill some slots or pockets.
Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17641-T708	1/4	3/8	5/8	3 1/16	\$14.57
17642-T710	5/16	3/8	3/4	3 5/16	14.85
17643-T712	3/8	3/8	3/4	3 5/16	15.17
17644-T718	1/2	1/2	1	4 1/16	21.34
17645-T728	5/8	5/8	1 3/8	4 11/16	31.38
17646-T732	3/4	3/4	1 5/8	5 7/16	39.92
17647-T742	7/8	7/8	2	6 1/16	51.40
17648-T752	1	1	2 1/2	7 5/16	69.60
17649-T762	1 1/4	1 1/4	3	7 5/16	94.60

F&D 2 FLUTE ENDMILLS

64th Sizes

TWO FLUTE ENDMILL – DOUBLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.
(Endmills with left hand cut-left hand spiral are shown in the following series.)



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17341-T204	1/8	3/8	3/8	3 1/8	\$14.45
17342-T204A	9/64	3/8	7/16	3 1/8	14.64
17343-T205	5/32	3/8	7/16	3 1/8	14.94
17344-T205A	11/64	3/8	7/16	3 1/8	15.06
17345-T206	3/16	3/8	7/16	3 1/8	15.27
17346-T206A	13/64	3/8	1/2	3 1/8	15.32
17347-T207	7/32	3/8	1/2	3 1/8	15.40
17348-T207A	15/64	3/8	1/2	3 1/8	15.61
17349-T208	1/4	3/8	1/2	3 1/8	15.82
17350-T208A	17/64	3/8	9/16	3 1/8	15.95
17351-T209	9/32	3/8	9/16	3 1/8	16.08
17352-T209A	19/64	3/8	9/16	3 1/8	16.86
17353-T210	5/16	3/8	9/16	3 1/8	16.97
17354-T210A	21/64	3/8	9/16	3 1/8	17.17
17355-T211	11/32	3/8	9/16	3 1/8	17.61
17356-T211A	23/64	3/8	9/16	3 1/8	18.52
17357-T212	3/8	3/8	9/16	3 1/8	19.06
17358-T212A	25/64	1/2	13/16	3 3/4	20.48
17359-T213	13/32	1/2	13/16	3 3/4	22.48
17360-T213A	27/64	1/2	13/16	3 3/4	23.38
17361-T214	7/16	1/2	13/16	3 3/4	23.53
17362-T214A	29/64	1/2	13/16	3 3/4	23.64
17363-T215	15/32	1/2	13/16	3 3/4	23.82

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17364-T216	31/64	1/2	13/16	3 3/4	\$23.99
17365-T218	1/2	1/2	13/16	3 3/4	24.67
17366-T219	17/32	5/8	1 1/8	4 1/2	28.77
17367-T220	9/16	5/8	1 1/8	4 1/2	31.72
17368-T224	19/32	5/8	1 1/8	4 1/2	32.83
17369-T228	5/8	5/8	1 1/8	4 1/2	33.61
17370-T229	21/32	3/4	1 5/16	5	38.30
17371-T230	11/16	3/4	1 5/16	5	39.76
17372-T231	23/32	3/4	1 5/16	5	41.31
17373-T232	3/4	3/4	1 5/16	5	41.86
17374-T233	25/32	7/8	1 9/16	5 1/2	45.89
17375-T234	13/16	7/8	1 9/16	5 1/2	50.29
17376-T238	27/32	7/8	1 9/16	5 1/2	54.82
17377-T242	7/8	7/8	1 9/16	5 1/2	55.61
17378-T243	29/32	1	1 5/8	5 7/8	57.67
17379-T244	15/16	1	1 5/8	5 7/8	61.39
17380-T248	31/32	1	1 5/8	5 7/8	62.24
17381-T252	1	1	1 5/8	5 7/8	67.30
17382-T254	1 1/8	1 1/8	1 5/8	6 1/4	110.33
17383-T256	1 1/4	1 1/4	1 3/4	6 1/2	138.69
17384-T258	1 3/8	1 3/8	2	7 1/2	164.35
17385-T260	1 1/2	1 1/2	2	7 1/2	209.52

TWO FLUTE ENDMILL – DOUBLE END HIGH SPEED STEEL

LH

Regularly furnished with left hand cut-left hand spiral.
(Endmills with right hand cut-right hand spiral are shown in preceding series.)



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17401-T204L	1/8	3/8	3/8	3 1/8	\$23.95
17402-T205L	5/32	3/8	7/16	3 1/8	24.42
17403-T206L	3/16	3/8	7/16	3 1/8	24.90
17404-T207L	7/32	3/8	1/2	3 1/8	25.40
17405-T208L	1/4	3/8	1/2	3 1/8	25.91
17406-T209L	9/32	3/8	9/16	3 1/8	26.46
17407-T210L	5/16	3/8	9/16	3 1/8	27.02
17408-T211L	11/32	3/8	9/16	3 1/8	27.53
17409-T212L	3/8	3/8	9/16	3 1/8	28.04

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17410-T213L	13/32	1/2	13/16	3 3/4	\$29.02
17411-T214L	7/16	1/2	13/16	3 3/4	30.63
17412-T215L	15/32	1/2	13/16	3 3/4	31.01
17413-T218L	1/2	1/2	13/16	3 3/4	31.65
17414-T220L	9/16	5/8	1 1/8	4 1/2	37.49
17415-T228L	5/8	5/8	1 1/8	4 1/2	46.78
17416-T232L	3/4	3/4	1 5/16	5	74.00
17417-T242L	7/8	7/8	1 9/16	5 1/2	93.72
17418-T252L	1	1	1 5/8	5 7/8	114.10

TWO FLUTE SMALL DIAMETER ENDMILL – DOUBLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17291-T12	1/16	3/16	7/32	2 1/4	\$11.83
17292-T12A	5/64	3/16	1/4	2 1/4	12.04
17293-T13	3/32	3/16	5/16	2 1/4	12.34
17294-T13A	7/64	3/16	11/32	2 1/4	12.50



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17295-T14	1/8	3/16	3/8	2 1/4	\$12.94
17296-T14A	9/64	3/16	13/32	2 1/4	13.32
17297-T15	5/32	3/16	7/16	2 1/4	13.52
17298-T15A	11/64	3/16	15/32	2 1/4	13.70
17299-T16	3/16	3/16	1/2	2 1/4	13.92



TWO FLUTE SMALL DIAMETER ENDMILL DOUBLE END - LONG HIGH SPEED STEEL

Regularly furnished with right hand cut - right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17321-T102	1/16	3/16	7/32	2 1/2	\$15.06
17322-T103	3/32	3/16	9/32	2 5/8	15.27
17323-T104	1/8	3/16	3/4	3 1/8	15.40
17324-T105	5/32	3/16	7/8	3 1/4	15.61
17325-T106	3/16	3/16	1	3 3/8	15.79



TWO FLUTE ENDMILL DOUBLE END - HIGH SPEED STEEL

Regularly furnished with right hand cut, straight flutes

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17671-T804	1/8	3/8	3/8	3	\$27.26
17672-T806	3/16	3/8	7/16	3	27.74
17673-T808	1/4	3/8	1/2	3	28.04
17674-T810	5/16	3/8	9/16	3	28.42
17675-T812	3/8	3/8	9/16	3	28.72
17676-T814	7/16	1/2	13/16	3 3/4	38.85
17677-T818	1/2	1/2	13/16	3 3/4	40.20
17678-T828	5/8	5/8	1 1/8	4 1/2	47.83
17679-T832	3/4	3/4	1 5/16	5	63.14
17680-T842	7/8	7/8	1 9/16	5 1/2	83.47
17681-T852	1	1	1 5/8	5 7/8	109.58



TWO FLUTE BALL ENDMILL DOUBLE END - HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17761-T1004	1/8	3/8	3/8	3 1/16	\$23.55
17762-T1006	3/16	3/8	7/16	3 1/8	24.08
17763-T1008	1/4	3/8	1/2	3 3/16	24.30
17764-T1010	5/16	3/8	9/16	3 3/16	24.42
17765-T1012	3/8	3/8	9/16	3 3/16	24.59
17766-T1014	7/16	1/2	13/16	3 7/8	34.43
17767-T1018	1/2	1/2	13/16	3 7/8	39.14
17768-T1028	5/8	5/8	1 1/8	4 9/16	47.29
17769-T1032	3/4	3/4	1 5/16	5	60.18
17770-T1042	7/8	7/8	1 9/16	5 1/2	74.23
17771-T1052	1	1	1 5/8	5 7/8	91.46

TWO FLUTE BALL ENDMILLS SINGLE END HIGH SPEED STEEL



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17821-T1104	1/8	3/8	3/8	2 1/4	\$13.85
17822-T1106	3/16	3/8	1/2	2 3/8	14.04
17823-T1108	1/4	3/8	5/8	2 1/2	14.34
17824-T1110	5/16	3/8	3/4	2 9/16	15.46
17825-T1112	3/8	3/8	3/4	2 9/16	15.66
17826-T1114	7/16	1/2	1	3 1/16	21.99
17827-T1118	1/2	1/2	1	3 1/16	22.21
17828-T1120	9/16	1/2	1	3 1/16	28.41
17829-T1122	5/8	1/2	1 3/8	3 3/8	32.57
17830-T1126	3/4	1/2	1 5/8	3 5/8	38.60
17831-T1128	5/8	5/8	1 3/8	3 9/16	38.76
17832-T1132	3/4	3/4	1 5/8	3 15/16	38.88
17833-T1141A	13/16	3/4	2	4 1/4	49.00
17834-T1141B	7/8	3/4	2	4 1/4	49.26
17835-T1142	7/8	7/8	2	4 5/16	49.51
17836-T1143	15/16	3/4	2 1/4	4 1/2	61.39
17837-T1145	1	3/4	2 1/4	4 1/2	63.81
17838-T1147	1 1/8	3/4	2 1/4	4 1/2	75.60
17839-T1149	1 1/4	3/4	2 1/2	4 3/4	86.89
17840-T1151	1 3/8	3/4	2 1/2	4 3/4	94.02
17841-T1151A	1 1/2	3/4	2 1/2	4 3/4	106.31
17842-T1152	1	1	2 1/4	4 13/16	65.00
17843-T1154	1 1/8	1	2 1/4	4 13/16	74.19
17844-T1162	1 1/4	1 1/4	2 1/2	5 1/16	83.47
17845-T1163	1 3/8	1 1/4	2 1/2	5 1/16	91.65
17846-T1164	1 1/2	1 1/4	2 1/2	5 1/16	103.01



TWO FLUTE BALL ENDMILL SINGLE END LONG EXTENSION TYPE HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17791-T1218	1/2	1/2	1	4 1/16	\$26.40
17792-T1228	5/8	5/8	1 3/8	4 11/16	36.48
17793-T1232	3/4	3/4	1 5/8	5 7/16	46.78
17794-T1242	7/8	7/8	2	6 1/16	59.63
17795-T1252	1	1	2 1/2	7 5/16	81.11
17796-T1262	1 1/4	1 1/4	3	7 5/16	103.50



2 FLUTE ENDMILLS

TWO FLUTE ENDMILL FOR ALUMINUM SINGLE END - HIGH SPEED STEEL

Regularly furnished with right hand cut.



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17091-AT308	1/4	3/8	5/8	2 7/16	\$11.95
17092-AT310	5/16	3/8	3/4	2 1/2	12.22
17093-AT312	3/8	3/8	3/4	2 1/2	12.59
17094-AT314	7/16	3/8	1	2 11/16	15.32
17095-AT318	1/2	1/2	1 1/4	3 1/4	16.67
17096-AT322	5/8	1/2	1 3/8	3 3/8	21.68
17097-AT326	3/4	1/2	1 5/8	3 5/8	26.20
17098-AT328	5/8	5/8	1 5/8	3 3/4	21.68
17099-AT341	3/4	3/4	1 5/8	3 7/8	24.85
17100-AT341B	7/8	3/4	1 7/8	4 1/8	32.93
17101-AT342	7/8	7/8	1 7/8	4 1/8	33.31
17102-AT345	1	3/4	1 7/8	4 1/8	40.77
17103-AT347	1 1/8	3/4	2	4 1/4	61.84
17104-AT349	1 1/4	3/4	2	4 1/4	70.68
17105-AT351	1 3/8	3/4	2	4 1/4	83.21
17106-AT351A	1 1/2	3/4	2	4 1/4	88.45
17107-AT352	1	1	2	4 1/2	41.00
17108-AT362	1 1/4	1 1/4	2	4 1/2	69.07
17109-AT364	1 1/2	1 1/4	2	4 1/2	86.89
17110-AT368	1 3/4	1 1/4	2	4 1/2	106.07
17111-AT372	2	1 1/4	2	4 1/2	125.65

TWO FLUTE BALL ENDMILL FOR ALUMINUM SINGLE END - HIGH SPEED STEEL

Regularly furnished with right hand cut.



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17191-AT1308	1/4	3/8	5/8	2 1/2	\$22.20
17192-AT1310	5/16	3/8	3/4	2 1/2	22.55
17193-AT1312	3/8	3/8	3/4	2 1/2	22.97
17194-AT1314	7/16	3/8	1	2 11/16	31.06
17195-AT1318	1/2	1/2	1 1/4	3 1/4	32.02
17196-AT1322	5/8	1/2	1 3/8	3 3/8	42.36
17197-AT1326	3/4	1/2	1 5/8	3 5/8	49.96
17198-AT1328	5/8	5/8	1 5/8	3 3/4	44.24
17199-AT1332	3/4	3/4	1 5/8	3 7/8	49.96
17200-AT1341B	7/8	3/4	1 7/8	4 1/8	62.69
17201-AT1342	7/8	7/8	1 7/8	4 1/8	63.13
17202-AT1345	1	3/4	1 7/8	4 1/8	79.61
17203-AT1347	1 1/8	3/4	2	4 1/4	97.14
17204-AT1349	1 1/4	3/4	2	4 1/4	111.78
17205-AT1351	1 3/8	3/4	2	4 1/4	123.58
17206-AT1351A	1 1/2	3/4	2	4 1/4	135.58
17207-AT1352	1	1	2	4 1/2	81.34
17208-AT1362	1 1/4	1 1/4	2	4 1/2	107.21
17209-AT1364	1 1/2	1 1/4	2	4 1/2	131.07
17210-AT1368	1 3/4	1 1/4	2	4 1/2	175.03
17211-AT1372	2	1 1/4	2	4 1/2	207.51

TWO FLUTE FOR ALUMINUM SINGLE END - LONG HIGH SPEED STEEL

Regularly furnished with right hand cut.



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17131-AT708	1/4	3/8	1 1/4	3 1/8	\$13.85
17132-AT710	5/16	3/8	1 3/8	3 1/8	14.09
17133-AT712	3/8	3/8	1 1/2	3 1/4	14.30
17134-AT714	7/16	1/2	1 3/4	3 3/4	19.23
17135-AT718	1/2	1/2	2	4	19.79
17136-AT728	5/8	5/8	2 1/2	4 5/8	26.81
17137-AT732	3/4	3/4	3	5 1/4	34.43
17138-AT742	7/8	7/8	3 1/2	5 3/4	43.67
17139-AT752	1	1	4	6 1/2	59.63
17140-AT762	1 1/4	1 1/4	4	6 1/2	92.62
17141-AT764	1 1/2	1 1/4	4	6 1/2	118.46
17142-AT768	1 3/4	1 1/4	4	6 1/2	150.64
17143-AT772	2	1 1/4	4	6 1/2	186.99

TWO FLUTE ENDMILL FOR ALUMINUM SINGLE END - EXTRA LONG HIGH SPEED STEEL

Regularly furnished with right hand cut.



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17161-AT908	1/4	3/8	1 3/4	3 1/2	\$15.15
17162-AT910	5/16	3/8	2	3 3/4	15.55
17163-AT912	3/8	3/8	2 1/2	4 1/4	16.52
17164-AT914	7/16	1/2	2 3/4	4 3/4	22.08
17165-AT918	1/2	1/2	3	5	23.30
17166-AT928	5/8	5/8	4	6 1/8	32.93
17167-AT932	3/4	3/4	4	6 1/4	40.77
17168-AT942	7/8	7/8	5	7 1/4	52.91
17169-AT952	1	1	6	8 1/2	72.93
17170-AT962	1 1/4	1 1/4	6	8 1/2	116.01
17171-AT964	1 1/2	1 1/4	8	10 1/2	198.29



TWO FLUTE BALL ENDMILL FOR ALUMINUM SINGLE END - LONG HIGH SPEED STEEL

Regularly furnished with right hand cut.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17231-AT1708	1/4	3/8	1 1/4	3 1/8	\$25.71
17232-AT1710	5/16	3/8	1 3/8	3 1/8	27.56
17233-AT1712	3/8	3/8	1 1/2	3 1/4	28.04
17234-AT1714	7/16	1/2	1 3/4	3 3/4	36.19
17235-AT1718	1/2	1/2	2	4	40.84
17236-AT1728	5/8	5/8	2 1/2	4 5/8	51.99
17237-AT1732	3/4	3/4	3	5 1/4	66.05
17238-AT1742	7/8	7/8	3 1/2	5 3/4	79.11
17239-AT1752	1	1	4	6 1/2	106.42
17240-AT1762	1 1/4	1 1/4	4	6 1/2	147.42
17241-AT1764	1 1/2	1 1/4	4	6 1/2	184.17
17242-AT1768	1 3/4	1 1/4	4	6 1/2	238.37
17243-AT1772	2	1 1/4	4	6 1/2	290.79



TWO FLUTE BALL ENDMILL FOR ALUMINUM SINGLE END - EXTRA LONG HIGH SPEED STEEL

Regularly furnished with right hand cut.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17261-AT1908	1/4	3/8	1 3/4	3 1/2	\$30.07
17262-AT1910	5/16	3/8	2	3 3/4	31.11
17263-AT1912	3/8	3/8	2 1/2	4 1/4	31.53
17264-AT1914	7/16	1/2	2 3/4	4 3/4	42.27
17265-AT1918	1/2	1/2	3	5	44.57
17266-AT1928	5/8	5/8	4	6 1/8	66.01
17267-AT1932	3/4	3/4	4	6 1/4	71.83
17268-AT1942	7/8	7/8	5	7 1/4	99.68
17269-AT1952	1	1	6	8 1/2	134.63
17270-AT1962	1 1/4	1 1/4	6	8 1/2	321.21
17271-AT1960	1 1/2	1 1/4	6	8 1/2	333.81
17272-AT1964	1 1/2	1 1/4	8	10 1/2	364.02



TWO FLUTE SLOTTING ENDMILL B&S TAPER SHANK - HIGH SPEED STEEL

These endmills are ideally suited for slotting operations.
Regularly furnished in right hand cut-right hand spiral.
#5 B&S shank furnished with plain end - all others with tang.
LHC & LHS also available from stock*

Catalog EDI-Number	Dia. of Mill	B&S Taper Shank	Flute Length	Overall Length	List Price
18781-S607	1/4	#5	3/8	2 9/16	\$33.89
18782-S608	1/4	#7	3/8	4 3/8	51.01
18783-S609	5/16	#5	15/32	2 21/32	51.91
18784-S610	5/16	#7	15/32	4 15/32	52.39
18785-S612	3/8	#7	9/16	4 9/16	53.56
18786-S614	7/16	#7	21/32	4 21/32	55.53
18787-S618	1/2	#7	3/4	4 3/4	55.90
18788-S628	5/8	#7	15/16	4 15/16	56.45
18789-S632	3/4	#7	1 1/8	5 1/8	57.13
18790-S642	7/8	#7	1 5/16	5 5/16	73.08
18791-S652	1	#9	1 1/2	6 3/4	95.45
18792-S662	1 1/4	#9	1 7/8	7 1/8	116.06
18793-S664	1 1/2	#9	2 1/4	7 1/2	157.06



TWO FLUTE SLOTTING ENDMILL B&S TAPER SHANK - HIGH SPEED STEEL

These endmills are furnished with straight flutes.
#5 B&S shank furnished with plain end - all others with tang.

Catalog EDI-Number	Dia. of Mill	B&S Taper Shank	Flute Length	Overall Length	List Price
18811-S707	1/4	#5	3/8	2 9/16	\$33.89
18812-S708	1/4	#7	3/8	4 3/8	51.01
18813-S709	5/16	#5	15/32	2 21/32	51.65
18814-S710	5/16	#7	15/32	4 15/32	53.15
18815-S712	3/8	#7	9/16	4 9/16	54.34
18816-S714	7/16	#7	21/32	4 21/32	55.53
18817-S716	1/2	#7	3/4	4 3/4	56.31
18818-S728	5/8	#7	15/16	4 15/16	57.19
18819-S732	3/4	#7	1 1/8	5 1/8	57.86
18820-S742	7/8	#7	1 5/16	5 5/16	73.08
18821-S752	1	#9	1 1/2	6 3/4	95.45
18822-S762	1 1/4	#9	1 7/8	7 1/8	116.06
18823-S764	1 1/2	#9	2 1/4	7 1/2	157.06



3 FLUTE ENDMILLS

THREE FLUTE ENDMILL – DOUBLE END HIGH SPEED STEEL



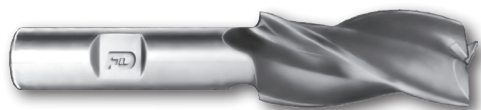
RIGHT HAND CUT



RIGHT HAND SPIRAL

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17861-FF204	1/8	3/8	3/8	3 1/8	\$18.67
17862-FF206	3/16	3/8	1/2	3 1/8	19.01
17863-FF208	1/4	3/8	5/8	3 3/8	19.23
17864-FF210	5/16	3/8	3/4	3 3/8	19.31
17865-FF212	3/8	3/8	3/4	3 3/8	19.53
17866-FF214	7/16	1/2	1	4 1/4	28.21
17867-FF218	1/2	1/2	1	4 1/4	30.63
17868-FF220	9/16	5/8	1 3/8	5	39.76
17869-FF228	5/8	5/8	1 3/8	5	41.05
17870-FF232	3/4	3/4	1 5/8	5 5/8	50.49
17871-FF242	7/8	7/8	1 7/8	6 1/4	64.25
17872-FF252	1	1	1 7/8	6 1/2	77.91

THREE FLUTE ENDMILL – SINGLE END - LONG



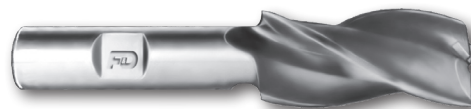
RIGHT HAND CUT



RIGHT HAND SPIRAL

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17941-FF708	1/4	3/8	1 1/4	3 1/8	\$19.97
17942-FF710	5/16	3/8	1 3/8	3 1/8	20.21
17943-FF712	3/8	3/8	1 1/2	3 1/4	20.48
17944-FF714	7/16	1/2	1 3/4	3 3/4	28.37
17945-FF718	1/2	1/2	2	4	28.56
17946-FF728	5/8	5/8	2 1/2	4 5/8	39.95
17947-FF732	3/4	3/4	3	5 1/4	49.65
17948-FF742	7/8	7/8	3 1/2	5 3/4	60.74
17949-FF752	1	1	4	6 1/2	81.22
17950-FF762	1 1/4	1 1/4	4	6 1/2	119.82
17951-FF764	1 1/2	1 1/4	4	6 1/2	154.36
17952-FF768	1 3/4	1 1/4	4	6 1/2	199.73
17953-FF772	2	1 1/4	4	6 1/2	243.24

THREE FLUTE ENDMILL – SINGLE END



RIGHT HAND CUT

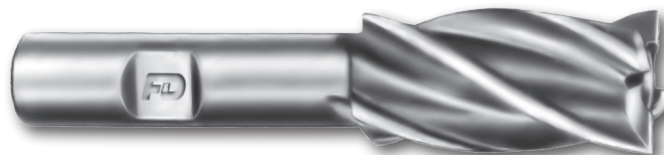


RIGHT HAND SPIRAL

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17891-FF304	1/8	3/8	3/8	2 5/16	\$13.00
17892-FF306	3/16	3/8	1/2	2 3/8	13.32
17893-FF308	1/4	3/8	5/8	2 1/2	13.52
17894-FF310	5/16	3/8	3/4	2 1/2	13.82
17895-FF312	3/8	3/8	3/4	2 1/2	13.96
17896-FF314	7/16	3/8	1	2 11/16	16.91
17897-FF316	1/2	3/8	1	2 11/16	17.95
17898-FF318	1/2	1/2	1 1/4	3 1/4	19.63
17899-FF320	9/16	1/2	1 3/8	3 3/8	24.85
17900-FF322	5/8	1/2	1 3/8	3 3/8	25.95
17901-FF326	3/4	1/2	1 5/8	3 5/8	27.81
17902-FF328	5/8	5/8	1 5/8	3 3/4	26.50
17903-FF332	3/4	5/8	1 5/8	3 3/4	27.40
17904-FF336	7/8	5/8	1 7/8	4	35.18
17905-FF340	1	5/8	1 7/8	4	42.52
17906-FF341	3/4	3/4	1 5/8	3 7/8	28.62
17907-FF341B	7/8	3/4	1 7/8	4 1/8	35.31
17908-FF342	7/8	7/8	1 7/8	4 1/8	35.61
17909-FF345	1	3/4	1 7/8	4 1/8	42.71
17910-FF346	1	7/8	1 7/8	4 1/8	42.92
17911-FF352	1	1	2	4 1/2	43.05
17912-FF354	1 1/8	1	2	4 1/2	61.84
17913-FF356	1 1/4	1	2	4 1/2	67.82
17914-FF358	1 3/8	1	2	4 1/2	75.24
17915-FF360	1 1/2	1	2	4 1/2	81.93
17916-FF362	1 1/4	1 1/4	2	4 1/2	68.14
17917-FF364	1 1/2	1 1/4	2	4 1/2	82.18
17918-FF368	1 3/4	1 1/4	2	4 1/2	87.40
17919-FF372	2	1 1/4	2	4 1/2	101.74
17920-FF374	2	2	2	5 3/4	168.96

MULTIPLE FLUTE ENDMILL – SINGLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral. Endmills with left hand cut-left hand spiral are shown on page 62



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18101-F304	1/8	3/8	3/8	2 5/16	4	\$10.34
18102-F305	5/32	3/8	7/16	2 5/16	4	11.30
18103-F306	3/16	3/8	1/2	2 3/8	4	11.53
18104-F307	7/32	3/8	9/16	2 3/8	4	11.66
18105-F308	1/4	3/8	5/8	2 1/2	4	11.82
18106-F309	9/32	3/8	11/16	2 1/2	4	12.12
18107-F310	5/16	3/8	3/4	2 1/2	4	12.30
18108-F311	11/32	3/8	3/4	2 1/2	4	12.42
18109-F312	3/8	3/8	3/4	2 1/2	4	12.72
18110-F314	7/16	3/8	1	2 11/16	4	13.35
18111-F316	1/2	3/8	1	2 11/16	4	13.62
18112-F318	1/2	1/2	1 1/4	3 1/4	4	13.91
18113-F320	9/16	1/2	1 3/8	3 3/8	4	17.97
18114-F322	5/8	1/2	1 3/8	3 3/8	4	19.63
18117-F328	5/8	5/8	1 5/8	3 3/4	4	22.48
18115-F324	11/16	1/2	1 5/8	3 5/8	4	23.55
18118-F330	11/16	5/8	1 5/8	3 3/4	4	21.59
18116-F326	3/4	1/2	1 5/8	3 5/8	4	22.89
18119-F332	3/4	5/8	1 5/8	3 3/4	4	23.82
18128-F341	3/4	3/4	1 5/8	3 3/4	4	29.22
18120-F333	13/16	1/2	1 7/8	3 7/8	4	29.36
18121-F334	13/16	5/8	1 7/8	4	6	29.66
18129-F341A	13/16	3/4	1 7/8	4 1/8	4	29.86
18122-F335	7/8	1/2	1 7/8	3 7/8	4	32.93
18123-F336	7/8	5/8	1 7/8	4	6	33.52

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18130-F341B	7/8	3/4	1 7/8	4 1/8	4	\$35.69
18131-F342	7/8	7/8	1 7/8	4 1/8	4	35.86
18124-F337	15/16	1/2	1 7/8	3 7/8	4	24.19
18125-F338	15/16	5/8	1 7/8	4	6	29.52
18132-F343	15/16	3/4	1 7/8	4 1/8	4	30.83
18133-F344	15/16	7/8	1 7/8	4 1/8	4	31.69
18126-F339	1	1/2	1 7/8	3 7/8	4	35.18
18127-F340	1	5/8	1 7/8	4	6	35.39
18134-F345	1	3/4	1 7/8	4 1/8	4	36.25
18135-F346	1	7/8	1 7/8	4 1/8	4	36.45
18142-F352	1	1	2	4 1/2	4	51.95
18136-F347	1 1/8	3/4	2	4 1/4	6	52.49
18137-F348	1 1/8	7/8	2	4 1/4	6	56.27
18143-F354	1 1/8	1	2	4 1/2	6	57.00
18138-F349	1 1/4	3/4	2	4 1/4	6	63.45
18139-F350	1 1/4	7/8	2	4 1/4	6	71.38
18144-F356	1 1/4	1	2	4 1/2	6	37.14
18147-F362	1 1/4	1 1/4	2	4 1/2	6	53.26
18140-F351	1 3/8	3/4	2	4 1/4	6	58.33
18145-F358	1 3/8	1	2	4 1/2	6	64.36
18141-F351A	1 1/2	3/4	2	4 1/4	6	71.85
18146-F360	1 1/2	1	2	4 1/2	6	59.13
18148-F364	1 1/2	1 1/4	2	4 1/2	6	72.32
18149-F366	1 5/8	1 1/4	2	4 1/2	6	77.91
18150-F368	1 3/4	1 1/4	2	4 1/2	6	86.89
18151-F370	1 7/8	1 1/4	2	4 1/2	8	89.65
18152-F372	2	1 1/4	2	4 1/2	8	100.24
18153-F374	2	2	2	5 3/4	6	157.47



FOUR FLUTE ENDMILL – SHORT SERIES SINGLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18251-F504	1/8	1/8	5/16	1 1/4	4	\$12.41
18252-F505	5/32	5/32	5/16	1 1/4	4	12.82
18253-F506	3/16	3/16	1/2	1 3/8	4	13.48
18254-F507	7/32	7/32	9/16	1 5/8	4	14.22
18255-F508	1/4	1/4	5/8	1 11/16	4	14.77
18256-F510	5/16	5/16	11/16	1 3/4	4	15.38
18257-F512	3/8	3/8	3/4	1 13/16	4	16.14
18258-F514	7/16	7/16	7/8	2 3/16	4	19.79
18259-F518	1/2	1/2	15/16	2 1/4	4	21.88
18260-F520	9/16	9/16	1	2 5/16	4	28.69
18261-F528	5/8	5/8	1 1/8	2 1/2	4	32.41
18262-F532	3/4	3/4	1 1/4	2 5/8	4	38.30



MULTIPLE FLUTE ENDMILL – SINGLE END MEDIUM LENGTH HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18281-F652	1	1	3	5 1/2	4	\$46.43
18282-F662	1 1/4	1 1/4	3	5 1/2	4	64.86
18283-F664	1 1/2	1 1/4	3	5 1/2	4	78.91
18284-F668	1 3/4	1 1/4	3	5 1/2	4	100.24
18285-F672	2	1 1/4	3	5 1/2	4	122.98
18286-F672A	2	1 1/4	3	5 1/2	6	122.98



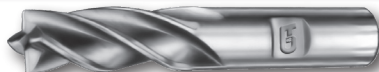
MULTIPLE FLUTE ENDMILLS



MULTIPLE FLUTE ENDMILL – SINGLE END LONG - HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

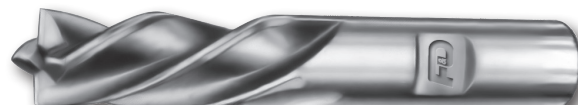
Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18301-F708	1/4	3/8	1 1/4	3 1/8	4	\$11.95
18302-F710	5/16	3/8	1 3/8	3 1/8	4	12.46
18303-F712	3/8	3/8	1 1/2	3 1/4	4	13.02
18304-F714	7/16	1/2	1 3/4	3 3/4	4	17.73
18305-F718	1/2	1/2	2	4	4	19.15
18306-F728	5/8	5/8	2 1/2	4 5/8	4	25.80
18307-F732	3/4	3/4	3	5 1/4	4	31.72
18308-F742	7/8	7/8	3 1/2	5 3/4	4	39.76
18309-F752	1	1	4	6 1/2	4	52.55
18310-F754	1 1/8	1	4	6 1/2	6	72.23
18311-F756	1 1/4	1	4	6 1/2	6	81.22
18312-F758	1 3/8	1	4	6 1/2	6	95.37
18313-F760	1 1/2	1	4	6 1/2	6	98.84
18314-F762	1 1/4	1 1/4	4	6 1/2	6	82.06
18315-F764	1 1/2	1 1/4	4	6 1/2	6	98.84
18316-F768	1 3/4	1 1/4	4	6 1/2	6	127.95
18317-F772	2	1 1/4	4	6 1/2	8	155.41
18318-F782	2	2	4	7 3/4	4	161.33
18319-F784	2	2	4	7 3/4	6	165.90
18320-F786	2	2	6	9 3/4	4	198.57
18321-F788	2	2	8	11 3/4	6	236.02
18322-F794	2 1/2	2	4	7 5/8	6	244.60
18323-F796	2 1/2	2	6	9 5/8	6	278.09



MULTIPLE FLUTE ENDMILL – SINGLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-left hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18211-F408	1/4	3/8	5/8	2 1/2	4	\$13.00
18212-F410	5/16	3/8	3/4	2 1/2	4	13.10
18213-F412	3/8	3/8	3/4	2 1/2	4	13.40
18214-F414	7/16	3/8	1	2 11/16	4	16.91
18215-F418	1/2	1/2	1 1/4	3 1/4	4	19.63
18216-F428	5/8	5/8	1 5/8	3 3/4	4	26.25
18217-F432	3/4	3/4	1 3/4	4	4	39.20
18218-F442	7/8	7/8	1 7/8	4 1/8	4	40.92
18219-F452	1	1	2	4 1/2	4	44.97
18220-F454	1 1/8	1	2	4 1/2	6	61.79
18221-F456	1 1/4	1	2	4 1/2	6	67.82
18222-F458	1 3/8	1	2	4 1/2	6	72.69
18223-F460	1 1/2	1	2	4 1/2	6	81.93
18224-F462	1 1/4	1 1/4	2	4 1/2	6	71.46
18225-F464	1 1/2	1 1/4	2	4 1/2	6	83.00
18226-F466	1 5/8	1 1/4	2	4 1/2	6	89.15
18227-F468	1 3/4	1 1/4	2	4 1/2	6	100.10
18228-F470	1 7/8	1 1/4	2	4 1/2	8	103.50
18229-F472	2	1 1/4	2	4 1/2	8	116.01



MULTIPLE FLUTE ENDMILL – SINGLE END LONG - HIGH SPEED STEEL

Regularly furnished with right hand cut-left hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18341-F805	1/4	3/8	1 1/4	3 1/8	4	\$14.45
18342-F810	5/16	3/8	1 3/8	3 1/8	4	14.80
18343-F812	3/8	3/8	1 1/2	3 1/4	4	15.61
18344-F814	7/16	1/2	1 3/4	3 3/4	4	20.98
18345-F818	1/2	1/2	2	4	4	21.14
18346-F828	5/8	5/8	2 1/2	4 5/8	4	27.76
18347-F832	3/4	3/4	3	5 1/4	4	34.24
18348-F842	7/8	7/8	3 1/2	5 3/4	4	42.52
18349-F852	1	1	4	6 1/2	4	57.58
18350-F854	1 1/8	1	4	6 1/2	6	79.31
18351-F856	1 1/4	1	4	6 1/2	6	88.74
18352-F858	1 3/8	1	4	6 1/2	6	104.91
18353-F860	1 1/2	1	4	6 1/2	6	108.22
18354-F862	1 1/4	1 1/4	4	6 1/2	6	90.61
18355-F864	1 1/2	1 1/4	4	6 1/2	6	110.00
18356-F868	1 3/4	1 1/4	4	6 1/2	6	139.75
18357-F872	2	1 1/4	4	6 1/2	8	171.57



LH MULTIPLE FLUTE ENDMILL – SINGLE END HIGH SPEED STEEL

Regularly furnished with left hand cut-left hand spiral

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18171-F304L	1/8	3/8	3/8	2 5/16	4	\$20.63
18172-F306L	3/16	3/8	1/2	2 3/8	4	21.39
18173-F308L	1/4	3/8	5/8	2 1/2	4	21.78
18174-F310L	5/16	3/8	3/4	2 1/2	4	22.07
18175-F312L	3/8	3/8	3/4	2 1/2	4	22.21
18176-F314L	7/16	3/8	1	2 11/16	4	22.34
18177-F318L	1/2	1/2	1 1/4	3 1/4	4	23.74
18178-F322L	5/8	1/2	1 3/8	3 3/8	4	26.20
18179-F326L	3/4	1/2	1 5/8	3 5/8	4	29.96
18180-F328L	5/8	5/8	1 5/8	3 3/4	4	32.13
18181-F330L	11/16	5/8	1 5/8	3 3/4	4	35.03
18182-F332L	3/4	5/8	1 5/8	3 3/4	4	36.25
18183-F334L	13/16	5/8	1 7/8	4	6	44.42
18184-F335L	7/8	1/2	1 7/8	3 7/8	4	45.53
18185-F336L	7/8	5/8	1 7/8	4	6	46.83
18186-F339L	1	1/2	1 7/8	3 7/8	4	50.09
18187-F340L	1	5/8	1 7/8	4	6	53.66
18188-F342L	7/8	7/8	1 7/8	4 1/8	4	46.83
18189-F344L	15/16	7/8	1 7/8	4 1/8	4	53.66
18190-F346L	1	7/8	1 7/8	4 1/8	4	55.68



MULTIPLE FLUTE ENDMILL – SINGLE END EXTRA LONG - HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18381-F908	1/4	3/8	1 3/4	3 1/2	4	\$13.35
18382-F910	5/16	3/8	2	3 3/4	4	14.15
18383-F912	3/8	3/8	2 1/2	4 1/4	4	14.76
18384-F918	1/2	1/2	3	5	4	21.03
18385-F928	5/8	5/8	4	6 1/8	4	31.32
18386-F932	3/4	3/4	4	6 1/4	4	36.74
18387-F942	7/8	7/8	5	7 1/4	4	48.34
18388-F952	1	1	6	8 1/2	4	64.25
18389-F962	1 1/4	1 1/4	6	8 1/2	6	98.84
18390-F964	1 1/2	1 1/4	8	10 1/2	6	165.29



MULTIPLE FLUTE CENTER CUTTING ENDMILL SINGLE END - EXTRA LONG HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral, with two flutes cutting to center for plunge cutting.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18591-FC908	1/4	3/8	1 3/4	3 1/2	4	\$16.16
18592-FC910	5/16	3/8	2	3 3/4	4	16.67
18593-FC912	3/8	3/8	2 1/2	4 1/4	4	17.73
18594-FC918	1/2	1/2	3	5	4	24.85
18595-FC928	5/8	5/8	4	6 1/8	4	36.49
18596-FC932	3/4	3/4	4	6 1/4	4	42.52
18597-FC942	7/8	7/8	5	7 1/4	4	55.01
18598-FC952	1	1	6	8 1/2	4	72.93
18599-FC962	1 1/4	1 1/4	6	8 1/2	4	110.23
18600-FC962A	1 1/4	1 1/4	6	8 1/2	6	127.54
18601-FC964	1 1/2	1 1/4	6	8 1/2	4	180.91
18602-FC964A	1 1/2	1 1/4	6	8 1/2	6	194.66
18603-FC964B	1 1/2	1 1/4	8	10 1/2	6	205.15



MULTIPLE FLUTE BALL ENDMILL – SINGLE END LONG - HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18441-F1208	1/4	3/8	1 1/4	3 1/8	4	\$19.78
18442-F1208A	1/4	3/8	1 3/4	3 1/2	4	20.41
18443-F1210	5/16	3/8	1 3/8	3 1/8	4	21.03
18444-F1210A	5/16	3/8	2	3 3/4	4	21.98
18445-F1212	3/8	3/8	1 1/2	3 1/4	4	22.29
18446-F1212A	3/8	3/8	2 1/2	4 1/4	4	24.85
18447-F1218	1/2	1/2	2	4	4	30.92
18448-F1218A	1/2	1/2	3	5	4	36.49
18449-F1228	5/8	5/8	2 1/2	4 5/8	4	44.13
18450-F1228A	5/8	5/8	4	6 1/8	4	53.06
18451-F1232	3/4	3/4	3	5 1/4	4	55.01
18452-F1232A	3/4	3/4	4	6 1/4	4	60.53
18453-F1242	7/8	7/8	3 1/2	5 3/4	4	68.57
18454-F1242A	7/8	7/8	5	7 1/4	4	75.45
18455-F1252	1	1	4	6 1/2	4	89.15
18456-F1252A	1	1	6	8 1/2	4	104.51
18457-F1262	1 1/4	1 1/4	4	6 1/2	4	121.43
18458-F1262A	1 1/4	1 1/4	4	6 1/2	6	137.38
18459-F1262B	1 1/4	1 1/4	6	8 1/2	4	161.78
18460-F1262C	1 1/4	1 1/4	6	8 1/2	6	166.16
18461-F1264	1 1/2	1 1/4	4	6 1/2	4	140.70
18462-F1264A	1 1/2	1 1/4	4	6 1/2	6	145.49
18463-F1264B	1 1/2	1 1/4	6	8 1/2	6	209.77

MULTIPLE FLUTE BALL ENDMILL SINGLE END HIGH SPEED STEEL



Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18411-F1108	1/4	3/8	5/8	2 1/2	4	\$17.27
18412-F1110	5/16	3/8	3/4	2 1/2	4	17.97
18413-F1112	3/8	3/8	3/4	2 1/2	4	21.19
18414-F1118	1/2	1/2	1 1/4	3 1/4	4	29.51
18415-F1128	5/8	5/8	1 5/8	3 3/4	4	40.16
18416-F1132	3/4	3/4	1 5/8	3 7/8	4	46.43
18417-F1142	7/8	7/8	1 7/8	4 1/8	4	65.20
18418-F1152	1	1	2	4 1/2	4	77.60
18419-F1162	1 1/4	1 1/4	2	4 1/2	4	98.74
18420-F1164	1 1/2	1 1/4	2	4 1/2	4	140.70



MULTIPLE FLUTE ENDMILLS



MULTIPLE FLUTE ENDMILL CENTER CUTTING - SINGLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral with two flutes cutting to center for plunge cutting.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18511-FC304	1/8	3/8	3/8	2 5/16	4	\$13.00
18512-FC306	3/16	3/8	1/2	2 3/8	4	13.36
18513-FC308	1/4	3/8	5/8	2 1/2	4	13.92
18514-FC310	5/16	3/8	3/4	2 1/2	4	14.30
18515-FC312	3/8	3/8	3/4	2 1/2	4	14.68
18534-FC314	7/16	3/8	1	2 3/4	4	18.88
18516-FC318	1/2	1/2	1 1/4	3 1/4	4	19.63
18517-FC318A	1/2	1/2	1 1/4	3 1/4	6	22.48
18518-FC328	5/8	5/8	1 5/8	3 3/4	4	24.85
18519-FC328A	5/8	5/8	1 5/8	3 3/4	6	28.87
18520-FC330	11/16	5/8	1 5/8	3 3/4	4	26.25
18521-FC341	3/4	3/4	1 5/8	3 7/8	4	27.81
18522-FC341A	3/4	3/4	1 5/8	3 7/8	6	32.02
18523-FC342	7/8	7/8	1 7/8	4 1/8	4	35.18
18524-FC342A	7/8	7/8	1 7/8	4 1/8	6	40.37
18525-FC352	1	1	2	4 1/2	4	42.52
18526-FC352A	1	1	2	4 1/2	6	49.40
18527-FC354	1 1/8	1	2	4 1/2	4	61.69
18528-FC362	1 1/4	1 1/4	2	4 1/2	4	67.82
18529-FC362A	1 1/4	1 1/4	2	4 1/2	6	78.40
18530-FC364	1 1/2	1 1/4	2	4 1/2	4	81.93
18531-FC364A	1 1/2	1 1/4	2	4 1/2	6	94.57
18532-FC368	1 3/4	1 1/4	2	4 1/2	6	99.68
18533-FC372	2	1 1/4	2	4 1/2	6	116.01



FOUR FLUTE ENDMILL DOUBLE END - HIGH SPEED STEEL

Regularly furnished in left hand cut-left hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
18071-F204L	1/8	3/8	3/8	3 1/4	\$25.85
18072-F205L	5/32	3/8	7/16	3 1/4	25.95
18073-F206L	3/16	3/8	1/2	3 1/4	26.16
18074-F207L	7/32	3/8	9/16	3 1/4	26.29
18075-F208L	1/4	3/8	5/8	3 3/8	26.46
18076-F209L	9/32	3/8	11/16	3 3/8	26.76
18077-F210L	5/16	3/8	3/4	3 3/8	26.88
18078-F211L	11/32	3/8	3/4	3 3/8	27.01
18079-F212L	3/8	3/8	3/4	3 3/8	27.01
18080-F214L	7/16	1/2	1	4 1/8	34.83
18081-F218L	1/2	1/2	1	4 1/8	36.41
18082-F220L	9/16	5/8	1 3/8	5	45.94
18083-F228L	5/8	5/8	1 3/8	5	51.90
18084-F232L	3/4	3/4	1 5/8	5 5/8	63.10
18085-F242L	7/8	7/8	1 7/8	6 1/4	70.43
18086-F252L	1	1	1 7/8	6 1/2	97.63



MULTIPLE FLUTE ENDMILL CENTER CUTTING - SINGLE END - LONG HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral with two flutes cutting to center for plunge cutting.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18551-FC708	1/4	3/8	1 1/4	3 1/8	4	\$14.76
18552-FC710	5/16	3/8	1 3/8	3 1/8	4	15.23
18553-FC712	3/8	3/8	1 1/2	3 1/4	4	15.70
18554-FC718	1/2	1/2	2	4	4	21.19
18555-FC718A	1/2	1/2	2	4	6	24.85
18556-FC728	5/8	5/8	2 1/2	4 5/8	4	29.56
18557-FC728A	5/8	5/8	2 1/2	4 5/8	6	33.98
18558-FC732	3/4	3/4	3	5 1/4	4	36.74
18559-FC732A	3/4	3/4	3	5 1/4	6	40.95
18560-FC742	7/8	7/8	3 1/2	5 3/4	4	44.97
18561-FC742A	7/8	7/8	3 1/2	5 3/4	6	51.50
18562-FC752	1	1	4	6 1/2	4	60.18
18563-FC752A	1	1	4	6 1/2	6	67.92
18564-FC762	1 1/4	1 1/4	4	6 1/2	4	88.74
18565-FC762A	1 1/4	1 1/4	4	6 1/2	6	102.61
18566-FC764	1 1/2	1 1/4	4	6 1/2	4	111.14
18567-FC764A	1 1/2	1 1/4	4	6 1/2	6	131.51
18568-FC768	1 3/4	1 1/4	4	6 1/2	6	147.88
18569-FC772	2	1 1/4	4	6 1/2	6	180.16





FOUR FLUTE ENDMILL DOUBLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
18011-F204	1/8	3/8	3/8	3 1/4	\$14.15
18012-F204A	9/64	3/8	7/16	3 1/4	15.06
18013-F205	5/32	3/8	7/16	3 1/4	15.27
18014-F205A	11/64	3/8	1/2	3 1/4	15.48
18015-F206	3/16	3/8	1/2	3 1/4	15.70
18016-F206A	13/64	3/8	9/16	3 1/4	15.82
18017-F207	7/32	3/8	9/16	3 1/4	16.12
18018-F207A	15/64	3/8	5/8	3 3/8	16.25
18019-F208	1/4	3/8	5/8	3 3/8	16.42
18020-F208A	17/64	3/8	11/16	3 3/8	16.59
18021-F209	9/32	3/8	11/16	3 3/8	16.89
18022-F209A	19/64	3/8	3/4	3 3/8	17.07
18023-F210	5/16	3/8	3/4	3 3/8	17.44
18024-F210A	21/64	3/8	3/4	3 3/8	18.01
18025-F211	11/32	3/8	3/4	3 3/8	18.72
18026-F211A	23/64	3/8	3/4	3 3/8	20.63
18027-F212	3/8	3/8	3/4	3 3/8	21.05
18028-F212A	25/64	1/2	1	4 1/8	21.68
18029-F213	13/32	1/2	1	4 1/8	22.08
18030-F213A	27/64	1/2	1	4 1/8	22.48
18031-F214	7/16	1/2	1	4 1/8	22.71
18032-F214A	29/64	1/2	1	4 1/8	23.39
18033-F215	15/32	1/2	1	4 1/8	23.91
18034-F216	31/64	1/2	1	4 1/8	25.31
18035-F218	1/2	1/2	1	4 1/8	25.65
18036-F219	17/32	5/8	1 3/8	5	27.55
18037-F220	9/16	5/8	1 3/8	5	29.21
18038-F224	19/32	5/8	1 3/8	5	30.32
18039-F228	5/8	5/8	1 3/8	5	30.97
18040-F229	21/32	3/4	1 5/8	5 5/8	33.63
18041-F230	11/16	3/4	1 5/8	5 5/8	36.74
18042-F231	23/32	3/4	1 5/8	5 5/8	37.49
18043-F232	3/4	3/4	1 5/8	5 5/8	39.86
18044-F233	25/32	7/8	1 7/8	6 1/4	43.67
18045-F234	13/16	7/8	1 7/8	6 1/4	46.78
18046-F238	27/32	7/8	1 7/8	6 1/4	51.36
18047-F242	7/8	7/8	1 7/8	6 1/4	53.05
18048-F243	29/32	1	1 7/8	6 3/8	54.97
18049-F244	15/16	1	1 7/8	6 3/8	56.83
18050-F248	31/32	1	1 7/8	6 1/2	63.05
18051-F252	1	1	1 7/8	6 1/2	74.00
18052-F256	1 1/4	1 1/4	2	7 1/4	129.16
18053-F258	1 3/8	1 3/8	2 1/8	7 3/8	152.80
18054-F260	1 1/2	1 1/2	2 1/4	8	194.81



FOUR FLUTE SMALL DIAMETER ENDMILL DOUBLE END - HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17971-F13	3/32	3/16	5/16	2 1/4	\$11.85
17972-F14	1/8	3/16	3/8	2 1/4	12.00
17973-F15	5/32	3/16	7/16	2 1/4	12.46
17974-F16	3/16	3/16	1/2	2 1/4	12.68



FOUR FLUTE SMALL DIAMETER ENDMILL DOUBLE END - LONG HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17991-F103	3/32	3/16	9/32	2 5/8	\$15.06
17992-F104	1/8	3/16	3/4	3 1/8	15.52
17993-F105	5/32	3/16	7/8	3 1/4	15.66
17994-F106	3/16	3/16	1	3 3/8	15.91



FOUR FLUTE ENDMILL CENTER CUTTING - DOUBLE END HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
18481-FC204	1/8	3/8	3/8	3 1/8	\$18.67
18482-FC206	3/16	3/8	1/2	3 1/8	18.85
18483-FC208	1/4	3/8	5/8	3 3/8	19.15
18484-FC210	5/16	3/8	3/4	3 3/8	19.53
18485-FC212	3/8	3/8	3/4	3 3/8	24.08
18485A-FC214	7/16	1/2	1	4 1/8	20.07
18486-FC218	1/2	1/2	1	4 1/4	28.21
18487-FC228	5/8	5/8	1 3/8	5	39.76
18488-FC232	3/4	3/4	1 5/8	5 5/8	50.49
18489-FC242	7/8	7/8	1 7/8	6 1/4	65.11
18490-FC252	1	1	1 7/8	6 1/2	77.91



MORSE TAPER SHANK ENDMILLS



MULTIPLE FLUTE HEAVY DUTY ENDMILL MORSE TAPER SHANK HIGH SPEED STEEL

F & D heavy duty endmills are designed and constructed especially for use when large cuts and extra lengths of flutes are desired. These mills are made of solid high speed steel. Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Morse Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18751-S502	2	#5	4	10 5/8	6	\$386.37
18752-S503	2	#5	6	12 5/8	6	512.13
18753-S504	2	#5	8	14 5/8	6	592.10
18754-S512	2 1/2	#5	6	12 5/8	6	612.76
18755-S513	2 1/2	#5	8	14 5/8	6	803.05
18756-S514	2 1/2	#5	10	16 5/8	6	947.38
18757-S522	3	#6	6	15 1/16	8	1,086.54
18758-S523	3	#6	8	17 1/16	8	1,245.99
18759-S524	3	#6	10	19 1/16	8	1,446.94
18760-S532	3 1/2	#6	6	15 1/16	8	1,359.42
18761-S533	3 1/2	#6	8	17 1/16	8	1,539.65
18762-S534	3 1/2	#6	10	19 1/16	8	1,719.40



MULTIPLE FLUTE HEAVY DUTY ENDMILL MORSE TAPER SHANK HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral. Coarse flutes permit heavier cuts. LHC, LHS also available from stock.

Catalog EDI-Number	Mill Dia.	Morse Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18681-S308	1/4	#1	5/8	3 1/2	4	\$37.79
18682-S310	5/16	#1	11/16	3 9/16	4	39.98
18683-S312	3/8	#1	3/4	3 5/8	4	40.40
18684-S314	7/16	#1	7/8	3 3/4	4	40.76
18685-S316	1/2	#1	15/16	3 13/16	4	41.32
18686-S318	1/2	#2	15/16	4 7/16	4	44.86
18687-S328	5/8	#2	1 1/8	4 5/8	4	47.73
18688-S332	3/4	#2	1 1/4	4 3/4	4	52.54
18689-S334	3/4	#3	1 1/4	5 9/16	4	69.91
18690-S336	7/8	#2	1 7/16	4 15/16	4	73.08
18691-S342	7/8	#3	1 7/16	5 3/4	4	78.21
18692-S346	1	#2	1 5/8	5 1/8	4	81.82
18693-S352	1	#3	1 5/8	5 15/16	4	90.08
18694-S354	1 1/8	#3	1 3/4	6 1/16	6	106.54
18695-S362	1 1/4	#3	2	6 5/16	6	120.87



MULTIPLE FLUTE LIGHT DUTY ENDMILL MORSE TAPER SHANK HIGH SPEED STEEL

F&D light duty endmills are designed with fine flutes for light finishing cuts. Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Morse Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18651-SF308	1/4	#1	5/8	3 1/2	6	\$38.53
18652-SF310	5/16	#1	11/16	3 9/16	6	39.30
18653-SF312	3/8	#1	3/4	3 5/8	6	40.09
18654-SF314	7/16	#1	7/8	3 3/4	6	40.91
18655-SF316	1/2	#1	15/16	3 13/16	6	41.74
18656-SF318	1/2	#2	15/16	4 7/16	6	46.23
18657-SF328	5/8	#2	1 1/8	4 5/8	6	47.73
18658-SF332	3/4	#2	1 1/4	4 3/4	6	52.42
18659-SF334	3/4	#3	1 1/4	5 9/16	6	69.91
18660-SF336	7/8	#2	1 7/16	4 15/16	8	73.08
18661-SF342	7/8	#3	1 7/16	5 3/4	8	78.21
18662-SF346	1	#2	1 5/8	5 1/8	8	82.44
18663-SF352	1	#3	1 5/8	5 15/16	8	90.08
18664-SF354	1 1/8	#3	1 3/4	6 1/16	8	106.54
18665-SF362	1 1/4	#3	2	6 5/16	8	120.87



MULTIPLE FLUTE FINISHING ENDMILL MORSE TAPER SHANK HIGH SPEED STEEL

Recommended for fine finishing cuts. Regularly furnished with right hand cut-left hand spiral.

Catalog EDI-Number	Mill Dia.	Morse Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18721-S408	1/4	#1	5/8	3 1/2	4	\$41.57
18722-S410	5/16	#1	11/16	3 9/16	4	44.01
18723-S412	3/8	#1	3/4	3 5/8	4	44.01
18724-S414	7/16	#1	7/8	3 3/4	4	45.25
18725-S416	1/2	#1	15/16	3 13/16	4	46.65
18726-S418	1/2	#2	15/16	4 7/16	4	49.24
18727-S428	5/8	#2	1 1/8	4 5/8	4	51.93
18728-S432	3/4	#2	1 1/4	4 3/4	4	57.72
18729-S434	3/4	#3	1 1/4	5 9/16	4	76.80
18730-S436	7/8	#2	1 7/16	4 15/16	4	80.21
18731-S442	7/8	#3	1 7/16	5 3/4	4	85.09
18732-S446	1	#2	1 5/8	5 1/8	4	92.26
18733-S452	1	#3	1 5/8	5 15/16	4	98.81
18734-S454	1 1/8	#3	1 3/4	6 1/16	6	116.97
18735-S462	1 1/4	#3	2	6 5/16	6	133.24



MULTIPLE FLUTE LIGHT DUTY ENDMILL B & S TAPER SHANK HIGH SPEED STEEL

Designed with fine flutes for light finishing cuts. Regularly furnished with right hand cut-right hand spiral. #5 B & S shank furnished with plain end. All others with tang.

Catalog EDI-Number	Mill Dia.	B&S Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18876-SF108	1/4	#5	5/8	2 13/16	6	\$31.57
18877-SF110	5/16	#5	11/16	2 7/8	6	33.53
18878-SF112	3/8	#5	3/4	2 15/16	6	34.71
18879-SF114	7/16	#5	7/8	3 1/16	6	36.14
18880-SF116	1/2	#5	15/16	3 1/8	6	42.35
18881-SF118	1/2	#7	15/16	4 15/16	6	48.15
18882-SF120	9/16	#7	1	5	6	49.85
18883-SF128	5/8	#7	1 1/8	5 1/8	6	50.84
18884-SF132	3/4	#7	1 1/4	5 1/4	6	51.02
18885-SF142	7/8	#7	1 7/16	5 7/16	8	58.70
18886-SF152	1	#7	1 5/8	5 5/8	8	69.91
18887-SF154	1 1/8	#9	1 3/4	7	8	92.83
18888-SF162	1 1/4	#9	2	7 1/4	8	105.09
18889-SF164	1 1/2	#9	2 1/4	7 1/2	10	153.67
18890-SF168	1 3/4	#9	2 1/2	7 3/4	10	196.27
18891-SF172	2	#9	2 3/4	8	12	248.50



MULTIPLE FLUTE HEAVY DUTY ENDMILL B & S TAPER SHANK HIGH SPEED STEEL

Regularly furnished with right hand cut-right hand spiral-coarse flute. #5 B & S shank furnished with plain end. All others with tang. LHC, LHS are also available from stock.

Catalog EDI-Number	Mill Dia.	B&S Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18841-S108	1/4	#5	5/8	2 13/16	4	\$31.58
18842-S110	5/16	#5	11/16	2 7/8	4	31.82
18843-S112	3/8	#5	3/4	2 15/16	4	32.00
18844-S114	7/16	#5	7/8	3 1/16	4	36.14
18845-S116	1/2	#5	15/16	3 1/8	4	38.76
18846-S118	1/2	#7	15/16	4 15/16	4	48.15
18847-S120	9/16	#7	1	5	4	49.85
18848-S128	5/8	#7	1 1/8	5 1/8	4	50.84
18849-S132	3/4	#7	1 1/4	5 1/4	4	51.02
18850-S142	7/8	#7	1 7/16	5 7/16	4	58.70
18851-S152	1	#7	1 5/8	5 5/8	4	69.91
18852-S154	1 1/8	#9	1 3/4	7	6	92.83
18853-S162	1 1/4	#9	2	7 1/4	6	105.09
18854-S164	1 1/2	#9	2 1/4	7 1/2	6	153.67
18855-S168	1 3/4	#9	2 1/2	7 3/4	6	196.27
18856-S172	2	#9	2 3/4	8	8	248.50



MULTIPLE FLUTE FINISHING ENDMILL B & S TAPER SHANK HIGH SPEED STEEL

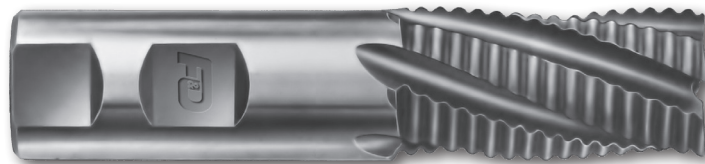
Recommended for fine finishing cuts. Regularly furnished with right hand cut-left hand spiral.

Catalog EDI-Number	Mill Dia.	B&S Taper Shank	Flute Length	Overall Length	# of Flutes	List Price
18621-S208	1/4	#5	5/8	2 13/16	4	\$34.56
18622-S210	5/16	#5	11/16	2 7/8	4	34.74
18623-S212	3/8	#5	3/4	2 15/16	4	35.77
18624-S214	7/16	#5	7/8	3 1/16	4	39.87
18625-S216	1/2	#5	15/16	3 1/8	4	45.84
18626-S218	1/2	#7	15/16	4 15/16	4	53.02
18627-S220	9/16	#7	1	5	4	54.61
18628-S228	5/8	#7	1 1/8	5 1/8	4	55.53
18629-S232	3/4	#7	1 1/4	5 1/4	4	56.07
18630-S242	7/8	#7	1 7/16	5 7/16	4	64.67
18631-S252	1	#7	1 5/8	5 5/8	4	76.80
18632-S254	1 1/8	#9	1 3/4	7	6	102.04
18633-S262	1 1/4	#9	2	7 1/4	6	115.88
18634-S264	1 1/2	#9	2 1/4	7 1/2	6	172.62
18635-S268	1 3/4	#9	2 1/2	7 3/4	6	220.58
18636-S272	2	#9	2 3/4	8	6	273.73



COBALT ROUGHING ENDMILLS

**MULTIPLE FLUTE SINGLE END STRAIGHT SHANK
ROUGHING ENDMILL
PREMIUM COBALT STEEL
NON-CENTER CUTTING**



LIST NO. FCR 300

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19301	3/16	3/8	1/2	2 3/8	4	\$43.25
19271	1/4	3/8	5/8	2 7/16	4	44.45
19302	1/4	3/8	1 1/4	3 1/16	4	49.92
19272	5/16	3/8	3/4	2 1/2	4	46.16
19303	5/16	3/8	1 3/8	3 1/8	4	51.37
19273	3/8	3/8	3/4	2 1/2	4	46.58
19305	3/8	3/8	1 1/2	3 1/4	4	52.55
19306	7/16	3/8	1	2 11/16	4	63.73
19274	1/2	1/2	1 1/4	3 1/4	4	55.63
19275	1/2	1/2	2	4	4	74.41
19308	9/16	1/2	1 3/8	3 3/8	4	64.50
19276	5/8	5/8	1 5/8	3 3/4	4	71.59
19277	5/8	5/8	2 1/2	4 5/8	4	89.51
19277A	11/16	5/8	1 5/8	3 3/4	4	87.94
19279	3/4	3/4	1 5/8	3 3/4	4	84.39
19280	3/4	3/4	3	5 1/4	4	104.52
19310	3/4	3/4	3/4	3	4	80.89
19278	3/4	5/8	1 5/8	3 3/4	4	88.83
19278A	13/16	3/4	1 7/8	4 1/8	4	117.80
19278B	7/8	3/4	1 7/8	4 1/8	5	120.38
19281	7/8	3/4	1 5/8	3 5/8	5	110.50
19311	7/8	3/4	3 1/2	5 3/4	5	128.66
19312	7/8	7/8	1 7/8	4 1/8	5	112.80
19314	7/8	7/8	3 1/2	5 3/4	5	133.70
19283	1	1	2	4 1/2	5	126.44
19315	1	1	3	5 1/2	5	159.30
19284	1	1	4	6 1/2	5	166.46
19316	1	1	6	8 1/2	5	234.21
19282	1	3/4	2	4	5	123.89
19318	1	3/4	3/4	3	5	98.20
19285	1 1/8	1	2	4 1/2	6	159.73
19285A	1 1/4	3/4	2	4 1/2	6	228.01
19286	1 1/4	1 1/4	2	4 1/2	6	165.44
19319	1 1/4	1 1/4	3	5 1/2	6	222.86
19321	1 1/4	1 1/4	4	6 1/2	6	244.70
19322	1 1/4	1 1/4	6	8 1/2	6	351.61
19323	1 1/4	3/4	1 1/2	3 3/4	6	176.53
19324	1 1/4	3/4	3/4	3	6	159.30

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19287	1 1/2	1 1/4	2	4 1/2	6	219.53
19326	1 1/2	1 1/4	3	5 1/2	6	279.18
19327	1 1/2	1 1/4	4	6 1/2	6	309.90
19328	1 1/2	1 1/4	5	7 1/2	6	403.91
19329	1 1/2	1 1/4	6	8 1/2	6	491.10
19331	1 1/2	1 1/4	8	10 1/2	6	565.51
19332	1 1/2	3/4	1 1/2	3 3/4	6	205.63
19333	1 1/2	3/4	3/4	3	6	174.99
19288	1 3/4	1 1/4	2	4 1/2	6	279.44
19334	1 3/4	1 1/2	2 1/2	5 3/8	6	334.19
19336	1 3/4	1 1/4	4	6 1/2	6	386.09
19337	1 3/4	1 1/2	4 1/2	7 3/8	8	450.84
19338	2	3/4	3/4	3	8	324.90
19339	2	1 1/4	2	4 1/2	8	344.43
19340	2	1 1/4	4	6 1/2	8	436.16
19289	2	2	2	5 1/2	8	398.02
19342	2	2	3	6 3/4	8	434.55
19290	2	2	4	7 3/4	8	472.09
19343	2	2	5	8 3/4	8	556.04
19291	2	2	6	9 3/4	8	586.50
19345	2	2	7	10 3/4	8	698.68
19292	2	2	8	11 3/4	8	832.14
19346	2	2	10	13 3/4	8	989.54
19347	2	2	12	15 3/4	8	1,192.28
19348	2 1/2	2	4	7 3/4	8	859.18
19350	2 1/2	2	6	9 3/4	8	1019.24
19351	2 1/2	2	8	11 3/4	8	1,195.36
19352	2 1/2	2	10	13 3/4	8	1,389.88
19353	2 1/2	2	12	15 3/4	8	1,675.87
19354	3	2 1/2	4	7 3/4	10	1,428.19
19356	3	2 1/2	6	9 3/4	10	1,714.53
19357	3	2 1/2	8	11 3/4	10	2,071.18
19358	3	2 1/2	10	13 3/4	10	2,320.23
19359	3	2 1/2	12	15 3/4	10	2,390.28

* Call for Pricing



TWO FLUTE COBALT ENDMILL SINGLE END PREMIUM COBALT STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
19021-TXL304	1/8	3/8	3/8	2 5/16	\$23.24
19022-TXL306	3/16	3/8	3/8	2 5/16	23.63
19023-TXL308	1/4	3/8	1/2	2 5/16	24.06
19024-TXL310	5/16	3/8	9/16	2 5/16	24.70
19025-TXL312	3/8	3/8	9/16	2 3/8	25.18
19026-TXL318	1/2	1/2	1	3	32.47
19027-TXL328	5/8	5/8	1 5/16	3 7/16	43.60
19028-TXL341	3/4	3/4	1 5/16	3 9/16	54.95
19029-TXL341B	7/8	3/4	1 1/2	3 3/4	74.18
19030-TXL345	1	3/4	1 1/2	3 3/4	86.62
19031-TXL347	1 1/8	3/4	1 5/8	3 7/8	117.48
19032-TXL349	1 1/4	3/4	1 5/8	3 7/8	125.97
19033-TXL351	1 3/8	3/4	1 5/8	3 7/8	152.02
19034-TXL351A	1 1/2	3/4	1 5/8	3 7/8	183.45
19035-TXL352	1	1	1 5/8	4 1/8	92.46
19036-TXL362	1 1/4	1 1/4	1 5/8	4 1/8	127.03
19037-TXL364	1 1/2	1 1/4	1 5/8	4 1/8	188.78
19038-TXL368	1 3/4	1 1/4	1 5/8	4 1/8	214.44
19039-TXL372	2	1 1/4	1 5/8	4 1/8	236.64



TWO FLUTE T-15 COBALT ENDMILL SINGLE END T-15 COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
19121-TXV304	1/8	3/8	3/8	2 5/16	\$32.47
19122-TXV306	3/16	3/8	7/16	2 5/16	33.01
19123-TXV308	1/4	3/8	1/2	2 5/16	33.64
19124-TXV310	5/16	3/8	9/16	2 5/16	34.28
19125-TXV312	3/8	3/8	9/16	2 5/16	35.78
19126-TXV314	7/16	3/8	13/16	2 1/2	41.42
19127-TXV316	1/2	1/2	1	3	43.32
19128-TXV318	5/8	5/8	1 5/16	3 7/16	63.11
19129-TXV341	3/4	3/4	1 5/16	3 9/16	72.16
19130-TXV342	7/8	7/8	1 1/2	3 3/4	93.74
19131-TXV352	1	1	1 5/8	4 1/8	116.63
19132-TXV362	1 1/4	1 1/4	1 5/8	4 1/8	165.96
19133-TXV364	1 1/2	1 1/4	1 5/8	4 1/8	207.43
19134-TXV372	2	1 1/4	1 5/8	4 1/8	286.08



TWO FLUTE COBALT BALL ENDMILL SINGLE END

PREMIUM COBALT STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Radius	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
19061-TXL1104	1/16	1/8	3/8	3/8	2 1/4	\$28.69
19062-TXL1106	3/32	3/16	3/8	1/2	2 3/8	30.17
19063-TXL1108	1/8	1/4	3/8	5/8	2 1/2	31.80
19064-TXL1110	5/32	5/16	3/8	3/4	2 9/16	32.30
19065-TXL1112	3/16	3/8	3/8	3/4	2 9/16	34.96
19066-TXL1118	1/4	1/2	1/2	1	3 1/16	41.70
19067-TXL1128	5/16	5/8	5/8	1 3/8	3 9/16	62.82
19068-TXL1132	3/8	3/4	3/4	1 5/8	3 15/16	73.49
19069-TXL1145	1/2	1	3/4	2 1/4	4 9/16	108.09
19070-TXL1149	5/8	1 1/4	3/4	2 1/2	4 13/16	155.34
19071-TXL1151	1/2	1	3/4	2 1/2	4 13/16	201.18
19072-TXL1152	1/2	1	1	2 1/4	4 13/16	115.71
19073-TXL1162	5/8	1 1/4	1 1/4	2 1/2	5 1/16	159.61
19074-TXL1164	3/4	1 1/2	1 1/4	2 1/2	5 1/16	205.35



TWO FLUTE T-15 COBALT BALL ENDMILL SINGLE END

T-15 COBALT STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Radius	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
19151-TXV1104	1/16	1/8	3/8	3/8	2 5/16	\$51.00
19152-TXV1106	3/32	3/16	3/8	1/2	2 3/8	51.63
19153-TXV1108	1/8	1/4	3/8	5/8	2 7/16	52.46
19154-TXV1110	5/32	5/16	3/8	3/4	2 1/2	53.09
19155-TXV1112	3/16	3/8	3/8	3/4	2 1/2	54.21
19156-TXV1118	1/4	1/2	1/2	1	3	68.61
19157-TXV1128	5/16	5/8	5/8	1 3/8	3 1/2	102.98
19158-TXV1132	3/8	3/4	3/4	1 5/8	3 7/8	113.76
19159-TXV1152	1/2	1	1	2 1/4	4 3/4	183.87
19160-TXV1162	5/8	1 1/4	1 1/4	2 1/2	5	261.41
19161-TXV1164	3/4	1 1/2	1 1/4	2 1/2	5	326.02



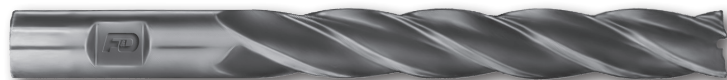
COBALT MULTIPLE FLUTE ENDMILLS



MULTIPLE FLUTE ENDMILL SINGLE END PREMIUM COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18911-XL304	1/8	3/8	3/8	2 5/16	4	\$22.13
18912-XL306	3/16	3/8	1/2	2 3/8	4	22.51
18913-XL308	1/4	3/8	5/8	2 1/2	4	23.04
18914-XL310	5/16	3/8	3/4	2 1/2	4	23.92
18915-XL312	3/8	3/8	3/4	2 1/2	4	25.24
18916-XL314	7/16	3/8	1	2 11/16	4	31.32
18917-XL318	1/2	1/2	1 1/4	3 1/4	4	34.08
18918-XL318A	1/2	1/2	1 1/4	3 1/4	6	39.96
18919-XL328	5/8	5/8	1 5/8	3 3/4	4	51.00
18920-XL328A	5/8	5/8	1 5/8	3 3/4	6	57.61
18921-XL341	3/4	3/4	1 5/8	3 3/4	4	64.19
18922-XL341C	3/4	3/4	1 5/8	3 3/4	6	66.12
18923-XL341B	7/8	3/4	1 7/8	4 1/8	4	79.34
18924-XL342	7/8	7/8	1 7/8	4 1/8	4	81.75
18925-XL345	1	3/4	1 7/8	4 1/8	4	99.30
18926-XL347	1 1/8	3/4	2	4 1/4	6	154.09
18927-XL349	1 1/4	3/4	2	4 1/4	6	159.71
18928-XL351	1 3/8	3/4	2	4 1/4	6	188.46
18929-XL351A	1 1/2	3/4	2	4 1/4	6	198.60
18930-XL352	1	1	2	4 1/2	4	102.29
18931-XL352A	1	1	2	4 1/2	6	103.06
18932-XL362	1 1/4	1 1/4	2	4 1/2	4	135.38
18933-XL362A	1 1/4	1 1/4	2	4 1/2	6	138.56
18934-XL364	1 1/2	1 1/4	2	4 1/2	4	174.45
18935-XL364A	1 1/2	1 1/4	2	4 1/2	6	179.20
18936-XL368	1 3/4	1 1/4	2	4 1/2	6	257.01
18937-XL372	2	1 1/4	2	4 1/2	8	281.85



MULTIPLE FLUTE ENDMILL SINGLE END - EXTRA LONG PREMIUM COBALT STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18991-XL912	3/8	3/8	2 1/2	4 1/4	4	\$34.65
18992-XL918	1/2	1/2	3	5	4	50.14
18993-XL928	5/8	5/8	4	6 1/8	4	78.93
18994-XL932	3/4	3/4	4	6 1/4	4	93.39
18995-XL932A	3/4	3/4	4	6 1/4	6	96.75
18996-XL942	7/8	7/8	5	7 1/4	4	119.44
18997-XL952	1	1	6	8 1/2	4	156.79
18998-XL952A	1	1	6	8 1/2	6	158.49
18999-XL960	1 1/4	1 1/4	6	8 1/2	4	230.84
19000-XL962	1 1/4	1 1/4	6	8 1/2	6	230.84



MULTIPLE FLUTE BALL ENDMILL SINGLE END PREMIUM COBALT STEEL

Regularly furnished with right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19091-XL1104	1/8	3/8	3/8	2 5/16	4	\$37.46
19092-XL1106	3/16	3/8	1/2	2 3/8	4	40.73
19093-XL1108	1/4	3/8	5/8	2 7/16	4	42.00
19094-XL1110	5/16	3/8	3/4	2 1/2	4	44.40
19095-XL1112	3/8	3/8	3/4	2 1/2	4	46.13
19096-XL1118	1/2	1/2	1 1/4	3 1/4	4	58.69
19097-XL1128	5/8	5/8	1 5/8	3 3/4	4	77.96
19098-XL1132	3/4	3/4	1 5/8	3 7/8	4	89.26
19099-XL1145	1	3/4	1 7/8	4 1/8	4	135.38
19100-XL1149	1 1/4	3/4	2	4 1/4	6	213.81
19101-XL1151	1 1/2	3/4	2	4 1/4	6	270.43
19102-XL1152	1	1	2	4 1/2	4	141.95
19103-XL1162	1 1/4	1 1/4	2	4 1/2	6	221.49
19104-XL1164	1 1/2	1 1/4	2	4 1/2	6	284.99
19106-XL1166	1 3/4	1 1/4	2	4 1/2	6	418.20
19108-XL1168	2	2	6	9 3/4	6	768.48



MULTIPLE FLUTE ENDMILL SINGLE END - LONG PREMIUM COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
18961-XL712	3/8	3/8	1 1/2	3 1/4	4	\$30.29
18962-XL714	7/16	1/2	1 3/4	3 3/4	4	44.11
18963-XL718	1/2	1/2	2	4	4	45.85
18964-XL728	5/8	5/8	2 1/2	4 5/8	4	64.31
18965-XL732	3/4	3/4	3	5 1/4	4	79.68
18966-XL732A	3/4	3/4	3	5 1/4	6	81.09
18967-XL752	1	1	4	6 1/2	4	130.40
18968-XL752A	1	1	4	6 1/2	6	131.36
18969-XL760	1 1/4	1	4	6 1/2	6	190.22
18970-XL762	1 1/4	1 1/4	4	6 1/2	4	193.00
18971-XL762A	1 1/4	1 1/4	4	6 1/2	6	190.22
18972-XL764	1 1/2	1 1/4	4	6 1/2	4	257.52
18973-XL764A	1 1/2	1 1/4	4	6 1/2	6	259.95
18974-XL772	2	1 1/4	4	6 1/2	8	366.63



MULTIPLE FLUTE ENDMILL SINGLE END T-15 COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19181-XV304	1/8	3/8	3/8	2 5/16	4	\$33.16
19182-XV306	3/16	3/8	1/2	2 3/8	4	33.69
19183-XV308	1/4	3/8	5/8	2 1/2	4	34.23
19184-XV310	5/16	3/8	3/4	2 1/2	4	34.81
19185-XV312	3/8	3/8	3/4	2 1/2	4	36.41
19186-XV314	7/16	3/8	1	2 11/16	4	43.78
19187-XV318	1/2	1/2	1 1/4	3 1/4	4	47.15
19188-XV328	5/8	5/8	1 5/8	3 3/4	4	62.42
19189-XV341	3/4	3/4	1 5/8	3 3/4	4	78.76
19190-XV342	7/8	7/8	1 7/8	4 1/8	4	99.54
19191-XV352	1	1	2	4 1/2	4	120.64
19192-XV362	1 1/4	1 1/4	2	4 1/2	6	174.97
19193-XV364	1 1/2	1 1/4	2	4 1/2	6	213.13
19194-XV368	1 3/4	1 1/4	2	4 1/2	6	312.88
19195-XV372	2	1 1/4	2	4 1/2	6	338.18
19196-XV372A	2	1 1/4	2	4 1/2	8	345.17



MULTIPLE FLUTE ENDMILL SINGLE END - LONG T-15 COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19216-XV708	1/4	3/8	1 1/4	3 1/16	4	40.45
19217-XV710	5/16	3/8	1 3/8	3 1/8	4	41.32
19218-XV712	3/8	3/8	1 1/2	3 1/4	4	43.66
19219-XV718	1/2	1/2	2	4	4	50.43
19220-XV728	5/8	5/8	2 1/2	4 5/8	4	69.81
19221-XV732	3/4	3/4	3	5 1/4	4	82.90
19222-XV742	7/8	7/8	3 1/2	5 3/4	4	123.11
19223-XV752	1	1	4	6 1/2	4	143.36
19224-XV762	1 1/4	1 1/4	4	6 1/2	6	232.40
19225-XV764	1 1/2	1 1/4	4	6 1/2	6	322.06
19226-XV772	2	1 1/4	4	6 1/2	6	428.59
19227-XV772A	2	1 1/4	4	6 1/2	8	433.65



MULTIPLE FLUTE ENDMILL SINGLE END - EXTRA LONG T-15 COBALT STEEL

Regularly furnished with center cutting and right hand cut-right hand spiral.

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	# of Flutes	List Price
19241-XV910	5/16	3/8	2	3 3/4	4	\$48.31
19242-XV912	3/8	3/8	2 1/2	4 1/4	4	49.78
19243-XV918	1/2	1/2	3	5	4	64.31
19244-XV928	5/8	5/8	4	6 1/8	4	84.90
19245-XV932	3/4	3/4	4	6 1/8	4	95.41
19246-XV942	7/8	7/8	5	7 1/4	4	148.24
19247-XV952	1	1	6	8 1/2	4	186.27
19248-XV962	1 1/4	1 1/4	6	8 1/2	6	343.92
19249-XV964	1 1/2	1 1/4	6	8 1/2	4	443.96



CARBIDE 2 FLUTE ENDMILLS

SOLID CARBIDE ENDMILLS – CENTER CUTTING

TWO FLUTE – SINGLE END

LIST NO. TCE-300



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23001	1/32	1/8	1/8	1 1/2	\$15.99
23002	1/16	1/8	3/16	1 1/2	13.76
23003	5/64	1/8	1/4	1 1/2	18.41
23004	3/32	1/8	5/16	1 1/2	13.76
23005	7/64	1/8	3/8	1 1/2	18.41
23006	1/8	1/8	1/2	1 1/2	13.76
23007	9/64	3/16	1/2	2	25.67
23008	5/32	3/16	9/16	2	22.25
23009	11/64	3/16	9/16	2	26.40
23010	3/16	3/16	5/8	2	22.25
23011	13/64	1/4	5/8	2 1/2	32.55
23012	7/32	1/4	5/8	2 1/2	26.35
23013	15/64	1/4	3/4	2 1/2	34.03
23014	1/4	1/4	3/4	2 1/2	26.35
23015	17/64	5/16	3/4	2 1/2	36.94
23016	9/32	5/16	3/4	2 1/2	31.93
23017	19/64	5/16	13/16	2 1/2	38.31
23018	5/16	5/16	13/16	2 1/2	31.93
23019	21/64	3/8	7/8	2 1/2	48.67
23020	11/32	3/8	7/8	2 1/2	48.67
23021	23/64	3/8	7/8	2 1/2	48.67
23022	3/8	3/8	7/8	2 1/2	41.96
23023	25/64	7/16	1	2 3/4	62.48
23024	13/32	7/16	1	2 3/4	62.48
23025	27/64	7/16	1	2 3/4	62.48
23026	7/16	7/16	1	2 3/4	54.24
23027	29/64	1/2	1	3	79.22
23028	15/32	1/2	1	3	79.22
23029	31/64	1/2	1	3	79.22
23030	1/2	1/2	1	3	68.56
23031	9/16	9/16	1 1/8	3 1/2	103.02
23032	5/8	5/8	1 1/4	3 1/2	125.40
23033	11/16	3/4	1 3/8	4	191.66
23034	3/4	3/4	1 1/2	4	194.76
23035	1	1	1 1/2	4	332.73

TWO FLUTE – DOUBLE END - BALL

LIST NO. TCE-1000

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23261	1/16	1/8	1/8	1 1/2	\$30.56
23262	3/32	1/8	3/16	1 1/2	30.56
23263	1/8	1/8	1/4	1 1/2	30.56
23264	5/32	3/16	5/16	2	40.54
23265	3/16	3/16	3/8	2	40.54
23266	1/4	1/4	1/2	2 1/2	49.90
23267	5/16	5/16	1/2	2 1/2	49.90
23268	3/8	3/8	1/2	2 1/2	63.65
23269	7/16	7/16	9/16	2 3/4	77.80
23270	1/2	1/2	5/8	3	92.36

TWO FLUTE – SINGLE END – BALL

LIST NO. TCE-1100



Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23181	1/32	1/8	1/8	1 1/2	\$20.46
23182	1/16	1/8	3/16	1 1/2	18.17
23183	3/32	1/8	5/16	1 1/2	18.17
23184	1/8	1/8	1/2	1 1/2	18.17
23185	5/32	3/16	9/16	2	27.71
23186	3/16	3/16	5/8	2	27.71
23187	7/32	1/4	5/8	2 1/2	34.41
23188	1/4	1/4	3/4	2 1/2	34.41
23189	9/32	5/16	3/4	2 1/2	37.75
23190	5/16	5/16	13/16	2 1/2	39.30
23191	3/8	3/8	7/8	2 1/2	44.95
23192	7/16	7/16	1	2 3/4	67.75
23193	1/2	1/2	1	3	72.65
23194	9/16	9/16	1 1/8	3 1/2	112.26
23195	5/8	5/8	1 1/4	3 1/2	146.78
23196	11/16	3/4	1 3/8	4	168.97
23197	3/4	3/4	1 1/2	4	203.74
23199	1	1	1 1/2	4	262.39



TWO FLUTE – DOUBLE END

LIST NO. TCE-200

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23121	1/16	1/8	1/8	1 1/2	\$24.92
23122	3/32	1/8	3/16	1 1/2	24.92
23123	1/8	1/8	1/4	1 1/2	24.92
23124	5/32	3/16	5/16	2	33.84
23125	3/16	3/16	3/8	2	33.84
23126	7/32	1/4	1/2	2 1/2	43.08
23127	1/4	1/4	1/2	2 1/2	43.08
23128	5/16	5/16	1/2	2 1/2	54.49
23129	3/8	3/8	1/2	2 1/2	66.38
23130	7/16	7/16	9/16	2 3/4	89.26
23131	1/2	1/2	5/8	3	102.22

SOLID CARBIDE ENDMILLS – CENTER CUTTING



FOUR FLUTE – SINGLE END LIST NO. FCE-300

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23061	1/32	1/8	1/8	1 1/2	\$15.37
23062	1/16	1/8	3/16	1 1/2	13.38
23063	5/64	1/8	1/4	1 1/2	18.41
23064	3/32	1/8	5/16	1 1/2	13.38
23065	7/64	1/8	3/8	1 1/2	18.41
23066	1/8	1/8	1/2	1 1/2	13.38
23067	9/64	3/16	1/2	2	25.67
23068	5/32	3/16	9/16	2	22.25
23069	11/64	3/16	9/16	2	26.40
23070	3/16	3/16	5/8	2	22.25
23071	13/64	1/4	5/8	2 1/2	32.55
23072	7/32	1/4	5/8	2 1/2	26.35
23073	15/64	1/4	3/4	2 1/2	34.03
23074	1/4	1/4	3/4	2 1/2	26.35
23075	17/64	5/16	3/4	2 1/2	36.94
23076	9/32	5/16	3/4	2 1/2	31.93
23077	19/64	5/16	13/16	2 1/2	38.31
23078	5/16	5/16	13/16	2 1/2	31.93
23079	21/64	3/8	7/8	2 1/2	48.67
23080	11/32	3/8	7/8	2 1/2	48.67
23081	23/64	3/8	7/8	2 1/2	48.67
23082	3/8	3/8	7/8	2 1/2	41.96
23083	25/64	7/16	1	2 3/4	62.48
23084	13/32	7/16	1	2 3/4	62.48
23085	27/64	7/16	1	2 3/4	62.48
23086	7/16	7/16	1	2 3/4	54.24
23087	29/64	1/2	1	3	79.22
23088	15/32	1/2	1	3	79.22
23089	31/64	1/2	1	3	79.22
23090	1/2	1/2	1	3	68.56
23091	9/16	9/16	1 1/4	3 1/2	103.02
23092	5/8	5/8	1 1/4	3 1/2	125.40
23093	11/16	3/4	1 1/2	4	191.66
23094	3/4	3/4	1 1/2	4	194.76
23095	1	1	1 1/2	4	332.73



FOUR FLUTE – DOUBLE END LIST NO. FCE-200

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23151	1/16	1/8	1/8	1 1/2	\$24.92
23152	3/32	1/8	3/16	1 1/2	24.92
23153	1/8	1/8	1/4	1 1/2	24.92
23154	5/32	3/16	5/16	2	33.84
23155	3/16	3/16	3/8	2	33.84
23156	7/32	1/4	1/2	2 1/2	40.16
23157	1/4	1/4	1/2	2 1/2	40.16
23158	5/16	5/16	1/2	2 1/2	53.37
23159	3/8	3/8	1/2	2 1/2	66.38
23160	7/16	7/16	9/16	2 3/4	80.90
23161	1/2	1/2	5/8	3	102.22



FOUR FLUTE – SINGLE END – BALL LIST NO. FCE-1100

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23221	1/32	1/8	1/8	1 1/2	\$20.46
23222	1/16	1/8	3/16	1 1/2	17.97
23223	3/32	1/8	5/16	1 1/2	17.97
23224	1/8	1/8	1/2	1 1/2	17.97
23225	5/32	3/16	9/16	2	26.97
23226	3/16	3/16	5/8	2	26.97
23227	7/32	1/4	5/8	2 1/2	33.60
23228	1/4	1/4	3/4	2 1/2	33.60
23229	9/32	5/16	3/4	2 1/2	43.52
23230	5/16	5/16	13/16	2 1/2	32.55
23231	3/8	3/8	7/8	2 1/2	57.22
23232	7/16	7/16	1	2 3/4	73.76
23233	1/2	1/2	1	3	84.37
23234	9/16	9/16	1 1/8	3 1/2	112.26
23235	5/8	5/8	1 1/4	3 1/2	146.78
23236	11/16	3/4	1 3/8	4	168.97
23237	3/4	3/4	1 1/2	4	203.74
23239	1	1	1 1/2	4	386.36



FOUR FLUTE – DOUBLE END – BALL LIST NO. FCE-1000

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
23291	1/16	1/8	1/8	1 1/2	\$32.36
23292	3/32	1/8	3/16	1 1/2	32.36
23294	1/8	1/8	1/4	1 1/2	32.36
23295	5/32	3/16	5/16	2	45.93
23296	3/16	3/16	3/8	2	45.93
23297	1/4	1/4	1/2	2 1/2	53.74
23298	5/16	5/16	1/2	2 1/2	70.67
23299	3/8	3/8	1/2	2 1/2	84.17
23300	7/16	7/16	9/16	2 3/4	118.09
23301	1/2	1/2	5/8	3	133.89



CARBIDE ENDMILLS

45 AND 60 DEGREE HIGH HELIX 3 FLUTE CENTER CUTTING

Mill Dia.	Shank Dia.	Flute Length	Overall Length	45 Degree	List Price	60 Degree	List Price
1/8	1/8	1/2	1-1/2	17800	\$15.35	27800	\$17.78
3/16	3/16	5/8	2	17801	21.74	27801	25.37
1/4	1/4	3/4	2-1/2	17802	27.01	27802	28.84
5/16	5/16	13/16	2-1/2	17803	35.83	27803	40.28
3/8	3/8	7/8	2-1/2	17804	44.22	27804	51.59
1/2	1/2	1	3	17805	72.65	27805	82.36
5/8	5/8	1-1/4	3-1/2	17806	143.38	27806	160.59
3/4	3/4	1-1/2	4	17807	203.23	27807	227.62
1	1	1-1/2	4	17808	391.01	27808	437.88



45 DEGREE HELIX WITH CORNER RADIUS 6 FLUTE SINGLE END

Mill Dia.	Shank Dia.	Flute Length	Overall Length	Corner Radius	Catalog EDI-Number	List Price
1/4	1/4	3/4	2 1/2	.015	37800	\$111.20
5/16	5/16	13/16	2 1/2	.020	37801	142.96
3/8	3/8	1	2 1/2	.020	37802	166.80
1/2	1/2	1	3	.025	37803	264.09
5/8	5/8	1 1/4	3 1/2	.030	37804	486.48
3/4	3/4	1 1/2	4	.035	37805	734.69
1	1	1 1/2	4	.035	37806	1,052.38



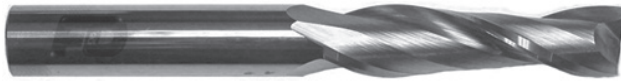
4 FLUTE VARIABLE HELIX CORNER RADIUS

Mill Dia.	Shank Dia.	Flute Length	Overall Length	Corner Radius	Catalog EDI-Number	List Price
1/8	1/8	1/2	1 1/2	.010-.015	47800	\$38.57
3/16	3/16	5/8	2	.015-.020	47801	53.08
1/4	1/4	1/2	2	.015-.020	47802	62.35
1/4	1/4	3/4	2 1/2	.015-.020	47803	56.73
1/4	1/4	1 1/8	3	.015-.020	47804	100.03
5/16	5/16	1/2	2	.015-.020	47805	95.41
5/16	5/16	13/16	2 1/2	.015-.020	47806	104.10
5/16	5/16	1 1/8	3	.015-.020	47807	111.45
3/8	3/8	5/8	2	.015-.020	47808	103.50
3/8	3/8	1	2 1/2	.015-.020	47809	116.86
3/8	3/8	1 1/8	3	.015-.020	47810	142.08
7/16	7/16	1	2 3/4	.015-.020	47811	158.31
1/2	1/2	5/8	2 1/2	.025-.030	47812	149.62
1/2	1/2	1	3	.025-.030	47813	156.30
1/2	1/2	2	4	.025-.030	47814	214.57
5/8	5/8	3/4	3	.030-.035	47815	260.09
5/8	5/8	1 1/4	3 1/2	.030-.035	47816	278.65
5/8	5/8	2 1/4	5	.030-.035	47817	391.74
3/4	3/4	1	3	.030-.035	47818	367.09
3/4	3/4	1 1/2	4	.030-.035	47819	369.71
3/4	3/4	2 1/4	5	.030-.035	47820	611.83
1	1	1 1/2	4	.030-.035	47821	704.61

5 FLUTE VARIABLE HELIX CORNER RADIUS

Mill Dia.	Shank Dia.	Flute Length	Overall Length	Corner Radius	Catalog EDI-Number	List Price
1/4	1/4	3/4	2 1/2	.015-.020	57800	\$94.23
3/8	3/8	1	2 1/2	.015-.020	57801	132.62
1/2	1/2	1	3	.025-.030	57802	207.51
5/8	5/8	1 1/4	3 1/2	.030-.035	57803	388.80
3/4	3/4	1 1/2	4	.030-.035	57804	592.86
1	1	1 1/2	4	.030-.035	57805	929.84





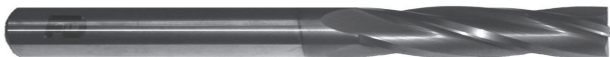
2 FLUTE EXTRA LONG LENGTH SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
16650	1/8	1/8	1	3	\$22.44
16651	3/16	3/16	1 1/8	3	25.78
16652	1/4	1/4	1 1/2	4	36.31
16653	3/8	3/8	1 3/4	4	52.42
16654	1/2	1/2	3	6	48.16
16655	5/8	5/8	3	6	110.88
16656	3/4	3/4	3	6	253.78
16657	1	1	3	6	489.19



2 FLUTE EXTRA LONG LENGTH BALL NOSE – SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
17750	1/8	1/8	1	3	\$27.83
17751	3/16	3/16	1 1/8	3	34.20
17752	1/4	1/4	1 1/2	4	46.74
17753	3/8	3/8	1 3/4	4	69.66
17754	1/2	1/2	3	6	130.80
17755	5/8	5/8	3	6	246.41
17756	3/4	3/4	3	6	314.40
17757	1	1	3	6	535.93

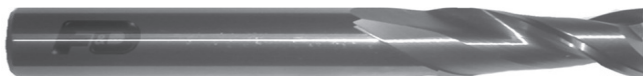


4 FLUTE EXTRA LONG LENGTH SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
16670	1/8	1/8	1	3	\$22.44
16671	3/16	3/16	1 1/8	3	25.78
16672	1/4	1/4	1 1/2	4	36.31
16673	3/8	3/8	1 3/4	4	52.42
16674	1/2	1/2	3	6	89.36
16675	5/8	5/8	3	6	110.88
16676	3/4	3/4	3	6	253.78
16677	1	1	3	6	489.19
17690	3/4	3/4	4	7	340.71
17691	1	1	4	7	547.59

4 FLUTE EXTRA LONG LENGTH BALL NOSE – SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
16660	1/8	1/8	1	3	\$27.83
16661	3/16	3/16	1 1/8	3	34.20
16662	1/4	1/4	1 1/2	4	46.74
16663	3/8	3/8	1 3/4	4	69.66
16664	1/2	1/2	3	6	130.80
16665	5/8	5/8	3	6	246.41
16666	3/4	3/4	3	6	314.40
16667	1	1	3	6	535.93



2 FLUTE STANDARD LENGTH SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	2 Flute Corner Radius	List Price
16680	1/4	1/4	1/2	2	.010	\$58.56
16681	5/16	5/16	1/2	2	.010	76.24
16682	3/8	3/8	5/8	2	.015	87.68
16683	1/2	1/2	5/8	2 1/2	.020	147.19
16684	5/8	5/8	3/4	3	.020	280.83
16685	3/4	3/4	1	3	.030	420.20

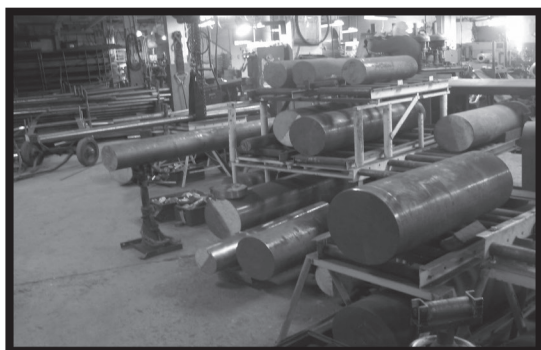


3 FLUTE STANDARD LENGTH SINGLE END

Catalog EDI-Number	Mill Dia.	Shank Dia.	Flute Length	Overall Length	List Price
16690	1/4	1/4	3/4	2 1/2	\$58.87
16691	5/16	5/16	13/16	2 1/2	75.93
16692	3/8	3/8	7/8	2 1/2	88.21
16693	7/16	7/16	1	2 3/4	124.82
16694	1/2	1/2	1	3	145.67
16695	5/8	5/8	1 1/4	3 1/2	278.75
16696	3/4	3/4	1 1/2	4	418.12
16697	1	1	1 1/2	4	642.78



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CARBIDE - HIGH SPEED STEEL DRILLS, & COUNTERBORES



SHORT SET COUNTERBORES

These Short Set Counterbores are made from top grade High Speed Steel. You can depend on the ruggedness and durability of these tools, as the counterbore-cutter and shank are integral with the cutting edges strongly backed up.

For interchangeable Pilots, refer to Page 87



TAPER SHANK LIST NO. 375



STRAIGHT SHANK LIST NO. 376

Dia.	OAL	# of Flutes	Hole Dia.	Range of Pilot Size	TAPER SHANK			STRAIGHT SHANK			
					Taper Shank	Catalog EDI #	List Price	Shank Dia.	Shank Length	Catalog EDI-#	List Price
3/16	3 13/16	3	3/32	1/8-3/16	1	26851	47.18	15/64	3 1/16	26921	\$44.65
7/32	3 13/16	3	3/32	1/8-3/16	1	26852	47.18	15/64	3 1/16	26922	44.65
1/4	3 13/16	3	3/32	1/8-3/16	1	26853	42.87	15/64	3 1/16	26923	40.40
9/32	3 13/16	3	3/32	1/8-7/32	1	26854	42.87	17/64	3 1/16	26924	40.40
5/16	3 13/16	3	3/32	1/8-1/4	1	26855	45.02	19/64	3 1/16	26925	41.49
11/32	3 13/16	3	3/32	1/8-9/32	1	26856	45.02	5/16	3 1/16	26926	41.49
3/8	4 1/16	3	5/32	3/16-5/16	1	26857	45.02	5/16	3 1/16	26927	41.49
13/32	4 1/16	3	5/32	3/16-11/32	1	26858	47.54	3/8	3 1/16	26928	44.95
7/16	4 1/16	3	5/32	3/16-3/8	1	26859	47.54	3/8	3 1/16	26929	44.95
15/32	4 5/16	3	3/16	1/4-13/32	1	26860	50.43	7/16	3 1/16	26930	47.54
1/2	4 5/16	3	3/16	1/4-7/16	1	26861	50.43	7/16	3 1/16	26931	47.54
17/32	4 5/16	3	3/16	1/4-15/32	1	26862	56.27	1/2	3 1/16	26932	53.02
9/16	4 5/16	3	3/16	1/4-1/2	1	26863	56.27	1/2	3 1/16	26933	53.02
19/32	5 1/8	3	3/16	1/4-17/32	2	26864	60.10	1/2	3 7/8	26934	56.85
5/8	5 1/8	3	3/16	1/4-9/16	2	26865	60.10	1/2	3 7/8	26935	56.85
21/32	5 1/8	3	3/16	1/4-19/32	2	26866	66.37	1/2	3 7/8	26936	62.70
11/16	5 1/8	3	3/16	1/4-5/8	2	26867	66.37	1/2	3 7/8	26937	62.70
23/32	5 3/8	3	1/4	5/16-21/32	2	26868	69.33	1/2	3 7/8	26938	65.44
3/4	5 3/8	3	1/4	5/16-11/16	2	26869	69.33	1/2	3 7/8	26939	65.44
25/32	5 3/8	3	1/4	5/16-23/32	2	26870	72.94	5/8	3 7/8	26940	68.82
13/16	5 3/8	3	1/4	5/16-3/4	2	26871	72.94	5/8	3 7/8	26941	68.82
7/8	5 3/8	3	1/4	5/16-13/16	2	26872	76.19	3/4	3 7/8	26942	72.07
15/16	6 1/8	3	1/4	5/16-7/8	3	26873	80.38	3/4	4 5/8	26943	75.75
1	6 3/8	3	5/16	3/8-15/16	3	26874	96.03	3/4	4 5/8	26944	90.76
1 1/16	6 3/8	3	5/16	3/8-1	3	26875	107.28	3/4	4 5/8	26945	101.37
1 1/8	6 3/8	3	5/16	3/8-1 1/16	3	26876	111.83	1	4 5/8	26946	105.55
1 3/16	6 3/8	3	5/16	3/8-1 1/8	3	26877	117.02	1	4 5/8	26947	110.31
1 1/4	6 5/8	5	3/8	7/16-1 3/16	3	26878	137.37	1	4 5/8	26948	129.72
1 5/16	6 5/8	5	3/8	7/16-1 1/4	3	26879	145.81	1	4 5/8	26949	137.65
1 3/8	6 5/8	5	3/8	7/16-1 5/16	3	26880	156.33	1	4 5/8	26950	147.75
1 7/16	7 7/8	5	3/8	7/16-1 3/8	4	26881	161.32	1 1/4	5 7/8	26951	152.37
1 1/2	7 7/8	5	3/8	7/16-1 7/16	4	26882	175.09	1 1/4	5 7/8	26952	165.37
1 9/16	8 1/8	5	7/16	1/2-1 1/2	4	26883	223.74	1 1/4	5 7/8	26953	211.31
1 5/8	8 1/8	5	7/16	1/2-1 9/16	4	26884	238.66	1 1/4	5 7/8	26954	225.10
1 11/16	8 1/8	5	7/16	1/2-1 5/8	4	26885	242.92	1 1/4	5 7/8	26955	229.28
1 3/4	8 1/8	5	7/16	1/2-1 11/16	4	26886	256.77	1 1/4	5 7/8	26956	242.34
1 13/16	8 1/8	5	7/16	1/2-1 3/4	4	26887	269.61	1 1/2	5 7/8	26957	254.53
1 7/8	8 1/8	5	7/16	1/2-1 13/16	4	26888	282.46	1 1/2	5 7/8	26958	266.65
1 15/16	8 1/8	5	7/16	1/2-1 7/8	4	26889	290.60	1 1/2	5 7/8	26959	278.34
2	8 3/8	5	1/2	9/16-1 15/16	4	26890	319.38	1 1/2	5 7/8	26960	301.42
2 1/8	9 7/8	5	1/2	9/16-2 1/16	5	26891	396.81	1 1/2	7 3/8	26961	374.81
2 1/4	9 7/8	5	1/2	9/16-2 3/16	5	26892	422.56	1 1/2	7 3/8	26962	398.83
2 3/8	9 7/8	5	1/2	9/16-2 5/16	5	26893	453.50	1 3/4	7 3/8	26963	428.12
2 1/2	9 7/8	5	1/2	9/16-2 7/16	5	26894	482.95	1 3/4	7 3/8	26964	455.89
2 5/8	9 7/8	5	1/2	9/16-2 9/16	5	26895	562.39	1 3/4	7 3/8	26965	530.12
2 3/4	9 7/8	5	1/2	9/16-2 11/16	5	26896	615.78	1 3/4	7 3/8	26966	581.27
2 7/8	9 7/8	5	1/2	9/16-2 13/16	5	26897	645.06	1 3/4	7 3/8	26967	608.99
3	9 7/8	5	1/2	9/16-2 15/16	5	26898	671.40	1 3/4	7 3/8	26968	633.81



PILOTS



HSS INTERCHANGEABLE PILOT COUNTERBORES SET

EDI#-28991

\$845.88

Pilots in a fitted case. Each set includes: 13 counterbores - 26 pilots.

Counterbores: 1/4" to 1" by 16ths

Pilots: 1/8, 5/32, 3/16, and 1/4 with 3/32 shanks, 3/16, 7/32, 1/4, 9/32, and 5/16 with 5/32 shanks, 1/4, 5/16, 3/8, 7/16, and 1/2 with 3/16 shanks, 5/16, 3/8, 7/16, 1/2, 9/16, and 5/8 with 1/4 shanks, 3/8, 7/16, 1/2, 9/16, 5/8, and 3/4 with 5/16 shanks.

15 PIECE SET

EDI#-28990

\$272.42

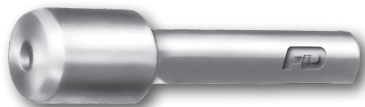
5 Counterbores - 1/4" - 1/2" by 16ths

Pilots:

1/8, 5/32, 3/16, and 1/4 with a 3/32 shank, 3/16, 7/32, 1/4, and 5/16 with a 5/32 shank, 1/4 and 5/16 with a 3/16 shank.

PILOTS FOR COUNTERBORES

LIST NO. P100



These pilots are made from carbon tool steel properly hardened and carefully ground. They have straight shanks with a flat for a set screw. The pilot diameter is made with an undersize allowance suitable for a running fit. When ordering, kindly specify stock number, or complete pilot specifications.

Pilot Dia.	Pilot Shank Dia.	Catalog EDI-Number	List Price
3/32	1/8	26110	\$21.08
1/8	3/32	26111	8.44
1/8	1/8	26111B	10.54
5/32	3/32	26112	8.44
5/32	1/8	26112A	10.54
3/16	3/32	26113	8.44
3/16	1/8	26113A	10.54
3/16	5/32	26114	8.44
7/32	3/32	26115	9.40
7/32	1/8	26115A	11.74
7/32	5/32	26116	9.40
1/4	3/32	26117	9.60
1/4	1/8	26117F	11.96
1/4	5/32	26118	9.60
1/4	3/16	26119	9.60
9/32	1/8	26119B	12.56
5/16	1/8	26119C	12.56
5/16	5/32	26120	10.04
5/16	3/16	26121	10.04
5/16	1/4	26122	10.04
11/32	1/8	26122A	12.56
3/8	1/8	26122B	12.56
3/8	5/32	26123	10.24
3/8	3/16	26124	10.24
3/8	1/4	26125	10.24
3/8	5/16	26126	10.24
13/32	1/8	26126A	12.77
7/16	1/8	26126B	12.77
7/16	3/16	26127	11.40
7/16	1/4	26128	11.40
7/16	5/16	26129	11.40
7/16	3/8	26130	11.40
15/32	1/8	26130A	14.24
1/2	1/8	26130B	14.24
1/2	3/16	26131	11.40
1/2	1/4	26132	11.40
1/2	5/16	26133	11.40
1/2	3/8	26134	11.40
1/2	7/16	26135	11.40
9/32	1/8	26135A	18.18
9/16	3/16	26136	14.55
9/16	1/4	26137	14.55
9/16	5/16	26138	14.55
9/16	3/8	26139	14.55
9/16	7/16	26140	14.55

Pilot Dia.	Pilot Shank Dia.	Catalog EDI-Number	List Price
9/16	1/2	26141	\$14.55
5/8	3/16	26142	16.11
5/8	1/4	26143	16.11
5/8	5/16	26144	16.11
5/8	3/8	26145	16.11
5/8	7/16	26146	16.11
5/8	1/2	26147	16.11
11/16	1/4	26148	17.01
11/16	5/16	26149	17.01
11/16	3/8	26150	17.01
11/16	7/16	26151	17.01
11/16	1/2	26152	17.01
3/4	1/4	26153	18.04
3/4	5/16	26154	18.04
3/4	3/8	26155	18.04
3/4	7/16	26156	18.04
3/4	1/2	26157	18.04
13/16	1/4	26158	20.17
13/16	5/16	26159	20.17
13/16	3/8	26160	20.17
13/16	7/16	26161	20.17
13/16	1/2	26162	20.17
7/8	1/4	26163	21.52
7/8	5/16	26164	21.52
7/8	3/8	26165	21.52
7/8	7/16	26166	21.52
7/8	1/2	26167	21.52
15/16	5/16	26168	22.55
15/16	3/8	26169	22.55
15/16	7/16	26170	22.55
15/16	1/2	26171	22.55
1	5/16	26172	21.97
1	3/8	26173	21.97
1	7/16	26174	21.97
1	1/2	26175	21.97
1 1/16	5/16	26176	26.41
1 1/16	3/8	26177	26.41
1 1/16	7/16	26178	26.41
1 1/16	1/2	26179	26.41
1 1/8	5/16	26180	29.69
1 1/8	3/8	26181	29.69
1 1/8	7/16	26182	29.69
1 1/8	1/2	26183	29.69
1 3/16	3/8	26184	31.36
1 3/16	7/16	26185	31.36

Pilot Dia.	Pilot Shank Dia.	Catalog EDI-Number	List Price
1 3/16	1/2	26186	\$31.36
1 1/4	3/8	26187	32.72
1 1/4	7/16	26188	32.72
1 1/4	1/2	26189	32.72
1 5/16	3/8	26190	34.86
1 5/16	7/16	26191	34.86
1 5/16	1/2	26192	34.86
1 3/8	3/8	26193	36.40
1 3/8	7/16	26194	36.40
1 3/8	1/2	26195	36.40
1 7/16	3/8	26196	40.14
1 7/16	7/16	26197	40.14
1 7/16	1/2	26198	40.14
1 1/2	7/16	26199	42.14
1 1/2	1/2	26200	42.14
1 9/16	7/16	26201	44.44
1 9/16	1/2	26202	44.44
1 5/8	7/16	26203	46.19
1 5/8	1/2	26204	46.19
1 11/16	7/16	26205	49.47
1 11/16	1/2	26206	49.47
1 3/4	7/16	26207	52.95
1 3/4	1/2	26208	52.95
1 13/16	7/16	26209	59.07
1 13/16	1/2	26210	59.07
1 7/8	7/16	26211	64.61
1 7/8	1/2	26212	64.61
1 15/16	1/2	26213	70.54
2	1/2	26214	77.30
2 1/16	1/2	26215	86.58
2 1/8	1/2	26216	89.10
2 3/16	1/2	26217	92.69
2 1/4	1/2	26218	103.97
2 5/16	1/2	26219	121.17
2 3/8	1/2	26220	121.17
2 7/16	1/2	26221	126.90
2 1/2	1/2	26222	133.34
2 9/16	1/2	26223	148.80
2 5/8	1/2	26224	148.80
2 11/16	1/2	26225	165.04
2 3/4	1/2	26226	174.44
2 13/16	1/2	26227	182.30
2 7/8	1/2	26228	190.74
2 15/16	1/2	26229	200.78
3	1/2	26230	216.12

CARBIDE TIPPED

List No. 375C - Tapered Shank - Three/Four Flutes - For Steel

List No. 376C - Straight Shank - Three/Four Flutes - For Steel

Use: Designed with right hand helix, proper grade carbide and cutting edge clearance for heavier feeds. Hardened alloy steel bodies with brazed on carbide tips.

Tool diameter tolerance: $+.001"/-0"$

Shank diameter tolerance: $+0"/-.0005"$ (Straight shank)

Tapered Shank - List No. 375C



Straight Shank - List No. 376C



Tool Diameter		Min. Cut Diam.	Pilot Hole Diam.	OAL	STRAIGHT SHANK			List Price	TAPER SHANK			List Price
Decimal	Frac.				Shank Diam.	3 Flute EDI Number	4 Flute EDI Number		Morse Taper	3 Flute EDI Number	4 Flute EDI Number	
.2500	1/4	.114	3/32	3 13/16	15/64	57001	-	\$87.67	1	57101	-	\$99.63
.2812	9/32	.114	3/32	3 13/16	17/64	57002	-	105.75	1	57102	-	120.17
.3125	5/16	.114	3/32	3 13/16	19/64	57003	-	95.95	1	57103	-	109.05
.3438	11/32	.114	3/32	3 13/16	5/16	57004	-	118.79	1	57104	-	134.99
.3750	3/8	.182	5/32	4 1/16	5/16	57005	-	108.20	1	57105	-	122.95
.4062	13/32	.182	5/32	4 1/16	3/8	57006	-	120.71	1	57106	-	137.18
.4375	7/16	.182	5/32	4 1/16	3/8	57007	-	109.81	1	57107	-	124.78
.4688	15/32	.228	3/16	4 5/16	7/16	57008	-	134.39	1	57108	-	152.71
.5000	1/2	.228	3/16	4 5/16	7/16	57009	57009A	122.41	1	57109	57109A	139.09
.5312	17/32	.228	3/16	4 5/16	1/2	57010	57010A	135.81	1	57110	57110A	154.32
.5625	9/16	.228	3/16	4 5/16	1/2	57011	57011A	124.64	1	57111	57111A	141.64
.5938	19/32	.228	3/16	5 1/8	1/2	57012	57012A	140.31	2	57112	57112A	159.43
.6250	5/8	.228	3/16	5 1/8	1/2	57013	57013A	127.82	2	57113	57113A	145.26
.6562	21/32	.228	3/16	5 1/8	1/2	57014	57014A	148.84	2	57114	57114A	169.13
.6875	11/16	.228	3/16	5 1/8	1/2	57015	57015A	135.19	2	57115	57115A	153.61
.7188	23/32	.290	1/4	5 3/8	1/2	57016	57016A	151.03	2	57116	57116A	171.62
.7500	3/4	.290	1/4	5 3/8	1/2	57017	57017A	137.19	2	57117	57117A	155.89
.7812	25/32	.290	1/4	5 3/8	5/8	57018	57018A	154.27	2	57118	57118A	175.31
.8125	13/16	.290	1/4	5 3/8	5/8	57019	57019A	140.48	2	57119	57119A	159.64
.8438	27/32	.290	1/4	5 3/8	3/4	57020	57020A	160.32	2	57120	57120A	182.18
.8750	7/8	.290	1/4	5 3/8	3/4	57021	57021A	146.97	2	57121	57121A	167.01
.9062	29/32	.290	1/4	6 1/8	3/4	57022	57022A	166.62	3	57122	57122A	189.34
.9375	15/16	.290	1/4	6 1/8	3/4	57023	57023A	151.45	3	57123	57123A	172.11
.9688	31/32	.353	5/16	6 3/8	3/4	57024	57024A	169.66	3	57124	57124A	192.81
1.0000	1	.353	5/16	6 3/8	3/4	57025	57025A	154.39	3	57125	57125A	175.44
1.0625	1 1/16	.353	5/16	6 3/8	3/4	57026	57026A	155.58	3	57126	57126A	176.80
1.1250	1 1/8	.353	5/16	6 3/8	1	57027	57027A	160.74	3	57127	57127A	182.67
1.1875	1 3/16	.353	5/16	6 3/8	1	57028	57028A	166.62	3	57128	57128A	189.34
1.2500	1 1/4	.426	3/8	6 5/8	1	-	57029	169.73	3	-	57129	192.88
1.3125	1 5/16	.426	3/8	6 5/8	1	-	57030	183.70	3	-	57130	208.74
1.3750	1 3/8	.426	3/8	6 5/8	1	-	57031	192.04	3	-	57131	218.24
1.4375	1 7/16	.426	3/8	7 7/8	1 1/4	-	57032	196.78	4	-	57132	223.62
1.5000	1 1/2	.426	3/8	7 7/8	1 1/4	-	57033	217.62	4	-	57133	247.29
1.5625	1 9/16	.489	7/16	8 1/8	1 1/4	-	57034	223.80	4	-	57134	254.32
1.6250	1 5/8	.489	7/16	8 1/8	1 1/4	-	57035	226.55	4	-	57135	257.44
1.6875	1 11/16	.489	7/16	8 1/8	1 1/4	-	57036	251.66	4	-	57136	285.98
1.7500	1 3/4	.489	7/16	8 1/8	1 1/4	-	57037	252.28	4	-	57137	286.68
1.8125	1 13/16	.489	7/16	8 1/8	1 1/2	-	57038	297.12	4	-	57138	337.64
1.8750	1 7/8	.489	7/16	8 1/8	1 1/2	-	57039	298.62	4	-	57139	339.34
1.9375	1 15/16	.489	7/16	8 1/8	1 1/2	-	57040	324.63	4	-	57140	368.88
2.0000	2	.551	1/2	8 3/8	1 1/2	-	57041	326.55	4	-	57141	371.08



COUNTERBORES



CONTINUOUS PILOT COUNTERBORES

SOLID PILOT COUNTERBORES

List No. CB269

Catalog EDI-Number	For U.S.S Cap Screw	Counter-bore Dia.	Pilot Dia.	Shank Dia.	OAL	List Price
26240	No. 6	.242	.150	7/32	3	\$70.36
26241	No. 8	.286	.178	1/4	3	70.36
26242	No. 10	.332	.204	5/16	3 1/2	62.55
26243	1/4	13/32	9/32	3/8	4 3/4	59.60
26244	5/16	1/2	11/32	7/16	5	67.21
26245	3/8	19/32	13/32	1/2	5 1/2	72.78
26246	7/16	11/16	15/32	1/2	6	86.31
26247	1/2	25/32	17/32	1/2	6 1/4	96.87
26248	9/16	13/16	9/16	3/4	6 1/2	119.84
26249	5/8	31/32	21/32	3/4	6 1/2	138.94
26250	3/4	1 3/16	13/16	1	7 1/8	191.25

For U.S.S Cap Screw	Shank Dia.	OAL	CB Dia.	EDI #	Pilot Dia.	EDI #	Pilot Dia.	EDI #	Pilot Dia.	List Price
No. 6	3/8	3 1/4	.242	26270	.136	26281	.150	--	--	\$35.12
No. 8	3/8	3 1/4	.290	26271	.162	26282	.178	--	--	35.12
No. 10	3/8	3 1/4	.332	26272	.188	26283	.204	--	--	35.12
1/4	3/8	3 1/2	13/32	26273	1/4	26284	17/64	26292	9/32	36.55
5/16	3/8	3 3/4	1/2	26274	5/16	26285	21/64	26293	11/32	39.11
3/8	1/2	4	19/32	26275	3/8	26286	25/64	26294	13/32	41.15
7/16	1/2	4 1/2	11/16	26276	7/16	26287	29/64	26295	15/32	45.80
1/2	3/4	5	25/32	26277	1/2	26288	33/64	26296	17/32	55.33
9/16	3/4	6 1/2	7/8	26278	9/16	26289	37/64	26297	19/32	102.06
5/8	3/4	6 1/2	1	26279	5/8	26290	41/64	26298	21/32	119.64
3/4	3/4	7 1/8	1 3/16	26280	3/4	26291	49/64	26299	25/32	148.60

CAP SCREW COUNTERBORES

Head and Body

Catalog EDI #	Screw Dia.	Counterbore Dia.	Pilot Shank	Shank Dia.	OAL	List Price
25991-CC408	1/4	13/32	1/4	3/8	5 3/4	\$45.88
25992-CC410	5/16	1/2	5/16	7/16	6 1/8	49.94
25993-CC412	3/8	19/32	3/8	9/16	6 1/2	60.06
25994-CC414	7/16	11/16	7/16	5/8	7	66.08
25995-CC418	1/2	25/32	1/2	3/4	7 1/4	73.65



**STRAIGHT SHANK
HIGH SPEED STEEL**
List No. CPS376

AIRCRAFT COUNTERBORES

Short Length



Body Dia.	Shank Dia.	For Pilot Shank Dia.	OAL	EDI #	Price
1/4	1/4	3/32	2 3/8	20201	70.28
9/32	1/4	3/32	2 3/8	20202	69.12
5/16	1/4	3/32	2 3/8	20203	68.69
11/32	1/4	3/32	2 3/8	20204	71.88
3/8	1/4	3/32	2 3/8	20205	71.35
13/32	1/4	1/8	2 13/16	20206	70.70
7/16	1/4	1/8	2 13/16	20207	75.29
15/32	1/4	1/8	2 13/16	20208	78.79
1/2	1/4	1/8	2 13/16	20209	79.45
17/32	1/4	1/8	2 13/16	20210	79.87
9/16	1/4	1/8	2 13/16	20211	80.51
19/32	1/4	1/8	2 13/16	20212	94.79
5/8	1/4	1/8	2 13/16	20213	95.43
21/32	1/4	3/16	3 1/8	20214	98.08
11/16	1/4	3/16	3 1/8	20215	113.53
23/32	1/4	3/16	3 1/8	20216	111.18
3/4	1/4	3/16	3 1/8	20217	109.47
25/32	1/4	3/16	3 1/8	20218	120.56
13/16	1/4	3/16	3 1/8	20219	119.81
27/32	1/4	3/16	3 1/8	20219A	139.40
7/8	1/4	3/16	3 1/8	20220	126.94
29/32	1/4	3/16	3 1/8	20220A	145.26
15/16	1/4	3/16	3 1/8	20221	129.81
31/32	1/4	3/16	3 1/8	20221A	157.62
1	1/4	3/16	3 1/8	20222	143.66

PORT CONTOUR CUTTERS



CARBIDE TIPPED

S.A.E. Ports - MS 16142 - J514F - J1926 - Straight Shank
For Non-Ferrous Materials and Cast Irons
For Steels



TUBE		DIMENSIONS									For N-F, Cast Irons EDI #	For Steels EDI #	List Price
No.	Size	Thread Size	DIAMETER			Sealing Seat Angle	LENGTH						
			Reamer	Spotface	Shank		Shank	Reamer	Head	OAL			
2	1/8	5/16-24	.2720	.6820	.5000	12°	2	.4730	1 1/8	3 1/8	10250	10262	314.96
3	3/16	3/8-24	.3350	.7600	.5000	12°	2	.4730	1 1/4	3 1/4	10251	10263	314.96
4	1/4	7/16-20	.3890	.8380	.5000	12°	2	.5520	1 1/4	3 1/4	10252	10264	314.96
5	5/16	1/2-20	.4520	.9160	.5000	12°	2	.5520	1 1/4	3 1/4	10253	10265	324.86
6	3/8	9/16-18	.5090	.9790	.5000	12°	2	.6140	1 1/4	3 1/4	10254	10266	324.86
8	1/2	3/4-16	.6890	1.1980	.7500	15°	2	.6930	1 3/8	3 3/8	10255	10267	355.58
10	5/8	7/8-14	.8060	1.3540	.7500	15°	2	.7860	1 5/8	3 5/8	10256	10268	402.11
12	3/4	1 1/16-12	.9810	1.6350	.7500	15°	2 1/4	.9110	1 7/8	4 1/8	10257	10269	433.82
14	7/8	1 3/16-12	1.1060	1.7750	.7500	15°	2 1/4	.9110	1 7/8	4 1/8	10258	10270	440.80
16	1	1 5/16-12	1.2310	1.9200	.7500	15°	2 1/4	.9110	1 7/8	4 1/8	10259	10271	474.44
20	1 1/4	1 5/8-12	1.5440	2.2800	1.0000	15°	2 1/4	.9110	2	4 1/4	10260	10272	508.13
24	1 1/2	1 7/8-12	1.7940	2.5700	1.0000	15°	2 1/4	.9110	2	4 1/4	10261	10273	642.81
32	2	2 1/2-12	2.4190	3.4900	1.0000	15°	2 1/4	.9110	2 1/4	4 1/2	10261A	10274	816.18

S.A.E. Ports - MS 16142 - J514F - J1926 - Taper Shank
For Non-Ferrous Materials and Cast Irons
For Steels



TUBE		DIMENSIONS									For N-F, Cast Irons EDI #	For Steels EDI #	List Price
No.	Size	Thread Size	DIAMETER		Taper Shank #	Sealing Seat Angle	LENGTH						
			Reamer	Spotface			Reamer	Head	OAL				
2	1/8	5/16-24	.2720	.6820	2	12	.4730	1 5/8	4 3/4	10201	10214	\$314.96	
3	3/16	3/8-24	.3350	.7600	2	12°	.4730	1 5/8	4 3/4	10202	10215	314.96	
4	1/4	7/16-20	.3890	.8380	2	12°	.5520	1 5/8	4 3/4	10203	10216	314.96	
5	5/16	1/2-20	.4520	.9160	2	12°	.5520	1 5/8	4 3/4	10204	10217	324.86	
6	3/8	9/16-18	.5090	.9790	2	12°	.6140	1 5/8	4 3/4	10205	10218	324.86	
8	1/2	3/4-16	.6890	1.1980	3	15°	.6930	1 3/4	5 5/8	10206	10219	355.58	
10	5/8	7/8-14	.8060	1.3540	3	15°	.7860	1 7/8	5 3/4	10207	10220	402.11	
12	3/4	1 1/16-12	.9810	1.635	3	15°	.9110	2	5 7/8	10208	10221	433.82	
14	7/8	1 3/16-12	1.1060	1.7750	3	15°	.9110	2	5 7/8	10209	10222	440.80	
16	1	1 5/16-12	1.2310	1.9200	3	15°	.9110	2	5 7/8	10210	10223	474.44	
20	1 1/4	1 5/8-12	1.5440	2.2800	4	15°	.9110	2 1/4	7 1/8	10211	10224	508.13	
24	1 1/2	1 7/8-12	1.7940	2.5700	4	15°	.9110	2 1/4	7 1/8	10212	10225	642.81	
32	2	2 1/2-12	2.4190	3.4900	4	15°	.9110	2 1/4	7 1/8	10213	10226	816.18	

S.A.E. Ports - MS 16142 - J514F - J1926 - Extra Long Reamer - Taper Shank
For Non-Ferrous Materials and Cast Irons
For Steels



TUBE		DIMENSIONS								For N-F, Cast Irons EDI #	For Steels EDI #	List Price
No.	Size	Thread Size	DIAMETER		Taper Shank #	Sealing Seat Angle	LENGTH					
			Reamer	Spotface			Reamer	Head	OAL			
2	1/8	5/16-24	.2720	.6820	2	12°	.5800	1 3/4	4 7/8	10352	10365	\$331.78
3	3/16	3/8-24	.3350	.7600	2	12°	.5800	1 3/4	4 7/8	10353	10366	331.78
4	1/4	7/16-20	.3890	.8380	2	12°	.6900	1 3/4	4 7/8	10354	10367	331.78
5	5/16	1/2-20	.4520	.9160	2	12°	.6900	1 3/4	4 7/8	10355	10368	339.75
6	3/8	9/16-18	.5090	.9790	2	12°	.7500	1 3/4	4 7/8	10356	10369	339.75
8	1/2	3/4-16	.6890	1.1980	3	15°	.8400	2	5 7/8	10357	10370	373.39
10	5/8	7/8-14	.8060	1.3540	3	15°	.9700	2	5 7/8	10358	10371	422.91
12	3/4	1 1/16-12	.9810	1.6350	3	15°	1.1250	2 1/4	6 1/8	10359	10372	453.62
14	7/8	1 3/16-12	1.1060	1.7750	3	15°	1.1250	2 1/4	6 1/8	10360	10373	464.53
16	1	1 5/16-12	1.2310	1.9200	3	15°	1.1250	2 1/4	6 1/8	10361	10374	498.23
20	1 1/4	1 5/8-12	1.5440	2.2800	4	15°	1.1250	2 1/2	7 3/8	10362	10375	534.87
24	1 1/2	1 7/8-12	1.7940	2.5700	4	15°	1.1250	2 1/2	7 3/8	10363	10376	765.48
32	2	2 1/2-12	2.4190	3.4900	4	15°	1.1250	2 1/2	7 3/8	10364	10377	961.58

CARBIDE/HSS DRILLS, & COUNTERBORES



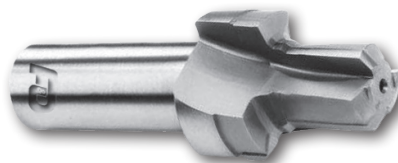
PORT CONTOUR CUTTERS

CARBIDE TIPPED

A.N.D. 10050 Integral Reamer Pilot - Straight Shank

For Non-Ferrous Materials and Cast Irons

For Steels

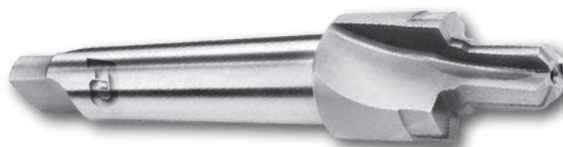


TUBE		DIMENSIONS								For N-F, Cast Irons EDI #	For Steel EDI #	List Price
No.	Size	Thread Size	DIAMETER			LENGTH						
			Reamer	Spotface	Shank	Shank	Reamer	Head	Overall			
1	1/16	1/4-28	.2110	.6500	.5000	2	.4500	1	3	10400	10414	\$385.11
2	1/8	5/16-24	.2710	.7420	.5000	2	.6090	1 1/8	3 1/8	10401	10415	385.11
3	3/16	3/8-24	.3330	.8050	.5000	2	.6090	1 1/4	3 1/4	10402	10416	402.11
4	1/4	7/16-20	.3860	.8880	.5000	2	.6870	1 1/4	3 1/4	10403	10417	402.11
5	5/16	1/2-20	.4490	.9500	.5000	2	.6870	1 1/4	3 1/4	10404	10418	418.99
6	3/8	9/16-18	.5060	1.0120	.5000	2	.7340	1 1/2	3 1/2	10405	10419	426.21
8	1/2	3/4-16	.6870	1.2400	.7500	2	.8590	1 5/8	3 5/8	10406	10420	453.00
10	5/8	7/8-14	.8020	1.4150	.7500	2 1/4	.9530	1 7/8	4 1/8	10407	10421	486.77
12	3/4	1 1/16-12	.9760	1.6650	.7500	2 1/4	1.0930	2 1/8	4 3/8	10408	10422	537.67
16	1	1 5/16-12	1.2260	1.9650	.7500	2 1/4	1.0930	2 1/8	4 3/8	10409	10423	724.23
20	1 1/4	1 5/8-12	1.5380	2.3100	1.0000	2 1/4	1.1400	2 1/4	4 1/2	10410	10424	920.47
24	1 1/2	1 7/8-12	1.7880	2.6000	1.0000	2 1/4	1.1400	2 1/4	4 1/2	10411	10425	1,058.50
28	1 3/4	2 1/4-12	2.1630	3.0500	1.0000	2 1/4	1.2650	2 1/4	4 1/2	10412	10426	1,162.65
32	2	2 1/2-12	2.4140	3.5200	1.0000	2 1/2	1.3900	2 1/2	5	10413	10427	1,322.58

Metric Port Reamer Pilot Series - Taper Shank

For Non-Ferrous Materials and Cast Irons

For Steels



Thread Size	DIMENSIONS							For N-F, Cast Irons EDI #	For Steel EDI #	List Price
	DIAMETER		Taper Shank #	Sealing Seat Angle	LENGTH					
	Reamer	Spotface			Reamer	Head	Overall			
M 8X1	.2770	.6690	2	12°	.5510	1 3/4	4 7/8	10428	10441	\$356.08
M 10X1	.3560	.7870	2	12°	.5510	1 3/4	4 7/8	10429	10442	371.21
M 12X1.5	.4150	.8660	2	15°	.6610	1 3/4	4 7/8	10430	10443	385.11
M 14X1.5	.4930	.9840	2	15°	.7200	1 3/4	4 7/8	10431	10444	399.62
M 16X1.5	.5720	1.0630	2	15°	.7200	1 3/4	4 7/8	10432	10445	423.29
M 18X1.5	.6510	1.1420	3	15°	.8110	1 7/8	5 3/4	10433	10446	437.12
M 20X1.5	.7300	1.2600	3	15°	.6890	2	5 7/8	10434	10447	453.00
M 22X1.5	.8080	1.3390	3	15°	.9370	2	5 7/8	10435	10448	474.13
M 27X2	.9850	1.5750	3	15°	1.0940	2 1/8	6	10436	10449	509.88
M 33X2	1.2210	1.8110	3	15°	1.0940	2 1/8	6	10437	10450	587.37
M 42X2	1.5760	2.2050	3	15°	1.0940	2 1/8	6	10438	10451	633.41
M 48X2	1.8120	2.5980	4	15°	1.0940	2 1/8	7	10439	10452	687.92
M 60X2	2.2840	2.9920	4	15°	1.0940	2 1/8	7	10440	10453	809.01



ISO6149-1 Metric Port Without I.D. Groove - Straight Shank

For Non-Ferrous Materials and Cast Irons
For Steels

Thread Size	DIMENSIONS									For N-F, Cast Iron EDI #	For Steel EDI #	List Price
	DIAMETER			No. of Flts.	Sealing Seat Angle	LENGTH						
	Reamer	Spotface	Shank			Shank	Reamer	Head	Overall			
M 8X1	.2770	.6690	.5000	3	12°	2	.4530	1 1/8	3 1/8	10602	10615	\$355.58
M 10X1	.3560	.7870	.5000	3	12°	2	.4530	1 1/4	3 1/4	10603	10616	355.58
M 12X1.5	.4150	.9060	.5000	3	15°	2	.5510	1 1/4	3 1/4	10604	10617	372.40
M 14X1.5	.4930	.9840	.5000	3	15"	2	.5510	1 1/4	3 1/4	10605	10618	372.40
M 16X1.5	.5720	1.1020	.5000	3	15°	2	.6100	1 1/4	3 1/4	10606	10619	410.08
M 18X1.5	.6510	1.1810	.7500	3	15"	2	.6690	1 3/8	3 3/8	10607	10620	410.08
M 20X1.5	.7300	1.2600	.7500	3	15°	2	.6890	1 3/8	3 3/8	10608	10621	425.91
M 22X1.5	.8080	1.3390	.7500	3	15°	2	.7090	1 5/8	3 5/8	10609	10622	441.74
M 27X2	.9850	1.5750	.7500	3	15°	2 1/4	.8660	1 7/8	4 1/8	10610	10623	477.42
M 33X2	1.2210	1.9290	.7500	3	15°	2 1/4	.8660	1 7/8	4 1/8	10611	10624	522.96
M 42X2	1.5760	2.3620	1.0000	3	15°	2 1/4	.8860	1 7/8	4 1/8	10612	10625	571.49
M 48X2	1.8120	2.5890	1.0000	4	15°	2 1/4	.9840	2	4 1/4	10613	10626	604.19
M 60X2	2.2840	2.9920	1.0000	4	15°	2 1/4	1.0830	2	4 1/4	10614	10627	624.00



MS 33649 Integral Reamer Pilot - Straight Shank

For Non-Ferrous Materials and Cast Irons
For Steels

TUBE		DIMENSIONS								For N-F, Cast Iron EDI #	For Steel EDI #	List Price
No.	Size	Thread Size	DIAMETER			LENGTH						
			Reamer	Spotface	Shank	Shank	Reamer	Head	Overall			
1	1/16	1/4-28	.2150	.6500	.5000	2	.4070	1	3	10630	10649	\$386.29
2	1/8	5/16-24	.2750	.7420	.5000	2	.5820	1 1/8	3 1/8	10631	10650	386.29
3	3/16	3/8-24	.3390	.8050	.5000	2	.5880	1 1/4	3 1/4	10632	10651	366.48
4	1/4	7/16-20	.3930	.8880	.5000	2	.6610	1 1/4	3 1/4	10633	10652	376.38
5	5/16	1/2-20	.4550	.9500	.5000	2	.6610	1 1/4	3 1/4	10634	10653	386.29
6	3/8	9/16-18	.5120	1.0120	.5000	2	.7140	1 1/2	3 1/2	10635	10654	406.09
7	7/16	5/8-18	.5750	1.1050	.5000	2	.7300	1 1/2	3 1/2	10636	10655	416.01
8	1/2	3/4-16	.6930	1.2400	.7500	2	.8390	1 5/8	3 5/8	10637	10656	425.91
9	9/16	13/16-16	.7560	1.3020	.7500	2	.8550	1 5/8	3 5/8	10638	10657	435.81
10	5/8	7/8-14	.8100	1.4150	.7500	2 1/4	.9350	1 7/8	4 1/8	10639	10658	445.71
11	11/16	1-12	.9250	1.6020	.7500	2 1/4	1.0690	2 1/8	4 3/8	10640	10659	485.34
12	3/4	1 1/16-12	.9870	1.6650	.7500	2 1/4	1.0690	2 1/8	4 3/8	10641	10660	515.05
14	7/8	1 3/16-12	1.1120	1.7900	.7500	2 1/4	1.0690	2 1/8	4 3/8	10642	10661	544.77
16	1	1 5/16-12	1.2370	1.9650	.7500	2 1/4	1.0690	2 1/8	4 3/8	10643	10662	574.47
18	1 1/8	1 1/2-12	1.4250	2.0900	.7500	2 1/4	1.1210	2 1/4	4 1/2	10644	10663	619.08
20	1 1/4	1 5/8-12	1.5500	2.3100	1.0000	2 1/4	1.1210	2 1/4	4 1/2	10645	10664	663.63
24	1 1/2	1 7/8-12	1.8000	2.6000	1.0000	2 1/4	1.1320	2 1/4	4 1/2	10646	10665	772.57
28	1 3/4	2 1/4-12	2.1750	3.0500	1.0000	2 1/4	1.2480	2 1/4	4 1/2	10647	10666	1,162.65
32	2	2 1/2-12	2.4250	3.5200	1.0000	2 1/4	1.3730	2 1/2	5	10648	10667	1,322.51



COUNTERSINKS & CENTER REAMERS

THREE GROOVE COUNTERSINKS HIGH SPEED STEEL



Regularly furnished with an included angle of 82 degrees; and with straight shanks in all sizes, 1/2 inch diameter, 2 inches long.

Catalog EDI-Number	Diameter	Overall Length	Flute Length	Length Body (in)	List Price
27791-X312	3/8	4 3/8	2 1/8	2 3/8	\$31.64
27792-X318	1/2	4 1/2	2 1/4	2 1/2	34.86
27793-X328	5/8	4 5/8	2 3/8	2 5/8	39.32
27794-X332	3/4	4 3/4	2 1/2	2 3/4	48.90
27795-X342	7/8	4 7/8	2 5/8	2 7/8	57.75
27796-X352	1	5	2 3/4	3	57.69

MACHINE COUNTERSINKS HIGH SPEED STEEL

Utilized in countersinking for screwheads and for centering lathe work. Furnished with 60° and 82° angles.



60°: Catalog EDI-Number	82°: Catalog EDI-Number	Dia.	Shank Diameter	Overall Length	List Price
27861-X518-60	27866-X518-82	1/2	1/2	3 1/2	29.02
27862-X528-60	27867-X528-82	5/8	1/2	3 3/4	32.75
27863-X532-60	27868-X532-82	3/4	1/2	3 3/4	49.62
27864-X542-60	27869-X542-82	7/8	1/2	4	45.88
27865-X552-60	27870-X552-82	1	1/2	4 1/4	50.67



SINGLE FLUTE COUNTERSINKS HIGH SPEED STEEL

Dia.	60°: Catalog EDI-Number	82°: Catalog EDI-Number	90°: Catalog EDI-Number	100°: Catalog EDI-Number	120°: Catalog EDI-Number	List Price
1/4	26401-X110	26402-X110	26403-X110	26404-X110	26405-X110	\$6.04
3/8	26406-X112	26407-X112	26408-X112	26409-X112	26410-X112	6.90
1/2	26411-X114	26412-X114	26413-X114	26414-X114	26415-X114	8.21
5/8	26416-X116	26417-X116	26418-X116	26419-X116	26420-X116	11.23
3/4	26421-X118	26422-X118	26423-X118	26424-X118	26425-X118	16.27
1	26426-X120	26427-X120	26428-X120	26429-X120	26430-X120	27.17

CENTER REAMER HIGH SPEED STEEL



Furnished either with 60°, 82° 90°, 100°, 110°, included angle.

Catalog EDI-Number	Degree	Dia	Shank	Length Shank	Overall Length	List Price
27811-X410	60°	1/4	3/16	3/4	1 1/2	\$8.92
27812-X410	82°	1/4	3/16	3/4	1 1/2	8.92
27813-X410	90°	1/4	3/16	3/4	1 1/2	8.92
27814-X410	100°	1/4	3/16	3/4	1 1/2	8.92
27815-X410	110°	1/4	3/16	3/4	1 1/2	8.92
27816-X412	60°	3/8	1/4	7/8	1 3/4	10.51
27817-X412	82°	3/8	1/4	7/8	1 3/4	10.51
27818-X412	90°	3/8	1/4	7/8	1 3/4	10.51
27819-X412	100°	3/8	1/4	7/8	1 3/4	10.51
27820-X412	110°	3/8	1/4	7/8	1 3/4	10.51
27821-X414	60°	1/2	3/8	1	2	13.51
27822-X414	82°	1/2	3/8	1	2	13.51
27823-X414	90°	1/2	3/8	1	2	13.51
27824-X414	100°	1/2	3/8	1	2	13.51
27825-X414	110°	1/2	3/8	1	2	13.51
27826-X416	60°	5/8	3/8	1	2 1/4	19.49
27827-X416	82°	5/8	3/8	1	2 1/4	19.49
27828-X416	90°	5/8	3/8	1	2 1/4	19.49
27829-X416	100°	5/8	3/8	1	2 1/4	19.49
27830-X416	110°	5/8	3/8	1	2 1/4	19.49
27831-X418	60°	3/4	1/2	1 1/4	2 5/8	25.93
27832-X418	82°	3/4	1/2	1 1/4	2 5/8	25.93
27833-X418	90°	3/4	1/2	1 1/4	2 5/8	25.93
27834-X418	100°	3/4	1/2	1 1/4	2 5/8	25.93
27835-X418	110°	3/4	1/2	1 1/4	2 5/8	25.93
27836-X420	60°	1	1/2	1 1/2	3 1/2	46.14
27837-X420	82°	1	1/2	1 1/2	3 1/2	46.14
27838-X420	90°	1	1/2	1 1/2	3 1/2	46.14
27839-X420	100°	1	1/2	1 1/2	3 1/2	46.14
27840-X420	110°	1	1/2	1 1/2	3 1/2	46.14



COMBINED DRILLS & COUNTERSINKS PLAIN TYPE

HIGH SPEED STEEL

LIST D271

NEW AND OLD STANDARD

Catalog EDI-Number	New Std.	Old Std.	Body Dia.	Drill Dia.	List Price
27031	00	-	1/8	.020	\$8.33
27032	01	-	1/8	.025	8.33
27033	0	-	1/8	.031	5.78
27034	1	A-1	1/8	3/64	4.14
27035	-	C-2	13/64	1/16	7.75
27036	2	-	3/16	5/64	4.46
27037	-	D-1	15/64	5/64	7.75
27038	3	-	1/4	7/64	4.67
27039	-	E-1	.300	3/32	7.75
27040	-	E-2	.300	1/8	7.75
27041	4	-	5/16	1/8	4.86
27042	-	F-1	7/16	5/32	12.14
27043	5	F-2	7/16	3/16	7.94
27044	6	J-1	1/2	7/32	12.21
27045	-	J-2	1/2	9/32	18.06
27046	-	M-1	5/8	7/32	24.08
27047	7		5/8	1/4	22.11
27048	-	M-2	5/8	9/32	24.08
27049	-	N-1	3/4	1/4	32.68
27050	8	N-2	3/4	5/16	29.99

COMBINED DRILLS & COUNTERSINKS BELL TYPE

HIGH SPEED STEEL



LIST D272

NEW AND OLD STANDARD

Catalog EDI-Number	New Std.	Old Std.	Body Dia.	Drill dia.	List Price
27071	11	A-1	1/8	3/64	\$5.39
27072	-	C-2	13/64	1/16	9.32
27073	12	-	3/16	1/16	5.58
27074	-	D-1	15/64	5/64	9.32
27075	13	-	1/4	3/32	5.71
27076	-	E-1	.300	3/32	9.32
27077	-	E-2	.300	1/8	9.32
27078	14	-	5/16	7/64	5.84
27079	15	F-1	7/16	5/32	9.19
27080	-	F-2	7/16	3/16	13.39
27081	16	-	1/2	3/16	13.85
27082	-	J-1	1/2	7/32	20.21
27083	-	J-2	1/2	9/32	20.21
27084	17	M-1	5/8	7/32	25.33
27085	-	M-2	5/8	9/32	26.65
27086	18	N-1	3/4	1/4	33.80
27087	-	N-2	3/4	5/16	36.88



COMBINED DRILLS & COUNTERSINKS PLAIN TYPE

HIGH SPEED STEEL

LIST D270

STANDARD LONG SERIES

Catalog EDI-Number	New Std.	OAL	Body Dia.	Drill Dia.	List Price
26991	1	3	1/8	3/64	12.21
26992	1	4	1/8	3/64	12.99
26993	1	5	1/8	3/64	17.58
26994	1	6	1/8	3/64	23.69
26995	2	4	3/16	5/64	13.72
26996	2	5	3/16	5/64	18.45
26997	2	6	3/16	5/64	23.49
26998	3	4	1/4	7/64	13.99
26999	3	5	1/4	7/64	19.56
27000	3	6	1/4	7/64	23.49
27001	4	4	5/16	1/8	16.27
27002	4	5	5/16	1/8	21.00
27003	4	6	5/16	1/8	24.22
27004	4 1/2	4	3/8	9/64	18.11
27005	4 1/2	5	3/8	9/64	21.39
27006	4 1/2	6	3/8	9/64	25.99
27007	5	5	7/16	3/16	25.01
27008	5	6	7/16	3/16	28.03
27009	6	5	1/2	7/32	26.58
27010	6	6	1/2	7/32	32.09
27011	7	6	5/8	1/4	59.66
27012	8	6	3/4	5/16	64.52

SOLID CARBIDE PLAIN TYPE 60°



Catalog EDI-Number	New Std.	Drill Dia.	Body Dia.	Drill Length	OAL	List Price
27015	0	1/32	1/8	1/32	1 1/4	19.35
27016	1	3/64	1/8	3/64	1 1/4	19.35
27017	2	5/64	3/16	5/64	1 7/8	27.01
27018	3	7/64	1/4	7/64	2	33.73
27019	4	1/8	5/16	1/8	2 1/8	40.06
27020	5	3/16	7/16	3/16	2 3/4	67.34
27021	6	7/32	1/2	7/32	3	81.94
27022	7	1/4	5/8	1/4	3	156.82
27023	8	5/16	3/4	5/16	3	204.20



JOBBER DRILLS - GENERAL PURPOSE STRAIGHT SHANK - HIGH SPEED STEEL

These drills are recommended for the great bulk of drilling operations. The helix angle and flute construction have been developed from experience on many different materials and have been found most effective for general purpose drilling.



No. D220

Catalog EDI-Number	Fraction Size	Decimal Equiv.	OAL	Flute Length	List Price
25301	1/64	.0156	3/4	3/16	\$1.95
25302	1/32	.0312	1 3/8	1/2	1.28
25303	3/64	.0469	1 3/4	3/4	1.28
25304	1/16	.0625	1 7/8	7/8	1.34
25305	5/64	.0781	2	1	1.34
25306	3/32	.0937	2 1/4	1 1/4	1.34
25307	7/64	.1094	2 5/8	1 1/2	1.52
25308	1/8	.1250	2 3/4	1 5/8	1.52
25309	9/64	.1406	2 7/8	1 3/4	1.52
25310	5/32	.1562	3 1/8	2	1.58
25311	11/64	.1719	3 1/4	2 1/8	1.64
25312	3/16	.1875	3 1/2	2 5/16	1.95
25313	13/64	.2031	3 5/8	2 7/16	2.07
25314	7/32	.2187	3 3/4	2 1/2	2.18
25315	15/64	.2344	3 7/8	2 5/8	2.68
25316	1/4	.2500	4	2 3/4	2.79
25317	17/64	.2656	4 1/8	2 7/8	3.10
25318	9/32	.2812	4 1/4	2 15/16	3.58
25319	19/64	.2969	4 3/8	3 1/16	3.77
25320	5/16	.3125	4 1/2	3 3/16	4.25
25321	21/64	.3281	4 5/8	3 5/16	4.61
25322	11/32	.3437	4 3/4	3 7/16	5.17

Catalog EDI-Number	Fraction Size	Decimal Equiv.	OAL	Flute Length	List Price
25323	23/64	.3594	4 7/8	3 1/2	\$5.83
25324	3/8	.3750	5	3 5/8	5.95
25325	25/64	.3906	5 1/8	3 3/4	6.68
25326	13/32	.4062	5 1/4	3 7/8	6.93
25327	27/64	.4219	5 3/8	3 15/16	7.78
25328	7/16	.4375	5 1/2	4 1/16	7.96
25329	29/64	.4531	5 5/8	4 3/16	9.12
25330	15/32	.4687	5 3/4	4 5/16	9.60
25331	31/64	.4844	5 7/8	4 3/8	10.08
25332	1/2	.5000	6	4 1/2	10.39
25333	33/64	.5156	6 5/8	4 13/16	16.53
25334	17/32	.5312	6 5/8	4 13/16	17.38
25335	35/64	.5469	6 5/8	4 13/16	18.96
25336	9/16	.5625	6 5/8	4 13/16	20.18
25337	37/64	.5781	6 5/8	4 13/16	20.60
25338	19/32	.5938	7 1/8	5 3/16	20.48
25339	39/64	.6094	7 1/8	5 3/16	22.12
25340	5/8	.6250	7 1/8	5 3/16	22.12
25341	41/64	.6406	7 1/8	5 3/16	23.58
25342	21/32	.6562	7 1/8	5 3/16	23.58
25343	43/64	.6719	7 5/8	5 5/8	26.99
25344	11/16	.6875	7 5/8	5 5/8	26.99

LETTER DRILLS - GENERAL PURPOSE STRAIGHT SHANK - HIGH SPEED STEEL



No. D221

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	Flute Length	List Price
25361	A	.2340	3 7/8	2 5/8	\$2.91
25362	B	.2380	4	2 3/4	2.91
25363	C	.2420	4	2 3/4	2.91
25364	D	.2460	4	2 3/4	2.91
25365	E	.2500	4	2 3/4	2.91
25366	F	.2570	4 1/8	2 7/8	3.16
25367	G	.2610	4 1/8	2 7/8	3.65
25368	H	.2660	4 1/8	2 7/8	3.65
25369	I	.2720	4 1/8	2 7/8	3.65
25370	J	.2770	4 1/8	2 7/8	3.77
25371	K	.2810	4 1/4	2 15/16	4.25
25372	L	.2900	4 1/4	2 15/16	4.25
25373	M	.2950	4 3/8	3 1/16	4.50

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	Flute Length	List Price
25374	N	.3020	4 3/8	3 1/16	\$4.50
25375	O	.3160	4 1/2	3 3/16	4.50
25376	P	.3230	4 5/8	3 5/16	4.99
25377	Q	.3320	4 3/4	3 7/16	4.99
25378	R	.3390	4 3/4	3 7/16	5.35
25379	S	.3480	4 7/8	3 1/2	5.78
25380	T	.3580	4 7/8	3 1/2	6.44
25381	U	.3680	5	3 5/8	6.44
25382	V	.3770	5	3 5/8	6.62
25383	W	.3860	5 1/8	3 3/4	6.93
25384	X	.3970	5 1/8	3 3/4	8.15
25385	Y	.4040	5 1/4	3 7/8	9.60
25386	Z	.4130	5 1/4	3 7/8	10.08

WIRE DRILLS - GENERAL PURPOSE STRAIGHT SHANK - HIGH SPEED STEEL



No. D222

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	Flute Length	List Price
25401	1	.2280	3 7/8	2 5/8	\$2.91
25402	2	.2210	3 7/8	2 5/8	2.91
25403	3	.2130	3 3/4	2 1/2	2.49
25404	4	.2090	3 3/4	2 1/2	2.49
25405	5	.2055	3 3/4	2 1/2	2.49
25406	6	.2040	3 3/4	2 1/2	2.49
25407	7	.2010	3 5/8	2 7/16	2.25
25408	8	.1990	3 5/8	2 7/16	2.25
25409	9	.1960	3 5/8	2 7/16	2.25
25410	10	.1935	3 5/8	2 7/16	2.25
25411	11	.1910	3 1/2	2 5/16	2.13
25412	12	.1890	3 1/2	2 5/16	2.13
25413	13	.1850	3 1/2	2 5/16	2.07
25414	14	.1820	3 3/8	2 3/16	2.07
25415	15	.1800	3 3/8	2 3/16	2.07
25416	16	.1770	3 3/8	2 3/16	2.07
25417	17	.1730	3 3/8	2 3/16	2.07
25418	18	.1695	3 1/4	2 1/8	1.64
25419	19	.1660	3 1/4	2 1/8	1.64
25420	20	.1610	3 1/4	2 1/8	1.64
25421	21	.1590	3 1/4	2 1/8	1.52
25422	22	.1570	3 1/8	2	1.52
25423	23	.1540	3 1/8	2	1.52
25424	24	.1520	3 1/8	2	1.52
25425	25	.1495	3	1 7/8	1.52
25426	26	.1470	3	1 7/8	1.52
25427	27	.1440	3	1 7/8	1.52
25428	28	.1405	2 7/8	1 3/4	1.34
25429	29	.1360	2 7/8	1 3/4	1.34
25430	30	.1285	2 3/4	1 5/8	1.34
25431	31	.1200	2 3/4	1 5/8	1.34
25432	32	.1160	2 3/4	1 5/8	1.34
25433	33	.1130	2 5/8	1 1/2	1.34
25434	34	.1110	2 5/8	1 1/2	1.34
25435	35	.1100	2 5/8	1 1/2	1.34
25436	36	.1065	2 1/2	1 7/16	1.34
25437	37	.1040	2 1/2	1 7/16	1.34
25438	38	.1015	2 1/2	1 7/16	1.34
25439	39	.0995	2 3/8	1 3/8	1.34
25440	40	.0980	2 3/8	1 3/8	1.34

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	Flute Length	List Price
25441	41	.0960	2 3/8	1 3/8	1.34
25442	42	.0935	2 1/4	1 1/4	1.34
25443	43	.0890	2 1/4	1 1/4	1.34
25444	44	.0860	2 1/8	1 1/8	1.34
25445	45	.0820	2 1/8	1 1/8	1.34
25446	46	.0810	2 1/8	1 1/8	1.34
25447	47	.0785	2	1	1.34
25448	48	.0760	2	1	1.34
25449	49	.0730	2	1	1.34
25450	50	.0700	2	1	1.34
25451	51	.0670	2	1	1.34
25452	52	.0635	1 7/8	7/8	1.34
25453	53	.0595	1 7/8	7/8	1.34
25454	54	.0550	1 7/8	7/8	1.34
25455	55	.0520	1 7/8	7/8	1.34
25456	56	.0465	1 3/4	3/4	1.34
25457	57	.0430	1 3/4	3/4	1.34
25458	58	.0420	1 5/8	11/16	1.34
25459	59	.0410	1 5/8	11/16	1.34
25460	60	.0400	1 5/8	11/16	1.34
25461	61	.0390	1 5/8	11/16	1.34
25462	62	.0380	1 1/2	5/8	1.34
25463	63	.0370	1 1/2	5/8	1.34
25464	64	.0360	1 1/2	5/8	1.34
25465	65	.0350	1 1/2	5/8	1.34
25466	66	.0330	1 3/8	1/2	1.34
25467	67	.0320	1 3/8	1/2	1.34
25468	68	.0310	1 3/8	1/2	1.34
25469	69	.0292	1 3/8	1/2	1.52
25470	70	.0280	1 1/4	3/8	1.52
25471	71	.0260	1 1/4	3/8	1.70
25472	72	.0250	1 1/8	5/16	1.70
25473	73	.0240	1 1/8	5/16	1.70
25474	74	.0225	1	1/4	1.70
25475	75	.0210	1	1/4	1.70
25476	76	.0200	7/8	3/16	1.70
25477	77	.0180	7/8	3/16	1.70
25478	78	.0160	7/8	3/16	1.70
25479	79	.0145	3/4	3/16	2.13
25480	80	.0135	3/4	3/16	2.13



SHORT LENGTH SCREW MACHINE DRILLS

No. D240



SHORT LENGTH SCREW MACHINE DRILLS

No. D240



FRACTIONAL SIZES - STRAIGHT SHANK HIGH SPEED STEEL

These drills are primarily used for screw machine applications. The short overall and flute length makes it a more sturdy drill. It is also used for portable drilling, sheet metal, and body work.

Catalog EDI-Number	Fraction Size	Decimal Equiv.	OAL	Flute Length	List Price
25501	3/64	.0469	1 5/8	5/8	\$1.34
25502	1/16	.0625	1 5/8	5/8	1.34
25503	5/64	.0781	1 3/4	3/4	1.34
25504	3/32	.0937	1 13/16	13/16	1.34
25505	7/64	.1094	1 13/16	13/16	1.34
25506	1/8	.1250	1 15/16	15/16	1.34
25507	9/64	.1406	1 15/16	15/16	1.34
25508	5/32	.1562	2 1/6	1	1.52
25509	11/64	.1719	2 1/8	1 1/16	1.70
25510	3/16	.1875	2 3/16	1 1/8	1.64
25511	13/64	.2031	2 1/4	1 3/16	1.70
25512	7/32	.2187	2 3/8	1 1/4	2.13
25513	15/64	.2344	2 7/16	1 5/16	2.13
25514	1/4	.2500	2 1/2	1 3/8	2.25
25515	17/64	.2656	2 5/8	1 7/16	2.79
25516	9/32	.2812	2 11/16	1 1/2	2.91
25517	19/64	.2969	2 3/4	1 9/16	3.10
25518	5/16	.3125	2 13/16	1 5/8	3.40
25519	21/64	.3281	2 15/16	1 11/16	3.65
25520	11/32	.3437	3	1 11/16	4.25
25521	23/64	.3594	3 1/16	1 3/4	4.92
25522	3/8	.3750	3 1/8	1 13/16	5.17
25523	25/64	.3906	3 1/4	1 7/8	5.78
25524	13/32	.4062	3 5/16	1 15/16	5.95
25525	27/64	.4219	3 3/8	2	6.44
25526	7/16	.4375	3 7/16	2 1/16	6.62
25527	29/64	.4531	3 9/16	2 1/8	7.78
25528	15/32	.4687	3 5/8	2 1/8	8.32
25529	31/64	.4844	3 11/16	2 3/16	8.63
25530	1/2	.5000	3 3/4	2 1/4	8.63

LETTER DRILLS - STRAIGHT SHANK HIGH SPEED STEEL

These drills are primarily used for screw machine applications. The short overall and flute length makes it a more sturdy drill. It is also used for portable drilling, sheet metal, and body work.

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	Flute Length	List Price
25551	A	.2340	2 7/16	1 5/16	\$2.49
25552	B	.2380	2 1/2	1 3/8	2.49
25553	C	.2420	2 1/2	1 3/8	2.49
25554	D	.2460	2 1/2	1 3/8	2.49
25555	E	.2500	2 1/2	1 3/8	2.79
25556	F	.2570	2 5/8	1 7/16	2.79
25557	G	.2610	2 5/8	1 7/16	2.91
25558	H	.2660	2 11/16	1 1/2	2.91
25559	I	.2720	2 11/16	1 1/2	2.91
25560	J	.2770	2 11/16	1 1/2	3.10
25561	K	.2810	2 11/16	1 1/2	3.40
25562	L	.2900	2 3/4	1 9/16	3.40
25563	M	.2950	2 3/4	1 9/16	3.65
25564	N	.3020	2 13/16	1 5/8	3.65
25565	O	.3160	2 15/16	1 11/16	3.65
25566	P	.3230	2 15/16	1 11/16	4.25
25567	Q	.3320	3	1 11/16	4.25
25568	R	.3390	3	1 11/16	4.25
25569	S	.3480	3 1/16	1 3/4	4.92
25570	T	.3580	3 1/16	1 3/4	5.78
25571	U	.3680	3 1/8	1 13/16	5.78
25572	V	.3770	3 1/4	1 7/8	5.95
25573	W	.3860	3 1/4	1 7/8	6.20
25574	X	.3970	3 5/16	1 15/16	7.35
25575	Y	.4040	3 5/16	1 15/16	8.63
25576	Z	.4130	3 3/8	2	8.63

**SHORT LENGTH SCREW MACHINE DRILLS
WIRE GAGE SIZES**

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	Flute Length	List Price
25601	1	.2280	2 7/16	1 5/16	\$2.18
25602	2	.2210	2 7/16	1 5/16	2.18
25603	3	.2130	2 3/8	1 1/4	2.07
25604	4	.2090	2 3/8	1 1/4	2.07
25605	5	.2055	2 3/8	1 1/4	2.07
25606	6	.2040	2 3/8	1 1/4	2.07
25607	7	.2010	2 1/4	1 3/16	1.70
25608	8	.1990	2 1/4	1 3/16	1.70
25609	9	.1960	2 1/4	1 3/16	1.70
25610	10	.1935	2 1/4	1 3/16	1.70
25611	11	.1910	2 1/4	1 3/16	1.64
25612	12	.1890	2 1/4	1 3/16	1.64
25613	13	.1850	2 3/16	1 1/8	1.70
25614	14	.1820	2 3/16	1 1/8	1.70
25615	15	.1800	2 3/16	1 1/8	1.70
25616	16	.1770	2 3/16	1 1/8	1.70
25617	17	.1730	2 3/16	1 1/8	1.70
25618	18	.1695	2 1/8	1 1/16	1.52
25619	19	.1660	2 1/8	1 1/16	1.52
25620	20	.1610	2 1/8	1 1/16	1.52
25621	21	.1590	2 1/8	1 1/16	1.52
25622	22	.1570	2 1/8	1 1/16	1.52
25623	23	.1540	2 1/16	1	1.52
25624	24	.1520	2 1/16	1	1.52
25625	25	.1495	2 1/16	1	1.34
25626	26	.1470	2 1/16	1	1.34
25627	27	.1440	2 1/16	1	1.34
25628	28	.1405	1 15/16	15/16	1.34
25629	29	.1360	1 15/16	15/16	1.34
25630	30	.1285	1 15/16	15/16	1.34

Body Dia.	Overall Length	Flute Length	90°	120°	List Price
1/4	2 1/2	3/4	60001	60051	\$13.81
1/4	4	3/4	60002	60052	8.51
1/4	6	3/4	60003	60053	12.52
3/8	3 1/8	1 1/8	60004	60054	15.94
3/8	5	1 1/8	60005	60055	20.23
3/8	7	1 1/8	60006	60056	29.07
1/2	3 3/4	1 3/8	60007	60057	21.96
1/2	6	1 3/8	60008	60058	30.59
1/2	8	1 3/8	60009	60059	45.46
5/8	4 3/8	1 5/8	60010	60060	34.61
5/8	7	1 5/8	60011	60061	48.41
5/8	9	1 5/8	60012	60062	74.32
3/4	5	1 7/8	60013	60063	52.16
3/4	8	1 7/8	60014	60064	73.79
3/4	10	1 7/8	60015	60065	109.20
1	6	2 1/4	60016	60066	104.77
1	8	2 1/4	60017	60067	110.60
1	10	2 1/4	60018	60068	164.31


STRAIGHT SHANK - HIGH SPEED STEEL

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	Flute Length	List Price
25631	31	.1200	1 7/8	7/8	\$1.34
25632	32	.1160	1 7/8	7/8	1.34
25633	33	.1130	1 7/8	7/8	1.34
25634	34	.1110	1 7/8	7/8	1.34
25635	35	.1100	1 7/8	7/8	1.34
25636	36	.1065	1 13/16	13/16	1.34
25637	37	.1040	1 13/16	13/16	1.34
25638	38	.1015	1 13/16	13/16	1.34
25639	39	.0995	1 13/16	13/16	1.34
25640	40	.0980	1 13/16	13/16	1.34
25641	41	.0960	1 13/16	13/16	1.34
25642	42	.0935	1 3/4	3/4	1.34
25643	43	.0890	1 3/4	3/4	1.34
25644	44	.0860	1 3/4	3/4	1.34
25645	45	.0820	1 3/4	3/4	1.34
25646	46	.0810	1 3/4	3/4	1.34
25647	47	.0785	1 3/4	3/4	1.34
25648	48	.0760	1 11/16	11/16	1.34
25649	49	.0730	1 11/16	11/16	1.34
25650	50	.0700	1 11/16	11/16	1.34
25651	51	.0670	1 11/16	11/16	1.34
25652	52	.0635	1 11/16	11/16	1.34
25653	53	.0595	1 5/8	5/8	1.34
25654	54	.0550	1 5/8	5/8	1.34
25655	55	.0520	1 5/8	5/8	1.34
25656	56	.0465	1 3/8	1/2	1.34
25657	57	.0430	1 3/8	1/2	1.34
25658	58	.0420	1 3/8	1/2	1.34
25659	59	.0410	1 3/8	1/2	1.34
25660	60	.0400	1 3/8	1/2	1.34

SPOTTING DRILLS

90° and 120° point angles - right hand cut.





SILVER & DEMING DRILLS



HIGH SPEED STEEL - RIGHT HAND 6-INCH OVERALL LENGTH

Size of Shank, 1/2" Diameter and 2 1/4" Long

Catalog EDI-Number	Dia	Decimal Equiv.	OAL	Flute Length	List Price
25141	1/4	.2500	6	2 7/8	\$16.69
25142	9/32	.2812	6	2 7/8	17.90
25143	5/16	.3125	6	2 7/8	19.46
25144	11/32	.3438	6	2 7/8	20.30
25145	3/8	.3750	6	3	21.84
25146	13/32	.4062	6	3	24.22
25147	7/16	.4375	6	3	26.28
25148	15/32	.4688	6	3	28.60
25149	1/2	.5000	6	3	29.18
25150	33/64	.5156	6	3	44.58
25151	17/32	.5312	6	3	44.58
25152	35/64	.5469	6	3	31.89
25153	9/16	.5625	6	3	31.89
25154	37/64	.5781	6	3	34.01
25155	19/32	.5938	6	3	34.01
25156	39/64	.6094	6	3	35.95
25157	5/8	.6250	6	3	35.95
25158	41/64	.6406	6	3	38.14
25159	21/32	.6562	6	3	38.14
25160	43/64	.6719	6	3	39.74
25161	11/16	.6875	6	3	39.74
25162	45/64	.7031	6	3	42.14
25163	23/32	.7188	6	3	42.14
25164	47/64	.7344	6	3	43.87
25165	3/4	.7500	6	3	43.87
25166	49/64	.7656	6	3	46.38
25167	25/32	.7812	6	3	46.38
25168	51/64	.7969	6	3	48.38
25169	13/16	.8125	6	3	48.38
25170	53/64	.8281	6	3	50.11
25171	27/32	.8438	6	3	50.11
25172	55/64	.8594	6	3	52.05
25173	7/8	.8750	6	3	52.05
25174	57/64	.8906	6	3	54.24
25175	29/32	.9062	6	3	54.24
25176	59/64	.9219	6	3	58.17
25177	15/16	.9375	6	3	58.17
25178	61/64	.9531	6	3	61.57
25179	31/32	.9688	6	3	61.57
25180	63/64	.9844	6	3	68.47
25181	1	1.0000	6	3	68.47
25182	1 1/32	1.0312	6	3	80.45
25183	1 1/16	1.0625	6	3	80.45
25184	1 1/8	1.1250	6	3	91.21
25185	1 3/16	1.1875	6	3	100.23
25186	1 1/4	1.2500	6	3	111.18



COBALT DRILLS - HEAVY DUTY

135° SPLIT POINT - JOBBERS LENGTH

More heavily constructed, size for size, than General Purpose designs for use in the harder, tougher alloy steels of the stainless and manganese types, castings, forgings, and chilled cast iron. These drills can be run approximately 25% faster than those of high speed steel, because of cobalt steel's ability to withstand high cutting temperatures. They should be used in a heavy duty setup with positive power feed, capable of producing heavy, uniform point pressure.

No. D321

Catalog EDI-Number	Dia	Decimal Equiv.	OAL	Flute Length	List Price
24251	25/64	.3906	5 1/8	3 3/4	\$16.81
24252	13/32	.4062	5 1/4	3 7/8	17.72
24253	27/64	.4219	5 3/8	3 15/16	18.88
24254	7/16	.4375	5 1/2	4 1/16	19.46
24255	29/64	.4531	5 5/8	4 3/16	22.23
24256	15/32	.4687	5 3/4	4 5/16	23.12
24257	31/64	.4844	5 7/8	4 3/8	23.77
24258	1/2	.5000	6	4 1/2	24.03

Same as D321 with a 3/8" shank

No. D320

Catalog EDI-Number	Dia	Decimal Equiv.	OAL	Flute Length	List Price
24201	3/64	.0469	1 3/4	3/4	\$2.38
24202	1/16	.0625	1 7/8	7/8	2.26
24203	5/64	.0781	2	1	2.26
24204	3/32	.0937	2 1/4	1 1/4	2.26
24205	7/64	.1094	2 5/8	1 1/2	2.32
24206	1/8	.1250	2 3/4	1 5/8	3.09
24207	9/64	.1406	2 7/8	1 3/4	3.15
24208	5/32	.1562	3 1/8	2	3.35
24209	11/64	.1719	3 1/4	2 1/8	3.48
24210	3/16	.1875	3 1/2	2 5/16	4.00
24211	13/64	.2031	3 5/8	2 7/16	4.71
24212	7/32	.2187	3 3/4	2 1/2	5.03
24213	15/64	.2344	3 7/8	2 5/8	5.48
24214	1/4	.2500	4	2 3/4	5.93
24215	17/64	.2656	4 1/8	2 7/8	6.71
24216	9/32	.2812	4 1/4	2 15/16	7.02
24217	19/64	.2969	4 3/8	3 1/16	8.44
24218	5/16	.3125	4 1/2	3 3/16	9.02
24219	21/64	.3281	4 5/8	3 5/16	9.28
24220	11/32	.3437	4 3/4	3 7/16	10.57
24221	23/64	.3594	4 7/8	3 1/2	12.89
24222	3/8	.3750	5	3 5/8	13.08
24223	25/64	.3906	5 1/8	3 3/4	14.43
24224	13/32	.4062	5 1/4	3 7/8	15.14
24225	27/64	.4219	5 3/8	3 15/16	16.43
24226	7/16	.4375	5 1/2	4 1/16	16.75
24227	29/64	.4531	5 5/8	4 3/16	19.90
24228	15/32	.4687	5 3/4	4 5/16	20.49
24229	31/64	.4844	5 7/8	4 3/8	21.13
24230	1/2	.5000	6	4 1/2	21.32

STRAIGHT SHANK TAPER LENGTH DRILLS No. D251

**FRACTIONAL SIZES - RIGHT HAND
HIGH SPEED STEEL**

Catalog EDI-Number	Dia.	Decimal Equiv.	OAL	Flute Length	List Price
24721	1/64	.0156	1 1/2	5/16	7.65
24722	1/32	.0312	2 1/4	3/4	6.44
24723	3/64	.0469	3	1 1/2	2.79
24724	1/16	.0625	3	1 1/2	2.91
24725	5/64	.0781	3 3/4	2 1/2	3.40
24726	3/32	.0938	4 1/4	2 3/4	4.25
24727	7/64	.1094	4 5/8	2 3/4	5.22
24728	1/8	.1250	5 1/8	2 3/4	5.28
24729	9/64	.1406	5 3/8	3	8.15
24730	5/32	.1562	5 3/8	3	7.48
24731	11/64	.1719	5 3/4	3 3/8	7.48
24732	3/16	.1875	5 3/4	3 3/8	6.44
24733	13/64	.2031	6	3 5/8	8.63
24734	7/32	.2188	6	3 5/8	10.33
24735	15/64	.2344	6 1/8	3 3/4	10.33
24736	1/4	.2500	6 1/8	3 3/4	7.48
24737	17/64	.2656	6 1/4	3 7/8	9.60
24738	9/32	.2812	6 1/4	3 7/8	9.12
24739	19/64	.2969	6 3/8	4	10.58
24740	5/16	.3125	6 3/8	4	9.12
24741	21/64	.3281	6 1/2	4 1/8	10.82
24742	11/32	.3438	6 1/2	4 1/8	10.58
24743	23/64	.3594	6 3/4	4 1/4	12.40
24744	3/8	.3750	6 3/4	4 1/4	12.40
24745	25/64	.3906	7	4 3/8	13.07
24746	13/32	.4062	7	4 3/8	12.89
24747	27/64	.4219	7 1/4	4 5/8	13.98
24748	7/16	.4375	7 1/4	4 5/8	14.34
24749	29/64	.4531	7 1/2	4 3/4	15.86
24750	15/32	.4688	7 1/2	4 3/4	16.83
24751	31/64	.4844	7 3/4	4 3/4	18.42
24752	1/2	.5000	7 3/4	4 3/4	17.50
24753	33/64	.5156	8	4 3/4	22.30
24754	17/32	.5312	8	4 3/4	21.88
24755	35/64	.5469	8 1/4	4 7/8	25.04
24756	9/16	.5625	8 1/4	4 7/8	23.03
24757	37/64	.5781	8 3/4	4 7/8	26.86
24758	19/32	.5938	8 3/4	4 7/8	26.86
24759	39/64	.6094	8 3/4	4 7/8	28.08
24760	5/8	.6250	8 3/4	4 7/8	26.86
24761	41/64	.6406	9	5 1/8	31.85
24762	21/32	.6562	9	5 1/8	30.63
24763	43/64	.6719	9 1/4	5 3/8	35.92
24764	11/16	.6875	9 1/4	5 3/8	34.58
24765	45/64	.7031	9 1/2	5 5/8	38.35
24766	23/32	.7188	9 1/2	5 5/8	37.80

Catalog EDI-Number	Dia.	Decimal Equiv.	OAL	Flute Length	List Price
24767	47/64	.7344	9 3/4	5 7/8	41.99
24768	3/4	.7500	9 3/4	5 7/8	39.98
24769	49/64	.7656	9 7/8	6	44.11
24770	25/32	.7812	9 7/8	6	44.11
24771	51/64	.7969	10	6 1/8	47.46
24772	13/16	.8125	10	6 1/8	46.73
24773	53/64	.8281	10	6 1/8	49.10
24774	27/32	.8438	10	6 1/8	49.10
24775	55/64	.8594	10	6 1/8	51.72
24776	7/8	.8750	10	6 1/8	50.99
24777	57/64	.8906	10	6 1/8	53.79
24778	29/32	.9062	10	6 1/8	53.79
24779	59/64	.9219	10 3/4	6 1/8	58.95
24780	15/16	.9375	10 3/4	6 1/8	68.06
24781	61/64	.9531	11	6 3/8	64.66
24782	31/32	.9688	11	6 3/8	64.66
24783	63/64	.9844	11	6 3/8	67.94
24784	1	1.0000	11	6 3/8	67.39
24785	1 1/64	1.0156	11 1/8	6 1/2	80.64
24786	1 1/32	1.0312	11 1/8	6 1/2	80.64
24787	1 3/64	1.0469	11 1/4	6 5/8	83.32
24788	1 1/16	1.0625	11 1/4	6 5/8	83.32
24789	1 5/64	1.0781	11 1/2	6 7/8	89.58
24790	1 3/32	1.0938	11 1/2	6 7/8	89.58
24791	1 7/64	1.1094	11 3/4	7 1/8	92.79
24792	1 1/8	1.1250	11 3/4	7 1/8	92.79
24793	1 9/64	1.1406	11 7/8	7 1/4	101.13
24794	1 5/32	1.1562	11 7/8	7 1/4	101.13
24795	1 11/64	1.1719	12	7 3/8	108.36
24796	1 3/16	1.1875	12	7 3/8	108.36
24797	1 13/64	1.2031	12 1/8	7 1/2	113.22
24798	1 7/32	1.2188	12 1/8	7 1/2	112.18
24799	1 15/64	1.2344	12 1/2	7 7/8	117.60
24800	1 1/4	1.2500	12 1/2	7 7/8	116.55
24801	1 9/32	1.2812	14 1/8	8 1/2	134.18
24802	1 5/16	1.3125	14 1/4	8 5/8	134.18
24803	1 11/32	1.3438	14 3/8	8 3/4	143.78
24804	1 3/8	1.3750	14 1/2	8 7/8	149.07
24805	1 13/32	1.4062	14 5/8	9	157.52
24806	1 7/16	1.4375	14 3/4	9 1/8	155.03
24807	1 15/32	1.4688	14 7/8	9 1/4	173.80
24808	1 1/2	1.5000	15	9 3/8	179.76
24809	1 9/16	1.5625	15 1/4	9 5/8	198.97
24810	1 5/8	1.6250	15 5/8	9 7/8	227.34
24811	1 3/4	1.7500	16 1/4	10 1/2	273.59



TAPER SHANK TWIST DRILLS No. D209

WITH REGULAR SHANKS

HIGH SPEED STEEL



Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24401	1/8	1	5 1/8	1 7/8	\$8.45
24402	9/64	1	5 3/8	2 1/8	9.85
24403	5/32	1	5 3/8	2 1/8	9.12
24404	11/64	1	5 3/4	2 1/2	10.94
24405	3/16	1	5 3/4	2 1/2	8.87
24406	13/64	1	6	2 3/4	9.85
24407	7/32	1	6	2 3/4	9.85
24408	15/64	1	6 1/8	2 7/8	11.55
24409	1/4	1	6 1/8	2 7/8	10.33
24410	17/64	1	6 1/4	3	10.94
24411	9/32	1	6 1/4	3	10.94
24412	19/64	1	6 3/8	3 1/8	13.98
24413	5/16	1	6 3/8	3 1/8	11.30
24414	21/64	1	6 1/2	3 1/4	14.83
24415	11/32	1	6 1/2	3 1/4	16.11
24416	23/64	1	6 3/4	3 1/2	17.75
24417	3/8	1	6 3/4	3 1/2	17.75
24418	25/64	1	7	3 5/8	18.35
24419	13/32	1	7	3 5/8	17.75
24420	27/64	1	7 1/4	3 7/8	19.09
24421	7/16	1	7 1/4	3 7/8	19.38
24422	29/64	1	7 1/2	4 1/8	21.08
24423	15/32	1	7 1/2	4 1/8	22.06
24424	31/64	2	8 1/4	4 3/8	25.04
24425	1/2	2	8 1/4	4 3/8	23.95
24426	33/64	2	8 1/2	4 5/8	27.35
24427	17/32	2	8 1/2	4 5/8	27.83
24428	35/64	2	8 3/4	4 7/8	29.72
24429	9/16	2	8 3/4	4 7/8	29.05
24430	37/64	2	8 3/4	4 7/8	31.60
24431	19/32	2	8 3/4	4 7/8	31.12
24432	39/64	2	8 3/4	4 7/8	33.00
24433	5/8	2	8 3/4	4 7/8	31.96
24434	41/64	2	9	5 1/8	36.40
24435	21/32	2	9	5 1/8	35.31
24436	43/64	2	9 1/4	5 3/8	39.08
24437	11/16	2	9 1/4	5 3/8	37.01
24438	45/64	2	9 1/2	5 5/8	40.78
24439	23/32	2	9 1/2	5 5/8	39.32
24440	47/64	2	9 3/4	5 7/8	43.15
24441	3/4	2	9 3/4	5 7/8	43.15

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24442	49/64	2	9 7/8	6	\$51.23
24443	25/32	2	9 7/8	6	50.92
24444	51/64	3	10 3/4	6 1/8	55.97
24445	13/16	3	10 3/4	6 1/8	52.68
24446	53/64	3	10 3/4	6 1/8	58.46
24447	27/32	3	10 3/4	6 1/8	56.76
24448	55/64	3	10 3/4	6 1/8	60.58
24449	7/8	3	10 3/4	6 1/8	58.46
24450	57/64	3	10 3/4	6 1/8	61.80
24451	29/32	3	10 3/4	6 1/8	61.80
24452	59/64	3	10 3/4	6 1/8	62.59
24453	15/16	3	10 3/4	6 1/8	58.70
24454	61/64	3	11	6 3/8	64.35
24455	31/32	3	11	6 3/8	64.06
24456	63/64	3	11	6 3/8	68.31
24457	1	3	11	6 3/8	65.69
24458	1 1/64	3	11 1/8	6 1/2	75.60
24459	1 1/32	3	11 1/8	6 1/2	72.74
24460	1 3/64	3	11 1/4	6 5/8	79.42
24461	1 1/16	3	11 1/4	6 5/8	75.60
24462	1 5/64	4	12 1/2	6 7/8	91.52
24463	1 3/32	4	12 1/2	6 7/8	88.18
24464	1 7/64	4	12 3/4	7 1/8	95.29
24465	1 1/8	4	12 3/4	7 1/8	92.68
24466	1 9/64	4	12 7/8	7 1/4	100.94
24467	1 5/32	4	12 7/8	7 1/4	96.08
24468	1 11/64	4	13	7 3/8	102.03
24469	1 3/16	4	13	7 3/8	100.94
24470	1 13/64	4	13 1/8	7 1/2	109.20
24471	1 7/32	4	13 1/8	7 1/2	107.62
24472	1 15/64	4	13 1/2	7 7/8	119.11
24473	1 1/4	4	13 1/2	7 7/8	113.64
24474	1 17/64	4	14 1/8	8 1/2	137.34
24475	1 9/32	4	14 1/8	8 1/2	136.06
24476	1 19/64	4	14 1/4	8 5/8	151.07
24477	1 5/16	4	14 1/4	8 5/8	138.43
24478	1 21/64	4	14 3/8	8 3/4	151.13
24479	1 11/32	4	14 3/8	8 3/4	146.21
24480	1 23/64	4	14 1/2	8 7/8	154.48
24481	1 3/8	4	14 1/2	8 7/8	148.34
24482	1 25/64	4	14 5/8	9	158.86

TAPER SHANK TWIST DRILLS CONTINUED

No. D209

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24483	1 13/32	4	14 5/8	9	\$158.86
24484	1 27/64	4	14 3/4	9 1/8	164.20
24485	1 7/16	4	14 3/4	9 1/8	160.49
24486	1 29/64	4	14 7/8	9 1/4	172.77
24487	1 15/32	4	14 7/8	9 1/4	171.01
24488	1 31/64	4	15	9 3/8	176.42
24489	1 1/2	4	15	9 3/8	172.16
24490	1 33/64	5	16 3/8	9 3/8	199.08
24491	1 17/32	5	16 3/8	9 3/8	208.26
24492	1 35/64	5	16 5/8	9 5/8	225.39
24493	1 9/16	5	16 5/8	9 5/8	230.19
24494	1 37/64	5	16 7/8	9 7/8	242.17
24495	1 19/32	5	16 7/8	9 7/8	248.25
24496	1 39/64	5	17	10	260.58
24497	1 5/8	5	17	10	265.75
24498	1 41/64	5	17 1/8	10 1/8	276.20
24499	1 21/32	5	17 1/8	10 1/8	283.31
24500	1 43/64	5	17 1/8	10 1/8	295.83
24501	1 11/16	5	17 1/8	10 1/8	296.50
24502	1 45/64	5	17 1/8	10 1/8	309.44
24503	1 23/32	5	17 1/8	10 1/8	260.58
24504	1 47/64	5	17 1/8	10 1/8	267.09
24505	1 3/4	5	17 1/8	10 1/8	265.75
24506	1 25/32	5	17 1/8	10 1/8	276.20
24507	1 13/16	5	17 1/8	10 1/8	283.31
24508	1 27/32	5	17 1/8	10 1/8	295.83
24509	1 7/8	5	17 3/8	10 1/4	296.50
24510	1 29/32	5	17 3/8	10 1/4	309.38
24511	1 15/16	5	17 3/8	10 1/4	318.92

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24512	1 31/32	5	17 3/8	10 1/4	\$324.76
24513	2	5	17 3/8	10 1/4	328.64
24514	2 1/32	5	17 3/8	10 1/4	347.91
24515	2 1/16	5	17 3/8	10 1/4	350.58
24516	2 3/32	5	17 3/8	10 1/4	370.88
24517	2 1/8	5	17 3/8	10 1/4	370.88
24518	2 5/32	5	17 3/8	10 1/4	395.49
24519	2 3/16	5	17 3/8	10 1/4	402.48
24520	2 7/32	5	17 3/8	10 5/8	417.13
24521	2 1/4	5	17 3/8	10 5/8	420.28
24522	2 5/16	5	17 3/8	10 5/8	448.61
24523	2 3/8	5	17 3/8	10 5/8	466.29
24524	2 7/16	5	18 3/4	11 1/4	588.80
24525	2 1/2	5	18 3/4	11 1/4	607.76
24526	2 9/16	5	19 1/2	11 7/8	663.73
24527	2 5/8	5	19 1/2	11 7/8	711.93
24528	2 11/16	5	20 3/8	12 3/4	765.34
24529	2 3/4	5	20 3/8	12 3/4	792.32
24530	2 13/16	5	21 1/8	13 3/8	1,002.71
24531	2 7/8	5	21 1/8	13 3/8	909.91
24532	2 15/16	5	21 3/4	14	958.10
24533	3	5	21 3/4	14	1,001.01
24534	3 1/16	6	24 1/2	14 5/8	1,073.38
24535	3 1/8	6	24 1/2	14 5/8	1,140.17
24536	3 3/16	6	24 1/2	14 5/8	1,231.51
24537	3 1/4	6	25 1/2	15 1/2	1,300.66
24538	3 5/16	6	25 1/2	15 1/2	1,503.64
24539	3 3/8	6	25 1/2	15 1/2	1,772.12
24540	3 7/16	6	25 1/2	15 1/2	1,869.22
24541	3 1/2	6	26 1/2	16 3/8	2,088.79

**TAPER SHANK TWIST DRILLS
SHANKS LARGER THAN REGULAR**

No. L209

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Approx. Twist Length	List Price
24601	3/8	2	7 3/8	3 1/2	\$20.18
24602	25/64	2	7 1/2	3 5/8	21.02
24603	13/32	2	7 1/2	3 5/8	21.45
24604	27/64	2	7 3/4	3 7/8	21.02
24605	7/16	2	7 3/4	3 7/8	22.12
24606	29/64	2	8	4 1/8	22.73
24607	15/32	2	8	4 1/8	23.95
24608	41/64	3	9 3/4	5 1/8	40.05
24609	21/32	3	9 3/4	5 1/8	40.53
24610	43/64	3	10	5 3/8	43.02

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Approx. Twist Length	List Price
24611	11/16	3	10	5 3/8	\$44.49
24612	45/64	3	10 1/4	5 5/8	46.55
24613	23/32	3	10 1/4	5 5/8	47.71
24614	47/64	3	10 1/2	5 7/8	50.38
24615	3/4	3	10 1/2	5 7/8	50.92
24616	49/64	3	10 5/8	6	55.91
24617	25/32	3	10 5/8	6	55.91
24618	1	4	12	6 3/8	80.03
24619	1 1/32	4	12 1/8	6 1/2	87.76
24620	1 1/16	4	12 1/4	6 5/8	94.19



TAPER SHANK TWIST DRILLS SHANKS SMALLER THAN REGULAR



HIGH SPEED STEEL

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24651	31/64	1	7 3/4	4 3/8	\$23.95
24652	1/2	1	7 3/4	4 3/8	22.73
24653	33/64	1	8	4 5/8	26.32
24654	17/32	1	8	4 5/8	26.32
24655	35/64	1	8 1/4	4 7/8	28.08
24656	9/16	1	8 1/4	4 7/8	28.81

24657	51/64	2	10	6 1/8	51.59
24658	13/16	2	10	6 1/8	51.23
24659	53/64	2	10	6 1/8	54.75
24660	27/32	2	10	6 1/8	54.75
24661	55/64	2	10	6 1/8	57.25
24662	7/8	2	10	6 1/8	56.45
24663	57/64	2	10	6 1/8	58.95
24664	29/32	2	10	6 1/8	58.95

24665	1 5/64	3	11 1/2	6 7/8	91.22
24666	1 3/32	3	11 1/2	6 7/8	86.90
24667	1 7/64	3	11 3/4	7 1/8	92.56
24668	1 1/8	3	11 3/4	7 1/8	90.36
24669	1 9/64	3	11 7/8	7 1/4	98.45
24670	1 5/32	3	11 7/8	7 1/4	98.45
24671	1 11/64	3	12	7 3/8	99.42
24672	1 3/16	3	12	7 3/8	98.26
24673	1 13/64	3	12 1/8	7 1/2	106.71
24674	1 7/32	3	12 1/8	7 1/2	105.49
24675	1 15/64	3	12 1/2	7 7/8	116.32
24676	1 1/4	3	12 1/2	7 7/8	115.82

No. S209

Catalog EDI-Number	Dia.	Taper Shank No.	OAL	Flute Length	List Price
24677	1 33/64	4	15	9 3/8	\$188.99
24678	1 17/32	4	15	9 3/8	186.81
24679	1 35/64	4	15 1/4	9 5/8	200.06
24680	1 9/16	4	15 1/4	9 5/8	200.06
24681	1 37/64	4	15 1/2	9 7/8	213.73
24682	1 19/32	4	15 1/2	9 7/8	213.73
24683	1 39/64	4	15 5/8	10	221.93
24684	1 5/8	4	15 5/8	10	218.65
24685	1 41/64	4	15 3/4	10 1/8	239.43
24686	1 21/32	4	15 3/4	10 1/8	238.16
24687	1 43/64	4	15 3/4	10 1/8	248.43
24688	1 11/16	4	15 3/4	10 1/8	245.15
24689	1 45/64	4	15 3/4	10 1/8	255.84
24690	1 23/32	4	15 3/4	10 1/8	243.81
24691	1 47/64	4	16 1/4	10 3/8	253.77
24692	1 3/4	4	16 1/4	10 3/8	247.21
24693	1 25/32	4	16 1/4	10 3/8	261.98
24694	1 13/16	4	16 1/4	10 3/8	262.40
24695	1 27/32	4	16 1/4	10 3/8	272.00
24696	1 7/8	4	16 1/2	10 1/2	283.13
24697	1 29/32	4	16 1/2	10 1/2	292.30
24698	1 15/16	4	16 5/8	10 5/8	296.50
24699	1 31/32	4	16 5/8	10 5/8	305.55
24700	2	4	16 5/8	10 5/8	309.44

24701	3 1/8	5	22	14 1/4	1,142.79
24702	3 1/4	5	23	15 1/4	1,300.73
24703	3 1/2	5	24	16 1/4	1,712.98

MASONRY DRILLS FAST SPIRAL - STANDARD LENGTH



CARBIDE TIPPED

For drilling brick, concrete, plaster, etc

Catalog EDI-Number	Dia. Inches	OAL	Shank Dia.	List Price
25211	1/8	3	1/8	\$8.32
25212	11/64	3	11/64	8.32
25213	3/16	3	3/16	8.15
25214	15/64	4	15/64	8.32
25215	1/4	4	1/4	8.15
25216	1/4	6	1/4	9.05
25217	9/32	4	1/4	9.05
25218	9/32	6	1/4	9.79
25219	5/16	4	1/4	9.05
25220	5/16	6	1/4	10.08
25221	3/8	4	1/4	10.08

No. D88

Catalog EDI-Number	Dia. Inches	OAL	Shank Dia.	List Price
25222	3/8	6	1/4	\$10.08
25223	7/16	4	1/4	10.88
25224	7/16	6	1/4	11.30
25225	1/2	4	1/4	11.30
25226	1/2	6	3/8	12.28
25227	9/16	6	3/8	15.92
25228	5/8	6	1/2	17.56
25229	11/16	6	1/2	19.15
25230	3/4	6	1/2	21.75
25231	7/8	6	1/2	26.86
25232	1	6	1/2	33.36

TAPER SHANK CORE DRILLS HIGH SPEED STEEL

Used to enlarge cored, drilled, or punched holes. They will not drill solid metal.

THREE FLUTE - No. D211

Catalog EDI-Number	Dia	Morse Taper Shank	Flute Length	OAL	List Price
24831	1/4	1	2 7/8	6 1/8	\$32.14
24832	9/32	1	3	6 1/4	32.37
24833	5/16	1	3 1/8	6 3/8	34.36
24834	11/32	1	3 1/4	6 1/2	41.59
24835	3/8	1	3 1/2	6 3/4	41.59
24836	13/32	1	3 5/8	7	39.81
24837	7/16	1	3 7/8	7 1/4	41.59
24838	15/32	1	4 1/8	7 1/2	44.28
24839	1/2	2	4 3/8	8 1/4	46.90
24840	17/32	2	4 5/8	8 1/2	50.37
24841	9/16	2	4 7/8	8 3/4	54.47
24842	19/32	2	4 7/8	8 3/4	61.26
24843	5/8	2	4 7/8	8 3/4	61.26
24844	21/32	2	5 1/8	9	65.73
24845	11/16	2	5 3/8	9 1/4	71.41
24846	23/32	2	5 5/8	9 1/2	75.80



Catalog EDI-Number	Dia	Morse Taper Shank	Flute Length	OAL	List Price
24847	3/4	2	5 7/8	9 3/4	\$80.79
24848	25/32	2	6	9 7/8	86.71
24849	13/16	3	6 1/8	10 3/4	98.86
24850	27/32	3	6 1/8	10 3/4	98.48
24851	7/8	3	6 1/8	10 3/4	106.40
24852	29/32	3	6 1/8	10 3/4	110.69
24853	15/16	3	6 1/8	10 3/4	115.15
24854	31/32	3	6 3/8	11	140.52
24855	1	3	6 3/8	11	133.77
24856	1 1/32	3	6 1/2	11 1/8	143.14
24857	1 1/16	3	6 1/2	11 1/8	150.99
24858	1 3/32	4	6 7/8	12 1/2	167.58
24859	1 1/8	4	7 1/8	12 3/4	177.65
24860	1 5/32	4	7 1/4	12 7/8	187.73
24861	1 3/16	4	7 3/8	13	198.80
24862	1 7/32	4	7 1/2	13 1/8	263.99
24863	1 1/4	4	7 7/8	13 1/2	228.63



FOUR FLUTE - No. D212

Catalog EDI-Number	Dia	Morse Taper Shank	Flute Length	OAL	List Price
24881	1/2	2	4 3/8	8 1/4	\$47.85
24882	17/32	2	4 5/8	8 1/2	49.13
24883	9/16	2	4 7/8	8 3/4	52.66
24884	19/32	2	4 7/8	8 3/4	57.97
24885	5/8	2	4 7/8	8 3/4	61.34
24886	21/32	2	5 1/8	9	76.50
24887	11/16	2	5 3/8	9 1/4	70.03
24888	23/32	2	5 5/8	9 1/2	75.80
24889	3/4	2	5 7/8	9 3/4	80.79
24890	25/32	2	6	9 7/8	86.71
24891	13/16	3	6 1/8	10 3/4	115.08
24892	27/32	3	6 1/8	10 3/4	103.33
24893	7/8	3	6 1/8	10 3/4	107.78
24894	29/32	3	6 1/8	10 3/4	112.85
24895	15/16	3	6 1/8	10 3/4	116.69
24896	31/32	3	6 3/8	11	130.61
24897	1	3	6 3/8	11	133.45
24898	1 1/32	3	6 1/2	11 1/8	146.98
24899	1 1/16	3	6 1/2	11 1/8	153.06
24900	1 3/32	4	6 7/8	12 1/2	171.51
24901	1 1/8	4	7 1/8	12 3/4	181.96
24902	1 5/32	4	7 1/4	12 7/8	192.41
24903	1 3/16	4	7 3/8	13	201.18
24904	1 7/32	4	7 1/2	13 1/8	228.08
24905	1 1/4	4	7 7/8	13 1/2	228.08
24906	1 9/32	4	8	14 1/8	269.52
24907	1 5/16	4	8 5/8	14 1/4	279.75
24908	1 11/32	4	8 3/4	14 3/8	290.36
24909	1 3/8	4	8 7/8	14 1/2	296.65
24910	1 13/32	4	9	14 5/8	311.03
24911	1 7/16	4	9 1/8	14 3/4	326.72
24912	1 15/32	4	9 1/4	14 7/8	342.32
24913	1 1/2	4	9 3/8	15	352.69

Catalog EDI-Number	Dia	Morse Taper Shank	Flute Length	OAL	List Price
24914	1 17/32	5	9 3/8	16 3/8	\$396.35
24915	1 9/16	5	9 5/8	16 5/8	423.35
24916	1 19/32	5	9 7/8	16 7/8	427.18
24917	1 5/8	5	10	17	458.09
24918	1 21/32	5	10 1/8	17 1/8	475.93
24919	1 11/16	5	10 1/8	17 1/8	493.62
24920	1 23/32	5	10 1/8	17 1/8	510.84
24921	1 3/4	5	10 1/8	17 1/8	524.59
24922	1 25/32	5	10 1/8	17 1/8	547.26
24923	1 13/16	5	10 1/8	17 1/8	562.87
24924	1 27/32	5	10 1/8	17 1/8	577.63
24925	1 7/8	5	10 3/8	17 3/8	611.84
24926	1 29/32	5	10 3/8	17 3/8	640.04
24927	1 15/16	5	10 3/8	17 3/8	651.90
24928	1 31/32	5	10 3/8	17 3/8	668.95
24929	2	5	10 3/8	17 3/8	691.94
24930	2 1/32	5	10 3/8	17 3/8	757.37
24931	2 1/16	5	10 1/4	17 3/8	763.89
24932	2 1/8	5	10 1/4	17 3/8	785.42
24933	2 3/16	5	10 1/4	17 3/8	823.24
24934	2 1/4	5	10 1/8	17 3/8	839.01
24935	2 5/16	5	10 1/8	17 3/8	917.42
24936	2 3/8	5	10 1/8	17 3/8	943.01
24937	2 7/16	5	11 1/4	18 3/4	1,147.96
24938	2 1/2	5	11 1/4	18 3/4	1,163.50
24939	2 9/16	5	11 7/8	19 1/2	1,346.60
24940	2 5/8	5	11 7/8	19 1/2	1,429.01
24941	2 11/16	5	12 3/4	20 3/8	1,570.08
24942	2 3/4	5	12 3/4	20 3/8	1,658.33
24943	2 13/16	5	13 3/8	21 1/8	1,805.39
24944	2 7/8	5	13 3/8	21 1/8	1,978.35
24945	2 15/16	5	14	21 3/4	1,999.33
24946	3	5	14	21 3/4	2,141.40



STRAIGHT SHANK CORE DRILLS HIGH SPEED STEEL

D253 THREE FLUTE

Catalog EDI-Number	Dia	Decimal Equiv.	Flute Length	OAL	List Price
24971	1/4	.2500	3 3/4	6 1/8	\$34.13
24972	9/32	.2812	3 7/8	6 1/4	34.52
24973	5/16	.3125	4	6 3/8	36.59
24974	11/32	.3438	4 1/8	6 1/2	37.29
24975	3/8	.3750	4 1/4	6 3/4	40.29
24976	13/32	.4062	4 3/8	7	42.28
24977	7/16	.4375	4 5/8	7 1/4	44.28
24978	15/32	.4688	4 3/4	7 1/2	47.20
24979	1/2	.5000	4 3/4	7 3/4	52.44
24980	17/32	.5312	4 3/4	8	56.11
24981	9/16	.5625	4 7/8	8 1/4	61.13
24982	19/32	.5938	4 7/8	8 3/4	63.74
24983	5/8	.6250	4 7/8	8 3/4	68.42
24984	21/32	.6562	5 1/8	9	73.04
24985	11/16	.6875	5 3/8	9 1/4	79.79
24986	23/32	.7188	5 5/8	9 1/2	85.10
24987	3/4	.7500	5 7/8	9 3/4	90.33
24988	25/32	.7812	6	9 7/8	*
24989	13/16	.8125	6 1/8	10	*
24990	27/32	.8438	6 1/8	10	*
24991	7/8	.8750	6 1/8	10	*
24992	29/32	.9062	6 1/8	10	*
24993	15/16	.9375	6 1/8	10 3/4	*
24994	31/32	.9688	6 3/8	11	*
24995	1	1.0000	6 3/8	11	*
24996	1 1/32	1.0312	6 1/2	11 1/8	*
24997	1 1/16	1.0625	6 5/8	11 1/4	*
24998	1 3/32	1.0938	6 7/8	11 1/2	*
24999	1 1/8	1.1250	7 1/8	11 3/4	*
25000	1 1/4	1.2500	7 7/8	12 1/2	*

Used to enlarge a hole previously drilled, cored, or punched. Will not drill solid metal.



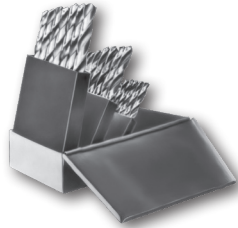
D254 FOUR FLUTE

Catalog EDI-Number	Dia	Decimal Equiv.	Flute Length	OAL	List Price
25083	1/4	.2500	3 3/4	6 1/8	*
25084	9/32	.2812	3 7/8	6 1/4	*
25085	5/16	.3125	4	6 3/8	*
25086	11/32	.3438	4 1/8	6 1/2	*
25087	3/8	.3750	4 1/4	6 3/4	*
25088	13/32	.4062	4 3/8	7	*
25089	7/16	.4375	4 5/8	7 1/4	*
25090	15/32	.4688	4 3/4	7 1/2	*
25091	1/2	.5000	4 3/4	7 3/4	\$51.82
25092	17/32	.5312	4 3/4	8	53.82
25093	9/16	.5625	4 7/8	8 1/4	57.74
25094	19/32	.5938	4 7/8	8 3/4	63.49
25095	5/8	.6250	4 7/8	8 3/4	67.11
25096	21/32	.6562	5 1/8	9	71.95
25097	11/16	.6875	5 3/8	9 1/4	76.63
25098	23/32	.7188	5 5/8	9 1/2	81.72
25099	3/4	.7500	5 7/8	9 3/4	88.57
25100	25/32	.7812	6	9 7/8	94.86
25101	13/16	.8125	6 1/8	10	108.31
25102	27/32	.8438	6 1/8	10	113.17
25103	7/8	.8750	6 1/8	10	118.02
25104	29/32	.9062	6 1/8	10	123.61
25105	15/16	.9375	6 1/8	10 3/4	127.84
25106	31/32	.9688	6 3/8	11	143.07
25107	1	1.0000	6 3/8	11	149.67
25108	1 1/32	1.0312	6 1/2	11 1/8	168.27
25109	1 1/16	1.0625	6 5/8	11 1/4	173.49
25110	1 3/32	1.0938	6 7/8	11 1/2	194.49
25111	1 1/8	1.1250	7 1/8	11 3/4	207.95
25112	1 1/4	1.2500	7 7/8	12 1/2	267.07

DRILL SETS - In Indexed Cases

JOBBERS LENGTH GENERAL PURPOSE DRILLS

Straight Shank - High Speed Steel



Catalog EDI-Number	Size Range	Set No.	List Price
25251	1/16 to 1/2 by 64THS	29J	\$184.06
25252	1/16 to 1/2 by 32NDS	15J	100.34
25253	Nos. 1 to 60	60J	142.93
25254	A to Z	26J	187.42
25255	1/16 to 1/4 by 64THS	13J	36.76
25256	Nos. 61 to 80	20J	50.97


D263
DRILL BLANKS
LETTER SIZES

High Speed Steel

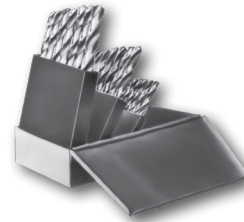
Tolerances: Under 1/4 +.0000-.0005

1/4 and larger +.0000-.0010

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	List Price
26021	A	.2340	3 7/8	\$4.50
26022	B	.2380	4	4.50
26023	C	.2420	4	4.50
26024	D	.2460	4	5.05
26025	E	.2500	4	5.05
26026	F	.2570	4 1/8	5.28
26027	G	.2610	4 1/8	5.28
26028	H	.2660	4 1/8	5.28
26029	I	.2720	4 1/8	5.72
26030	J	.2770	4 1/8	5.72
26031	K	.2810	4 1/4	5.72
26032	L	.2900	4 1/4	5.72
26033	M	.2950	4 3/8	6.20
26034	N	.3020	4 3/8	6.20
26035	O	.3160	4 1/2	6.44
26036	P	.3230	4 5/8	7.17
26037	Q	.3320	4 3/4	7.17
26038	R	.3390	4 3/4	7.65
26039	S	.3480	4 7/8	8.63
26040	T	.3580	4 7/8	8.63
26041	U	.3680	5	9.42
26042	V	.3770	5	9.42
26043	W	.3860	5 1/8	9.85
26044	X	.3970	5 1/8	9.85
26045	Y	.4040	5 1/4	10.82
26046	Z	.4130	5 1/4	10.82

DRILL BLANK SETS - In Indexed Cases

JOBBERS LENGTH - High Speed Steel



Catalog EDI-Number	Size Range	Set No.	List Price
25281	1/16 to 1/2 by 64THS	29B	\$211.54
25282	Nos. 1 to 60	15B	175.69
25283	A to Z	26B	187.17
25284	1/16 to 1/4 by 64THS	13B	47.76
25285	Nos. 61 to 80	20B	48.26


D260
DRILL BLANKS
FRACTIONAL SIZES

Hardened and Ground - Manufactured

without backtaper. - High Speed Steel

Catalog EDI-Number	Fraction Size	Decimal Equiv.	OAL	List Price
25691	1/64	.0156	3/4	\$2.25
25692	1/32	.0312	1 3/8	2.25
25693	3/64	.0469	1 3/4	2.62
25694	1/16	.0625	1 7/8	2.62
25695	5/64	.0781	2	2.68
25696	3/32	.0937	2 1/4	2.68
25697	7/64	.1094	2 5/8	2.68
25698	1/8	.1250	2 3/4	2.68
25699	9/64	.1406	2 7/8	2.68
25700	5/32	.1562	3 1/8	3.04
25701	11/64	.1719	3 1/4	3.04
25702	3/16	.1875	3 1/2	3.40
25703	13/64	.2031	3 5/8	3.83
25704	7/32	.2187	3 3/4	4.25
25705	15/64	.2344	3 7/8	4.25
25706	1/4	.2500	4	5.05
25707	17/64	.2656	4 1/8	5.28
25708	9/32	.2812	4 1/4	5.72
25709	19/64	.2969	4 3/8	6.20
25710	5/16	.3125	4 1/2	6.44
25711	21/64	.3281	4 5/8	7.17
25712	11/32	.3437	4 3/4	7.65
25713	23/64	.3594	4 7/8	8.63
25714	3/8	.3750	5	9.48
25715	25/64	.3906	5 1/8	10.69
25716	13/32	.4062	5 1/4	21.15
25717	27/64	.4219	5 3/8	12.89
25718	7/16	.4375	5 1/2	14.52
25719	29/64	.4531	5 5/8	14.83
25720	15/32	.4687	5 3/4	15.25
25721	31/64	.4844	5 7/8	17.38
25722	1/2	.5000	6	18.29



DRILL BLANKS



D262 DRILL BLANKS WIRE GAGE SIZES HIGH SPEED STEEL

Catalog EDI-Number	Wire Gage Size	Decimal Equiv.	OAL	List Price
25741	1	.2280	3 7/8	\$4.61
25742	2	.2210	3 7/8	4.61
25743	3	.2130	3 3/4	4.61
25744	4	.2090	3 3/4	4.61
25745	5	.2055	3 3/4	4.61
25746	6	.2040	3 3/4	4.19
25747	7	.2010	3 5/8	4.19
25748	8	.1990	3 5/8	4.19
25749	9	.1960	3 5/8	4.19
25750	10	.1935	3 5/8	4.19
25751	11	.1910	3 1/2	3.40
25752	12	.1890	3 1/2	3.40
25753	13	.1850	3 1/2	3.40
25754	14	.1820	3 3/8	3.40
25755	15	.1800	3 3/8	3.40
25756	16	.1770	3 3/8	3.04
25757	17	.1730	3 3/8	3.04
25758	18	.1695	3 1/4	3.04
25759	19	.1660	3 1/4	3.04
25760	20	.1610	3 1/4	3.04
25761	21	.1590	3 1/4	3.04
25762	22	.1570	3 1/8	3.04
25763	23	.1540	3 1/8	3.04
25764	24	.1520	3 1/8	3.04
25765	25	.1495	3	3.04
25766	26	.1470	3	2.68
25767	27	.1440	3	2.68
25768	28	.1405	2 7/8	2.68
25769	29	.1360	2 7/8	2.68
25770	30	.1285	2 3/4	2.68
25771	31	.1200	2 3/4	2.68
25772	32	.1160	2 3/4	2.68
25773	33	.1130	2 5/8	2.68
25774	34	.1110	2 5/8	2.68
25775	35	.1100	2 5/8	2.68
25776	36	.1065	2 1/2	2.68
25777	37	.1040	2 1/2	2.68
25778	38	.1015	2 1/2	2.68
25779	39	.0995	2 3/8	2.68
25780	40	.0980	2 3/8	2.62

Catalog EDI-Number	Wire Gage Size	Decimal Equiv.	OAL	List Price
25781	41	.0960	2 3/8	\$2.62
25782	42	.0935	2 1/4	2.62
25783	43	.0890	2 1/4	2.62
25784	44	.0860	2 1/8	2.62
25785	45	.0820	2 1/8	2.62
25786	46	.0810	2 1/8	2.62
25787	47	.0785	2	2.62
25788	48	.0760	2	2.62
25789	49	.0730	2	2.62
25790	50	.0700	2	2.62
25791	51	.0670	2	2.62
25792	52	.0635	1 7/8	2.62
25793	53	.0595	1 7/8	2.62
25794	54	.0550	1 7/8	2.62
25795	55	.0520	1 7/8	2.62
25796	56	.0465	1 3/4	2.62
25797	57	.0430	1 3/4	2.62
25798	58	.0420	1 5/8	2.62
25799	59	.0410	1 5/8	2.62
25800	60	.0400	1 5/8	2.62
25801	61	.0390	1 5/8	2.25
25802	62	.0380	1 1/2	2.25
25803	63	.0370	1 1/2	2.25
25804	64	.0360	1 1/2	2.25
25805	65	.0350	1 1/2	2.25
25806	66	.0330	1 3/8	2.25
25807	67	.0320	1 3/8	2.25
25808	68	.0310	1 3/8	2.25
25809	69	.0292	1 3/8	2.25
25810	70	.0280	1 1/4	2.25
25811	71	.0260	1 1/4	2.25
25812	72	.0250	1 1/8	2.25
25813	73	.0240	1 1/8	2.25
25814	74	.0225	1	2.25
25815	75	.0210	1	2.25
25816	76	.0200	7/8	2.25
25817	77	.0180	7/8	2.25
25818	78	.0160	7/8	2.25
25819	79	.0145	3/4	2.25
25820	80	.0135	3/4	2.25

D266 REAMER BLANKS LETTER SIZES

Tolerances:
All sizes +.0002-.0000

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	List Price
26071	A	.2340	3 7/8	\$4.86
26072	B	.2380	4	4.86
26073	C	.2420	4	4.86
26074	D	.2460	4	5.47
26075	E	.2500	4	5.47
26076	F	.2570	4 1/8	5.78
26077	G	.2610	4 1/8	5.78
26078	H	.2660	4 1/8	5.78
26079	I	.2720	4 1/8	6.20
26080	J	.2770	4 1/8	6.20
26081	K	.2810	4 1/4	6.20
26082	L	.2900	4 1/4	6.20
26083	M	.2950	4 3/8	6.75

Catalog EDI-Number	Letter Size	Decimal Equiv.	OAL	List Price
26084	N	.3020	4 3/8	\$6.75
26085	O	.3160	4 1/2	6.99
26086	P	.3230	4 5/8	7.78
26087	Q	.3320	4 3/4	7.78
26088	R	.3390	4 3/4	8.26
26089	S	.3480	4 7/8	9.42
26090	T	.3580	4 7/8	9.42
26091	U	.3680	5	10.21
26092	V	.3770	5	10.21
26093	W	.3860	5 1/8	10.69
26094	X	.3970	5 1/8	10.69
26095	Y	.4040	5 1/4	11.73
26096	Z	.4130	5 1/4	11.73

D264 REAMER BLANKS FRACTIONAL SIZES

Tolerances:
All sizes +.0002-.0000

Catalog EDI-Number	Fractional Size	Decimal Equiv.	OAL	List Price
25841	1/64	.0156	3/4	2.25
25842	1/32	.0312	1 3/8	2.25
25843	3/64	.0469	1 3/4	2.62
25844	1/16	.0625	1 7/8	2.62
25845	5/64	.0781	2	2.68
25846	3/32	.0937	2 1/4	2.68
25847	7/64	.1094	2 5/8	2.68
25848	1/8	.1250	2 3/4	2.68
25849	9/64	.1406	2 7/8	2.68
25850	5/32	.1562	3 1/8	3.04
25851	11/64	.1719	3 1/4	3.04
25852	3/16	.1875	3 1/2	3.40
25853	13/64	.2031	3 5/8	3.83
25854	7/32	.2187	3 3/4	4.25
25855	15/64	.2344	3 7/8	4.25
25856	1/4	.2500	4	5.05



D265 REAMER BLANKS WIRE GAGE SIZES HIGH SPEED STEEL

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	List Price
25891	1	.2280	3 7/8	\$4.61
25892	2	.2210	3 7/8	4.61
25893	3	.2130	3 3/4	4.61
25894	4	.2090	3 3/4	4.61
25895	5	.2055	3 3/4	4.61
25896	6	.2040	3 3/4	4.19
25897	7	.2010	3 5/8	4.19
25898	8	.1990	3 5/8	4.19
25899	9	.1960	3 5/8	4.19
25900	10	.1935	3 5/8	4.19
25901	11	.1910	3 1/2	3.40
25902	12	.1890	3 1/2	3.40
25903	13	.1850	3 1/2	3.40
25904	14	.1820	3 3/8	3.40
25905	15	.1800	3 3/8	3.40
25906	16	.1770	3 3/8	3.04
25907	17	.1730	3 3/8	3.04
25908	18	.1695	3 1/4	3.04
25909	19	.1660	3 1/4	3.04
25910	20	.1610	3 1/4	3.04
25911	21	.1590	3 1/4	3.04
25912	22	.1570	3 1/8	3.04
25913	23	.1540	3 1/8	3.04
25914	24	.1520	3 1/8	3.04
25915	25	.1495	3	3.04
25916	26	.1470	3	2.68
25917	27	.1440	3	2.68
25918	28	.1405	2 7/8	2.68
25919	29	.1360	2 7/8	2.68
25920	30	.1285	2 3/4	2.68
25921	31	.1200	2 3/4	2.68
25922	32	.1160	2 3/4	2.68
25923	33	.1130	2 5/8	2.68
25924	34	.1110	2 5/8	2.68
25925	35	.1100	2 5/8	2.68
25926	36	.1065	2 1/2	2.68
25927	37	.1040	2 1/2	2.68
25928	38	.1015	2 1/2	2.68
25929	39	.0995	2 3/8	2.68
25930	40	.0980	2 3/8	2.62

Catalog EDI-Number	Fractional Size	Decimal Equiv.	OAL	List Price
25857	17/64	.2656	4 1/8	\$5.28
25858	9/32	.2812	4 1/4	5.72
25859	19/64	.2969	4 3/8	6.20
25860	5/16	.3125	4 1/2	6.44
25861	21/64	.3281	4 5/8	7.17
25862	11/32	.3437	4 3/4	7.65
25863	23/64	.3594	4 7/8	8.63
25864	3/8	.3750	5	9.48
25865	25/64	.3906	5 1/8	10.69
25866	13/32	.4062	5 1/4	21.15
25867	27/64	.4219	5 3/8	12.89
25868	7/16	.4375	5 1/2	14.52
25869	29/64	.4531	5 5/8	14.83
25870	15/32	.4687	5 3/4	15.25
25871	31/64	.4844	5 7/8	17.38
25872	1/2	.5000	6	18.29

Catalog EDI-Number	Wire Gauge	Decimal Equiv.	OAL	List Price
25931	41	.0960	2 3/8	\$2.62
25932	42	.0935	2 1/4	2.62
25933	43	.0890	2 1/4	2.62
25934	44	.0860	2 1/8	2.62
25935	45	.0820	2 1/8	2.62
25936	46	.0810	2 1/8	2.62
25937	47	.0785	2	2.62
25938	48	.0760	2	2.62
25939	49	.0730	2	2.62
25940	50	.0700	2	2.62
25941	51	.0670	2	2.62
25942	52	.0635	1 7/8	2.62
25943	53	.0595	1 7/8	2.62
25944	54	.0550	1 7/8	2.62
25945	55	.0520	1 7/8	2.62
25946	56	.0465	1 3/4	2.62
25947	57	.0430	1 3/4	2.62
25948	58	.0420	1 5/8	2.62
25949	59	.0410	1 5/8	2.62
25950	60	.0400	1 5/8	2.62
25951	61	.0390	1 5/8	2.25
25952	62	.0380	1 1/2	2.25
25953	63	.0370	1 1/2	2.25
25954	64	.0360	1 1/2	2.25
25955	65	.0350	1 1/2	2.25
25956	66	.0330	1 3/8	2.25
25957	67	.0320	1 3/8	2.25
25958	68	.0310	1 3/8	2.25
25959	69	.0292	1 3/8	2.25
25960	70	.0280	1 1/4	2.25
25961	71	.0260	1 1/4	2.25
25962	72	.0250	1 1/8	2.25
25963	73	.0240	1 1/8	2.25
25964	74	.0225	1	2.25
25965	75	.0210	1	2.25
25966	76	.0200	7/8	2.25
25967	77	.0180	7/8	2.25
25968	78	.0160	7/8	2.25
25969	79	.0145	3/4	2.25
25970	80	.0135	3/4	2.25



CARBIDE - HIGH SPEED STEEL ***REAMERS***





CHUCKING REAMERS HIGH SPEED STEEL

SIZES NOT LISTED ARE SPECIAL - PRICES ON APPLICATION

STRAIGHT SHANK

Fraction, Wire, & Letter Sizes	Decimal Equiv.	Flute Length	OAL	#759B Straight Flute		#759 Right Hand Spiral		#759L Left Hand Spiral	
				Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
60	.0400	1/2	2 1/2	27111	\$13.19	27291	\$14.23	27471	\$14.97
59	.0410	1/2	2 1/2	27112	13.19	27292	14.23	27472	14.97
58	.0420	1/2	2 1/2	27113	13.19	27293	14.23	27473	14.97
57	.0430	1/2	2 1/2	27114	13.19	27294	14.23	27474	14.97
56	.0465	1/2	2 1/2	27115	13.19	27295	14.23	27475	14.97
3/64	.0469	1/2	2 1/2	27116	13.19	27296	14.23	27476	14.97
55	.0520	1/2	2 1/2	27117	13.19	27297	14.23	27477	14.97
54	.0550	1/2	2 1/2	27118	13.19	27298	14.23	27478	14.97
53	.0595	1/2	2 1/2	27119	13.19	27299	14.23	27479	14.97
1/16	.0625	1/2	2 1/2	27120	13.19	27300	14.23	27480	14.97
52	.0635	1/2	2 1/2	27121	13.19	27301	14.23	27481	14.97
51	.0670	3/4	3	27122	10.51	27302	11.49	27482	11.88
50	.0700	3/4	3	27123	10.51	27303	11.49	27483	11.88
49	.0730	3/4	3	27124	10.51	27304	11.49	27484	11.88
48	.0760	3/4	3	27125	10.51	27305	11.49	27485	11.88
5/64	.0781	3/4	3	27126	10.51	27306	11.49	27486	11.88
47	.0785	3/4	3	27127	10.51	27307	11.49	27487	11.88
46	.0810	3/4	3	27128	10.51	27308	11.49	27488	11.88
45	.0820	3/4	3	27129	10.51	27309	11.49	27489	11.88
44	.0860	3/4	3	27130	10.51	27310	11.49	27490	11.88
43	.0890	3/4	3	27131	10.51	27311	11.49	27491	11.88
42	.0935	3/4	3	27132	10.51	27312	11.49	27492	11.88
3/32	.0938	3/4	3	27133	10.51	27313	11.49	27493	11.88
41	.0960	7/8	3 1/2	27134	10.89	27314	11.88	27494	12.40
40	.0980	7/8	3 1/2	27135	10.89	27315	11.88	27495	12.40
39	.0995	7/8	3 1/2	27136	10.89	27316	11.88	27496	12.40
38	.1015	7/8	3 1/2	27137	10.89	27317	11.88	27497	12.40
37	.1040	7/8	3 1/2	27138	10.89	27318	11.88	27498	12.40
36	.1065	7/8	3 1/2	27139	10.89	27319	11.88	27499	12.40
7/64	.1094	7/8	3 1/2	27140	10.89	27320	11.88	27500	12.40
35	.1100	7/8	3 1/2	27141	10.89	27321	11.88	27501	12.40
34	.1110	7/8	3 1/2	27142	10.89	27322	11.88	27502	12.40
33	.1130	7/8	3 1/2	27143	10.89	27323	11.88	27503	12.40
32	.1160	7/8	3 1/2	27144	10.89	27324	11.88	27504	12.40
31	.1200	7/8	3 1/2	27145	10.89	27325	11.88	27505	12.40
.1240	.1240	7/8	3 1/2	27146	10.89	27326	11.88	27506	12.40
1/8	.1250	7/8	3 1/2	27147	10.89	27327	11.88	27507	12.40
.1260	.1260	7/8	3 1/2	27148	10.89	27328	11.88	27508	12.40
30	.1285	7/8	3 1/2	27149	10.89	27329	11.88	27509	12.40
29	.1360	1	4	27150	13.19	27330	14.23	27510	14.97
28	.1405	1	4	27151	13.19	27331	14.23	27511	14.97
9/64	.1406	1	4	27152	13.19	27332	14.23	27512	14.97
27	.1440	1	4	27153	13.19	27333	14.23	27513	14.97
26	.1470	1	4	27154	13.19	27334	14.23	27514	14.97
25	.1495	1	4	27155	13.19	27335	14.23	27515	14.97
24	.1520	1	4	27156	13.19	27336	14.23	27516	14.97
23	.1540	1	4	27157	13.19	27337	14.23	27517	14.97
5/32	.1562	1	4	27158	13.19	27338	14.23	27518	14.97
22	.1570	1	4	27159	13.19	27339	14.23	27519	14.97
21	.1590	1 1/8	4 1/2	27160	13.19	27340	14.23	27520	14.97
20	.1610	1 1/8	4 1/2	27161	13.19	27341	14.23	27521	14.97
19	.1660	1 1/8	4 1/2	27162	13.19	27342	14.23	27522	14.97



CHUCKING REAMERS

CHUCKING REAMERS HIGH SPEED STEEL

SIZES NOT LISTED ARE SPECIAL - PRICES ON APPLICATION

STRAIGHT SHANK



Fraction, Wire, & Letter Sizes	Decimal Equiv.	Flute Length	OAL	#759B Straight Flute		#759 Right Hand Spiral		#759L Left Hand Spiral	
				Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
18	.1695	1 1/8	4 1/2	27163	\$13.19	27343	\$14.23	27523	\$14.97
11/64	.1719	1 1/8	4 1/2	27164	13.19	27344	14.23	27524	14.57
17	.1730	1 1/8	4 1/2	27165	13.19	27345	14.23	27525	14.97
16	.1770	1 1/8	4 1/2	27166	13.19	27346	14.23	27526	14.97
15	.1800	1 1/8	4 1/2	27167	14.23	27347	15.43	27527	16.14
14	.1820	1 1/8	4 1/2	27168	14.23	27348	15.43	27528	16.14
13	.1850	1 1/8	4 1/2	27169	14.23	27349	15.43	27529	16.14
.1865	.1865	1 1/8	4 1/2	27170	14.23	27350	15.43	27530	16.14
3/16	.1875	1 1/8	4 1/2	27171	11.49	27351	14.23	27531	14.97
.1885	.1885	1 1/8	4 1/2	27172	14.23	27352	15.43	27532	16.14
12	.1890	1 1/8	4 1/2	27173	13.19	27353	14.23	27533	14.97
11	.1910	1 1/4	5	27174	14.97	27354	16.60	27534	16.93
10	.1935	1 1/4	5	27175	15.43	27355	16.80	27535	17.65
9	.1960	1 1/4	5	27176	15.43	27356	16.80	27536	17.65
8	.1990	1 1/4	5	27177	15.43	27357	16.80	27537	17.65
7	.2010	1 1/4	5	27178	15.43	27358	16.80	27538	17.65
13/64	.2031	1 1/4	5	27179	15.43	27359	16.60	27539	16.93
6	.2040	1 1/4	5	27180	15.43	27360	16.80	27540	14.57
5	.2055	1 1/4	5	27181	15.43	27361	16.80	27541	17.65
4	.2090	1 1/4	5	27182	15.43	27362	16.80	27542	17.65
3	.2130	1 1/4	5	27183	15.43	27363	16.80	27543	17.65
7/32	.2188	1 1/4	5	27184	14.97	27364	16.14	27544	16.80
2	.2210	1 1/2	6	27185	15.43	27365	16.80	27545	17.65
1	.2280	1 1/2	6	27186	15.43	27366	16.80	27546	17.65
A	.2340	1 1/2	6	27187	16.14	27367	16.80	27547	17.65
15/64	.2344	1 1/2	6	27188	15.43	27368	16.80	27548	16.93
B	.2380	1 1/2	6	27189	16.14	27369	16.80	27549	17.65
C	.2420	1 1/2	6	27190	16.14	27370	16.80	27550	17.65
D	.2460	1 1/2	6	27191	16.14	27371	16.80	27551	17.65
.2490	.2490	1 1/2	6	27192	14.97	27372	16.60	27552	16.93
(E) 1/4	.2500	1 1/2	6	27193	13.39	27373	15.69	27553	16.60
.2510	.2510	1 1/2	6	27194	15.23	27374	16.80	27554	17.65
F	.2570	1 1/2	6	27195	16.14	27375	16.80	27555	17.65
G	.2610	1 1/2	6	27196	16.93	27376	18.18	27556	18.64
17/64	.2656	1 1/2	6	27197	16.93	27377	18.31	27557	19.30
H	.2660	1 1/2	6	27198	18.18	27378	18.64	27558	19.49
I	.2720	1 1/2	6	27199	18.18	27379	18.64	27559	19.49
J	.2770	1 1/2	6	27200	18.18	27380	18.64	27560	19.49
K	.2810	1 1/2	6	27201	18.18	27381	18.64	27561	19.49
9/32	.2812	1 1/2	6	27202	16.93	27382	18.31	27562	19.30
L	.2900	1 1/2	6	27203	18.18	27383	18.64	27563	19.49
M	.2950	1 1/2	6	27204	18.18	27384	18.64	27564	19.49
19/64	.2969	1 1/2	6	27205	18.18	27385	18.31	27565	19.30
N	.3020	1 1/2	6	27206	18.18	27386	18.31	27566	19.30
.3115	.3115	1 1/2	6	27207	16.93	27387	18.64	27567	19.49
5/16	.3125	1 1/2	6	27208	16.93	27388	16.93	27568	18.51
.3120	.3120	1 1/2	6	27209	16.93	27389	16.93	27569	18.51
.3135	.3135	1 1/2	6	27210	16.93	27390	18.64	27570	19.49
O	.3160	1 1/2	6	27211	18.64	27391	20.02	27571	20.81
P	.3230	1 1/2	6	27212	18.64	27392	20.61	27572	21.53
21/64	.3281	1 1/2	6	27213	18.64	27393	20.61	27573	21.53
Q	.3320	1 1/2	6	27214	18.64	27394	20.61	27574	21.53

CHUCKING REAMERS HIGH SPEED STEEL



SIZES NOT LISTED ARE SPECIAL - PRICES ON APPLICATION

Fraction, Wire, & Letter Sizes	Decimal Equiv.	Flute Length	OAL	#759B		#759		#759L	
				Straight Flute		Right Hand Spiral		Left Hand Spiral	
				Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
R	.3390	1 1/2	6	27215	\$18.64	27395	\$20.61	27575	\$21.53
11/32	.3438	1 1/2	6	27216	18.64	27396	20.61	27576	21.53
S	.3480	1 3/4	7	27217	18.64	27397	20.61	27577	21.53
T	.3580	1 3/4	7	27218	18.64	27398	20.61	27578	21.53
23/64	.3594	1 3/4	7	27219	18.64	27399	20.61	27579	21.53
U	.3680	1 3/4	7	27220	18.64	27400	20.61	27580	21.53
.3740	.3740	1 3/4	7	27221	18.51	27401	20.61	27581	21.53
3/8	.3750	1 3/4	7	27222	16.93	27402	20.15	27582	20.81
.3760	.3760	1 3/4	7	27223	18.31	27403	20.61	27583	21.53
V	.3770	1 3/4	7	27224	21.53	27404	22.65	27584	24.08
W	.3860	1 3/4	7	27225	21.53	27405	22.65	27585	24.08
25/64	.3906	1 3/4	7	27226	20.15	27406	23.24	27586	24.29
X	.3970	1 3/4	7	27227	21.53	27407	22.65	27587	24.08
Y	.4040	1 3/4	7	27228	21.99	27408	23.24	27588	24.29
13/32	.4062	1 3/4	7	27229	20.81	27409	22.65	27589	24.08
Z	.4130	1 3/4	7	27230	21.99	27410	23.24	27590	24.29
27/64	.4219	1 3/4	7	27231	21.99	27411	23.24	27591	24.29
.4365	.4365	1 3/4	7	27232	21.99	27412	23.24	27592	24.29
.4370	.4370	1 3/4	7	27233	21.99	27413	23.24	27593	24.29
7/16	.4375	1 3/4	7	27234	20.15	27414	22.65	27594	24.08
.4385	.4385	1 3/4	7	27235	21.99	27415	23.24	27595	24.29
29/64	.4531	1 3/4	7	27236	24.62	27416	25.86	27596	26.78
15/32	.4688	1 3/4	7	27237	24.08	27417	25.86	27597	26.78
31/64	.4844	2	8	27238	24.62	27418	25.86	27598	26.78
.4990	.4990	2	8	27239	23.36	27419	25.86	27599	26.78
.4995	.4995	2	8	27240	24.94	27420	27.50	27600	28.28
1/2	.5000	2	8	27241	21.99	27421	24.62	27601	25.53
.5010	.5010	2	8	27242	23.36	27422	25.86	27602	26.78
17/32	.5312	2	8	27243	27.30	27423	31.04	27603	31.04
9/16	.5625	2	8	27244	26.78	27424	31.70	27604	31.70
19/32	.5938	2	8	27245	31.04	27425	35.12	27605	35.12
5/8	.6250	2 1/4	9	27246	31.04	27426	33.61	27606	33.61
21/32	.6562	2 1/4	9	27247	35.77	27427	39.45	27607	39.45
11/16	.6875	2 1/4	9	27248	35.58	27428	39.45	27608	39.45
23/32	.7188	2 1/4	9	27249	41.02	27429	44.69	27609	44.69
3/4	.7500	2 1/2	9 1/2	27250	39.45	27430	43.84	27610	44.69
25/32	.7812	2 1/2	9 1/2	27251	46.01	27431	50.40	27611	50.40
13/16	.8125	2 1/2	9 1/2	27252	46.01	27432	50.40	27612	50.40
27/32	.8438	2 1/2	9 1/2	27253	52.30	27433	56.51	27613	56.51
7/8	.8750	2 5/8	10	27254	51.00	27434	56.51	27614	56.51
29/32	.9062	2 5/8	10	27255	57.69	27435	62.81	27615	62.81
15/16	.9375	2 5/8	10	27256	57.69	27436	62.81	27616	62.81
31/32	.9688	2 5/8	10	27257	64.78	27437	70.88	27617	70.88
1	1.0000	2 3/4	10 1/2	27258	63.40	27438	70.88	27618	70.88
1 1/16	1.0625	2 3/4	10 1/2	27259	72.78	27439	79.68	27619	79.68
1 1/8	1.1250	2 7/8	11	27260	77.84	27440	87.68	27620	87.68
1 3/16	1.1875	2 7/8	11	27261	87.68	27441	96.27	27621	96.27
1 1/4	1.2500	3	11 1/2	27262	96.27	27442	106.98	27622	106.98
1 5/16	1.3125	3	11 1/2	27263	*	27443	117.54	27623	117.54
1 3/8	1.3750	3 1/4	12	27264	115.58	27444	128.64	27624	128.64
1 7/16	1.4375	3 1/4	12	27265	*	27445	139.34	27625	139.34
1 1/2	1.5000	3 1/2	12 1/2	27266	135.40	27446	148.98	27626	148.98



CHUCKING REAMERS

CHUCKING REAMERS TAPER SHANK

SPIRAL FLUTES



STRAIGHT FLUTES



Dia.	Morse Taper Shank	#760B		#760		#760L	
		Straight Flute		Right Hand Spiral		Left Hand Spiral	
		Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
1/4	1	27631	\$26.39	27691	\$27.18	27741	\$27.18
9/32	1	27632	28.03	27692	30.08	27742	30.08
5/16	1	27633	28.03	27693	30.08	27743	30.08
11/32	1	27634	31.19	27694	32.76	27744	32.76
3/8	1	27635	31.19	27695	32.76	27745	32.76
13/32	1	27636	34.82	27696	36.64	27746	36.64
7/16	1	27637	34.82	27697	36.64	27747	36.64
15/32	1	27638	38.04	27698	40.01	27748	40.01
1/2	1	27639	37.73	27699	39.14	27749	39.14
17/32	1	27640	41.90	27700	45.91	27750	45.91
9/16	1	27641	41.04	27701	45.91	27751	45.91
19/32	1	27642	45.36	27702	49.61	27752	49.61
5/8	2	27643	44.35	27703	48.91	27753	48.91
21/32	2	27644	48.91	27704	53.63	27754	53.63
11/16	2	27645	47.34	27705	53.63	27755	53.63
23/32	2	27646	55.21	27706	60.48	27756	60.48
3/4	2	27647	54.02	27707	60.10	27757	60.10
25/32	2	27648	63.08	27708	69.07	27758	69.07
13/16	2	27649	63.08	27709	69.07	27759	69.07
27/32	2	27650	72.07	27710	79.08	27760	79.08
7/8	2	27651	72.07	27711	79.08	27761	79.08
29/32	2	27652	78.37	27712	86.47	27762	86.47
15/16	3	27653	78.37	27713	86.47	27763	86.47
31/32	3	27654	87.34	27714	96.95	27764	96.95
1	3	27655	86.47	27715	96.95	27765	96.95
1 1/16	3	27656	96.95	27716	106.57	27766	106.57
1 1/8	3	27657	105.22	27717	117.90	27767	117.90
1 3/16	3	27658	117.90	27718	128.38	27768	128.38
1 1/4	4	27659	127.43	27719	140.74	27769	140.74
1 5/16	4	27660	139.56	27720	154.37	27770	154.37
1 3/8	4	27661	150.58	27721	167.21	27771	167.21
1 7/16	4	27662	163.34	27722	182.02	27772	182.02
1 1/2	4	27663	174.46	27723	193.27	27773	193.27

CARBIDE TIPPED CHUCKING REAMERS

STRAIGHT FLUTE - FULL FLUTE LENGTH CARBIDE

For general purpose reaming of most types of materials, including steel, cast iron, non-ferrous, and non-metals. The carbide tips are brazed on a hardened alloy steel body.



STRAIGHT SHANK - STRAIGHT FLUTE - No. 769



TAPER SHANK - STRAIGHT FLUTE - No. 770

Catalog EDI-#	Tool Diameter		Dia. Shank	# of Flutes	Flute Length	OAL	List Price
	Dec	Frac					
68001	.1875	3/16	11/64	4	1 1/2	6	\$52.30
68002	.2188	7/32	13/64	4	1 1/2	6	52.30
68003	.2344	15/64	7/32	4	1 1/2	6	52.30
68004	.2500	1/4	15/64	4	1 1/2	6	52.30
68005	.2812	9/32	15/64	4	1 1/2	6	53.40
68006	.3125	5/16	9/32	4	1 1/2	6	53.40
68007	.3438	11/32	9/32	4	1 1/2	6	55.33
68008	.3750	3/8	5/16	4	1 3/4	7	55.33
68009	.4062	13/32	5/16	4	1 3/4	7	58.10
68010	.4375	7/16	3/8	4	1 3/4	7	62.81
68011	.4688	15/32	3/8	4	1 3/4	7	62.75
68012	.5000	1/2	7/16	6	2	8	62.75
68013	.5312	17/32	7/16	6	2	8	69.76
68014	.5625	9/16	7/16	6	2	8	69.76
68015	.5938	19/32	7/16	6	2	8	72.47
68016	.6250	5/8	9/16	6	2	9	72.47
68017	.6562	21/32	9/16	6	2	9	73.76
68018	.6875	11/16	9/16	6	2	9	73.76
68019	.7188	23/32	9/16	6	2	9	77.17
68020	.7500	3/4	5/8	6	2	9 1/2	77.17
68021	.7812	25/32	5/8	6	2	9 1/2	79.88
68022	.8125	13/16	5/8	6	2	9 1/2	79.88
68023	.8438	27/32	5/8	6	2	9 1/2	83.03
68024	.8750	7/8	3/4	6	2 1/4	10	83.03
68025	.9062	29/32	3/4	6	2 1/4	10	96.62
68026	.9375	15/16	3/4	8	2 1/4	10	96.62
68027	.9688	31/32	3/4	8	2 1/4	10	101.27
68028	1.0000	1	7/8	8	2 1/4	10 1/2	101.27
68029	1.0625	1 1/16	7/8	8	2 1/4	10 1/2	109.31
68030	1.1250	1 1/8	7/8	8	2 1/4	11	118.33
68031	1.1875	1 3/16	1	8	2 1/4	11	123.81
68032	1.2500	1 1/4	1	8	2 1/2	11 1/2	144.55
68033	1.3125	1 5/16	1	8	2 1/2	11 1/2	144.55
68034	1.3750	1 3/8	1	8	2 1/2	12	146.67
68035	1.4375	1 7/16	1 1/4	8	2 1/2	12	162.01
68036	1.5000	1 1/2	1 1/4	8	2 1/2	12 1/2	194.47
68037	1.5625	1 9/16	1 1/4	8	2 1/2	12 1/2	256.71
68038	1.6250	1 5/8	1 1/4	8	2 3/4	13	265.52
68039	1.6875	1 11/16	1 1/4	8	2 3/4	13	355.96
68040	1.7500	1 3/4	1 1/4	10	3	13 1/2	355.96
68041	1.8125	1 13/16	1 1/2	10	3	13 1/2	298.31
68042	1.8750	1 7/8	1 1/2	10	3 1/4	14	312.80
68043	1.9375	1 15/16	1 1/2	10	3 1/4	14	331.61
68044	2.0000	2	1 1/2	12	3 1/4	14	331.61

Catalog EDI-#	Tool Diameter		Morse Taper No.	# of Flutes	Flute Length	OAL	List Price
	Dec	Frac					
68051	.2500	1/4	1	4	1 1/2	6	\$72.20
68052	.2812	9/32	1	4	1 1/2	6	73.20
68053	.3125	5/16	1	4	1 1/2	6	73.20
68054	.3438	11/32	1	4	1 1/2	6	74.83
68055	.3750	3/8	1	4	1 3/4	7	75.68
68056	.4062	13/32	1	4	1 3/4	7	79.69
68057	.4375	7/16	1	4	1 3/4	7	84.88
68058	.4688	15/32	1	4	1 3/4	7	86.65
68059	.5000	1/2	1	6	2	8	87.19
68060	.5312	17/32	1	6	2	8	95.54
68061	.5625	9/16	1	6	2	8	95.54
68062	.5938	19/32	1	6	2	8	99.96
68063	.6250	5/8	2	6	2	9	99.96
68064	.6562	21/32	2	6	2	9	101.80
68065	.6875	11/16	2	6	2	9	101.80
68066	.7188	23/32	2	6	2	9	103.27
68067	.7500	3/4	2	6	2	9 1/2	106.52
68068	.7812	25/32	2	6	2	9 1/2	107.38
68069	.8125	13/16	2	6	2	9 1/2	109.76
68070	.8438	27/32	2	6	2	9 1/2	114.64
68071	.8750	7/8	2	6	2 1/4	10	114.64
68072	.9062	29/32	2	6	2 1/4	10	129.08
68073	.9375	15/16	3	8	2 1/4	10	131.26
68074	.9688	31/32	3	8	2 1/4	10	139.82
68075	1.000	1	3	8	2 1/4	10 1/2	139.82
68076	1.0625	1 1/16	3	8	2 1/4	10 1/2	199.97
68077	1.1250	1 1/8	3	8	2 1/4	11	215.35
68078	1.1875	1 3/16	3	8	2 1/4	11	231.44
68079	1.2500	1 1/4	4	8	2 1/2	11 1/2	245.96
68080	1.3125	1 5/16	4	8	2 1/2	11 1/2	277.67
68081	1.3750	1 3/8	4	8	2 1/2	12	317.24
68082	1.4375	1 7/16	4	8	2 1/2	12	331.00
68083	1.5000	1 1/2	4	8	2 1/2	12 1/2	345.07

SEE OUR OTHER CHUCKING REAMERS ON PAGES 110-116

**Partial Flute Length
Carbide Tipped Reamers
also available**



SPECIAL REAMERS, SAWS, CUTTERS BORING TOOLS, ENDMILLS, DRILLS...

...and many other **CUTTING TOOLS** that F&D can manufacture in **HSS, COBALT,** and **CARBIDE** material. Call us or fill out the **REQUEST FOR QUOTE** forms on **pages 157-158** or online at **www.fdtool.com**. You will get your quote within 24 hours and most times within just a few hours. We take pride in getting your **CUTTING TOOL NEEDS ANSWERED** as soon as possible.

That's been the F&D Tool Co., Inc way for over 75 years.



EXPANDING CHUCKING REAMERS - STRAIGHT FLUTE

The expansion feature is designed to maintain the initial size by compensating for wear at the cutting end.

Recommended Expansion Limits

Sizes	1/4 to 21/32	.010
Sizes	11/16 to 1	.013
Sizes	1-1/16 to 1-1/2	.015
Sizes	1-9/16 to 2	.017

Fluted Chucking Reamers are designed for use in turret lathes, screw machines, etc. These reamers have a slight chamfer of 45 degrees on the end and flutes are cleared to edge but are not tapered.

STRAIGHT SHANK • Straight Flute - No. 759C

TAPER SHANK • Straight Flute - No. 760C



Catalog EDI-Number	Dia.	Dia. Shank	Flute Length	Overall Length	List Price
28591	3/8	5/16	3/4	7	\$57.91
28592	13/32	5/16	3/4	7	60.32
28593	7/16	3/8	7/8	7	61.51
28594	15/32	27/64	7/8	7	64.23
28595	1/2	7/16	1	8	65.58
28596	17/32	7/16	1	8	67.99
28597	9/16	7/16	1 1/8	8	69.71
28598	19/32	7/16	1 1/8	8	71.21
28599	5/8	9/16	1 1/4	9	73.10
28600	21/32	9/16	1 1/4	9	75.44
28601	11/16	9/16	1 1/4	9	76.63
28602	23/32	9/16	1 1/4	9	80.77
28603	3/4	5/8	1 3/8	9 1/2	84.22
28604	25/32	5/8	1 3/8	9 1/2	88.51
28605	13/16	5/8	1 3/8	9 1/2	92.66
28606	27/32	5/8	1 3/8	9 1/2	97.24
28607	7/8	3/4	1 1/2	10	100.47
28608	29/32	3/4	1 1/2	10	104.76
28609	15/16	3/4	1 1/2	10	109.88
28610	31/32	3/4	1 1/2	10	114.75
28611	1	7/8	1 5/8	10 1/2	120.41
28612	1 1/32	7/8	1 5/8	10 1/2	127.16
28613	1 1/16	7/8	1 5/8	10 1/2	133.56
28614	1 3/32	7/8	1 5/8	10 1/2	139.36
28615	1 1/8	7/8	1 3/4	11	145.59
28616	1 5/32	7/8	1 3/4	11	148.84
28617	1 3/16	1	1 3/4	11	153.86
28618	1 7/32	1	1 3/4	11	158.75
28619	1 1/4	1	1 7/8	11 1/2	165.00
28620	1 5/16	1	1 7/8	11 1/2	171.62
28621	1 3/8	1	2	12	178.00
28622	1 7/16	1 1/4	2	12	185.08
28623	1 1/2	1 1/4	2 1/8	12 1/2	192.45
28624	1 9/16	1 1/4	2 1/8	12 1/2	202.60
28625	1 5/8	1 1/4	2 1/4	13	211.71
28626	1 11/16	1 1/4	2 1/4	13	220.73
28627	1 3/4	1 1/4	2 3/8	13 1/2	231.03
28628	1 13/16	1 1/2	2 3/8	13 1/2	242.31
28629	1 7/8	1 1/2	2 1/2	14	252.76
28630	1 15/16	1 1/2	2 1/2	14	264.87
28631	2	1 1/2	2 1/2	14	277.66
28632	2 1/8	1 1/2	2 3/4	14 1/2	303.29
28633	2 1/4	1 3/4	2 3/4	14 1/2	347.00
28634	2 1/2	1 3/4	3	15	410.30

Catalog EDI-Number	Dia.	Morse Taper No.	Flute Length	Overall Length	List Price
28661	3/8	1	3/4	7	\$79.68
28662	13/32	1	3/4	7	82.93
28663	7/16	1	7/8	7	83.65
28664	15/32	1	7/8	7	86.18
28665	1/2	1	1	8	87.72
28666	17/32	1	1	8	90.62
28667	9/16	1	1 1/8	8	91.96
28668	19/32	1	1 1/8	8	95.57
28669	5/8	2	1 1/4	9	96.92
28670	21/32	2	1 1/4	9	99.64
28671	11/16	2	1 1/4	9	101.06
28672	23/32	2	1 1/4	9	106.21
28673	3/4	2	1 3/8	9 1/2	111.19
28674	25/32	2	1 3/8	9 1/2	115.51
28675	13/16	2	1 3/8	9 1/2	118.04
28676	27/32	2	1 3/8	9 1/2	123.72
28677	7/8	2	1 1/2	10	129.78
28678	29/32	2	1 1/2	10	135.98
28679	15/16	3	1 1/2	10	140.15
28680	31/32	3	1 1/2	10	146.20
28681	1	3	1 5/8	10 1/2	154.50
28682	1 1/32	3	1 5/8	10 1/2	160.27
28683	1 1/16	3	1 5/8	10 1/2	167.23
28684	1 3/32	3	1 5/8	10 1/2	174.71
28685	1 1/8	3	1 3/4	11	180.40
28686	1 5/32	3	1 3/4	11	188.42
28687	1 3/16	3	1 3/4	11	196.63
28688	1 7/32	4	1 3/4	11	203.41
28689	1 1/4	4	1 7/8	11 1/2	212.69
28690	1 5/16	4	1 7/8	11 1/2	222.10
28691	1 3/8	4	2	12	230.94
28692	1 7/16	4	2	12	243.12
28693	1 1/2	4	2 1/8	12 1/2	327.85
28694	1 9/16	4	2 1/8	12 1/2	340.85
28695	1 5/8	4	2 1/4	13	357.55
28696	1 11/16	4	2 1/4	13	372.52
28697	1 3/4	5	2 3/8	13 1/2	392.38
28698	1 13/16	5	2 3/8	13 1/2	416.12
28699	1 7/8	5	2 1/2	14	432.64
28700	1 15/16	5	2 1/2	14	460.33
28701	2	5	2 1/2	14	476.68
28702	2 1/8	5	2 3/4	14 1/2	519.36
28703	2 1/4	5	2 3/4	14 1/2	590.82
28704	2 1/2	5	3	15	707.78



HAND REAMERS

EXPANSION HAND REAMERS

Recommended Expansion Limits

Sizes	1/4 to 21/32	.010
Sizes	11/16 to 1	.013
Sizes	1-1/16 to 1-1/2	.015
Sizes	1-9/16 to 2	.017



STRAIGHT FLUTES Number 752 & 852

SPIRAL FLUTES Number 750 & 850

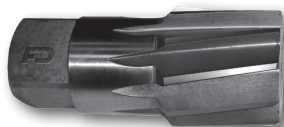
Dia.	Flute Length	OAL	Number 752 Carbon Steel		Number 852 High Speed Steel		Number 750 Carbon Steel		Number 850 High Speed Steel	
			Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
1/4	1 7/16	4 1/4	28491	\$76.14	28541	\$137.39	28391	\$95.76	28441	\$126.08
5/16	1 3/4	4 1/2	28492	76.14	28542	143.22	28392	99.65	28442	139.03
3/8	1 3/4	5	28493	80.63	28543	146.15	28393	107.30	28443	147.13
7/16	1 3/4	5	28494	83.25	28544	151.39	28394	112.00	28444	151.83
1/2	1 13/16	5 1/2	28495	85.43	28545	157.82	28395	114.70	28445	157.00
9/16	2 1/8	6	28496	95.76	28546	161.12	28396	123.46	28446	167.63
5/8	2 1/2	6 1/2	28497	105.20	28547	164.64	28397	135.36	28447	183.88
11/16	2 1/2	6 3/4	28498	116.57	28548	175.26	28398	148.84	28448	200.88
3/4	2 11/16	7 1/16	28499	134.47	28549	203.80	28399	161.71	28449	219.60
13/16	3 1/16	7 9/16	28500	139.57	28550	225.58	28400	178.26	28450	245.34
7/8	3 5/16	8	28501	152.29	28551	241.60	28401	193.61	28451	264.36
15/16	3 9/16	8 3/8	28502	164.64	28552	260.47	28402	213.08	28452	288.16
1	3 3/4	8 7/8	28503	180.36	28553	277.83	28403	228.34	28453	309.73
1 1/6	4	9 3/16	28504	181.93	28554	296.18	28404	247.89	28454	332.05
1 1/8	4 1/8	9 1/2	28505	205.81	28555	314.29	28405	262.35	28455	359.60
1 3/16	4 1/4	9 7/8	28506	211.43	28556	335.56	28406	281.74	28456	380.18
1 1/4	4 3/8	10 1/4	28507	235.00	28557	357.12	28407	300.67	28457	445.17
1 5/16	4 1/2	10 5/8	28508	250.21	28558	399.36	28408	323.88	28458	482.23
1 3/8	4 9/16	11	28509	278.14	28559	440.01	28409	347.83	28459	525.66
1 7/16	4 3/4	11 3/8	28510	302.40	28560	559.04	28410	390.66	28460	582.86
1 1/2	4 13/16	11 5/8	28511	330.85	28561	597.01	28411	423.92	28461	686.85
1 9/16	4 13/16	11 3/4	28512	347.83	28562	628.90	28412	488.82	28462	723.90
1 5/8	4 7/8	12	28513	359.37	28563	648.21	28413	508.00	28463	753.93
1 11/16	4 7/8	12 1/4	28514	373.59	28564	678.69	28414	527.30	28464	788.44
1 3/4	5	12 3/8	28515	424.50	28565	771.08	28415	597.22	28465	885.24
1 13/16	5	12 9/16	28516	441.14	28566	813.74	28416	634.89	28466	920.21
1 7/8	5	12 3/4	28517	476.24	28567	860.76	28417	646.04	28467	978.98
1 15/16	5	12 7/8	28518	493.69	28568	901.05	28418	668.73	28468	1,014.98
2	5	13 1/16	28519	509.62	28569	973.37	28419	687.06	28469	1,046.89
2 1/8	5 1/8	13 1/4	28520	*	28570	*	28420	*	28470	*
2 1/4	5 1/8	13 1/2	28521	*	28571	*	28421	*	28471	*
2 3/8	5 1/4	14	28522	*	28572	*	28422	*	28472	*
2 1/2	5 3/8	14 1/2	28523	*	28573	*	28423	*	28473	*
2 5/8	5 1/2	15	28524	*	28574	*	28424	*	28474	*
2 3/4	5 3/4	15 1/2	28525	*	28575	*	28425	*	28475	*
2 7/8	5 3/4	15 1/2	28526	*	28576	*	28426	*	28476	*
3	6	16 1/2	28527	*	28577	*	28427	*	28477	*
3 1/8	6 1/8	17 1/4	28528	*	28578	*	28428	*	28478	*
3 3/16	6 1/4	18	28529	*	28579	*	28429	*	28479	*
3 1/4	6 1/2	18 1/2	28530	*	28580	*	28430	*	28480	*

BROWN & SHARPE TAPER REAMERS



# of Taper	Large End	Small End	Flute Length	OAL	Number 808 Carbon Steel		Number 908 High Speed Steel	
					Catalog EDI-#	List Price	Catalog EDI-#	List Price
1	.3176	.1974	2 7/8	4 3/4	29061	\$36.56	29091	\$50.48
2	.3781	.2474	3 1/8	5 1/8	29062	41.12	29092	57.13
3	.4510	.3099	3 3/8	5 1/2	29063	43.37	29093	60.61
4	.5017	.3474	3 11/16	5 7/8	29064	45.68	29094	63.47
5	.6145	.4474	4	6 3/8	29065	51.95	29095	71.74
6	.6808	.4974	4 3/8	6 7/8	29066	54.42	29096	75.13
7	.8011	.5974	4 7/8	7 1/2	29067	58.98	29097	82.48
8	.9770	.7474	5 1/2	8 1/8	29068	78.23	29098	108.76
9	1.1530	.8974	6 1/8	8 7/8	29069	99.11	29099	138.83
10	1.3376	1.0420	6 7/8	9 3/4	29070	131.09	29100	182.35

TAPER PIPE REAMERS High Speed Steel



Nom. Size	Small End	Large End	Flute Length	OAL	STRAIGHT FLUTE		SPIRAL FLUTE	
					Catalog EDI-#	List Price	Catalog EDI-#	List Price
1/8	0.316	0.362	3/4	2 1/8	28800	\$42.59	28810	\$46.92
1/4	0.406	0.472	1 1/16	2 7/16	28801	49.09	28811	53.57
3/8	0.540	0.606	1 1/16	2 9/16	28802	55.73	28812	60.91
1/2	0.665	0.751	1 3/8	3 1/8	28803	69.04	28813	74.90
3/4	0.876	0.962	1 3/8	3 1/4	28804	96.31	28814	100.94
1	1.103	1.212	1 3/4	3 3/4	28805	136.82	28815	149.72
1 1/4	1.444	1.553	1 3/4	4	28806	229.34	28816	256.18
1 1/2	1.684	1.793	1 3/4	4 1/4	28807	283.52	28817	308.74
2	2.159	2.268	1 3/4	4 1/2	28808	374.58	28818	413.32
2 1/2	2.561	2.717	2 9/16	5 1/2	28809	565.68	28819	628.68

CONSTRUCTION TAPER REAMERS High Speed Steel

RH Cut, LH Spiral, High Helix
Manufactured with safety stop



CAR REAMERS

High Speed Steel - Morse Taper Shank
Helical Flutes



Catalog EDI-#	Dia.	Morse Taper	Decimal Equiv.	Flute Length	Approx. OAL	Point Dia.	List Price
29040	5/16	1	.3125	2 3/4	5 11/16	11/64	\$55.58
29041	3/8	1	.3750	2 3/4	5 11/16	15/64	91.68
29042	7/16	2	.4375	3 1/2	6 15/16	1/4	110.63
29043	1/2	2	.5000	4	7 9/16	19/64	113.86
29044	9/16	2	.5625	4	7 9/16	9/32	120.35
29045	5/8	2	.6250	4 1/2	8 1/16	5/16	125.54
29046	11/16	3	.6875	4 1/2	8 13/16	3/8	140.06
29047	3/4	3	.7500	5	9 1/2	13/32	153.59
29048	13/16	3	.8125	5	9 1/2	15/32	166.58

Catalog EDI-#	Size	OAL	Flute Length	Point Dia.	Shank Dia.	List Price
29049	3/8	5 1/4	3 5/8	.1645	3/8	\$58.58
29050	7/16	5 1/4	3 5/8	.1645	7/16	77.22
29051	1/2	6	4 3/8	.2340	1/2	89.05
29052	9/16	6 5/8	5	.2920	1/2	112.01
29053	5/8	6 5/8	5	.3520	1/2	129.54
29054	11/16	7	5 3/8	.4140	1/2	153.59
29055	3/4	7	5 3/8	.4770	1/2	178.25
29056	13/16	7 1/4	5 5/8	.5400	1/2	186.53
29057	7/8	7 1/4	5 5/8	.6020	1/2	226.03
29058	15/16	7 1/4	5 5/8	.6450	1/2	236.46
29059	1	7 1/4	5 5/8	.7270	1/2	246.43



MORSE TAPER REAMERS

HAND ROUGHING REAMERS



					Number 800 Carbon Steel		Number 900 High Speed Steel	
# of Taper	Large End	Small End	Flute Length	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price
0	.367	.250	2 1/4	3 3/4	28881	\$27.06	28911	\$45.16
1	.517	.367	3	5	28882	35.81	28912	57.98
2	.745	.569	3 1/2	6	28883	50.89	28913	76.46
3	.988	.775	4 1/4	7 1/4	28884	63.13	28914	100.56
4	1.289	1.017	5 1/4	8 1/2	28885	78.01	28915	147.52
5	1.799	1.471	6 1/4	9 3/4	28886	122.26	28916	282.53
6	2.555	2.112	8 1/2	12 1/4	28887	222.88	28917	683.97

HAND FINISHING REAMERS



					Number 802 Carbon Steel		Number 902 High Speed Steel	
# of Taper	Large End	Small End	Flute Length	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price
0	.367	.250	2 1/4	3 3/4	28821	\$25.12	28851	\$37.55
1	.517	.367	3	5	28822	31.25	28852	48.51
2	.745	.569	3 1/2	6	28823	34.78	28853	57.27
3	.988	.775	4 1/4	7 1/4	28824	52.05	28854	84.12
4	1.289	1.017	5 1/4	8 1/2	28825	62.42	28855	124.13
5	1.799	1.471	6 1/4	9 3/4	28826	102.49	28856	236.27
6	2.555	2.112	8 1/2	12 1/4	28827	186.43	28857	576.33

MACHINE ROUGHING REAMERS



					Number 804 Carbon Steel		Number 904 High Speed Steel	
# of Taper	Large End	Small End	Flute Length	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price
0	.367	.250	2 1/4	5 11/32	29001	\$47.09	29031	\$54.89
1	.517	.367	3	6 5/16	29002	54.95	29032	68.41
2	.745	.569	3 1/2	7 3/8	29003	60.29	29033	79.30
3	.988	.775	4 1/4	8 7/8	29004	82.97	29034	110.42
4	1.289	1.017	5 1/4	10 7/8	29005	111.18	29035	176.88
5	1.799	1.471	6 1/4	13 1/8	29006	187.52	29036	362.41
6	2.555	2.112	8 1/2	17 13/16	29007	380.38	29037	846.43

MACHINE FINISHING REAMERS



					Number 806 Carbon Steel		Number 906 High Speed Steel	
# of Taper	Large End	Small End	Flute Length	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price
0	.367	.250	2 1/4	5 11/32	28941	\$40.78	28971	\$51.21
1	.517	.367	3	6 5/16	28942	46.00	28972	63.84
2	.745	.569	3 1/2	7 3/8	28943	50.38	28973	77.17
3	.988	.775	4 1/4	8 7/8	28944	69.57	28974	106.15
4	1.289	1.017	5 1/4	10 7/8	28945	97.91	28975	167.81
5	1.799	1.471	6 1/4	13 1/8	28946	156.33	28976	331.42
6	2.555	2.112	8 1/2	17 13/16	28947	331.42	28977	782.14

BRIDGE REAMERS HIGH SPEED STEEL

Used to align bolt or rivet holes in bridge or structural iron work and boiler plates.

*Prices upon application

Catalog EDI-Number	Nominal Dia.	Point Dia.	Flute Length	Morse Taper Shank	OAL	List Price
28731	7/16	1/4	4 3/8	2	8 1/4	\$49.02
*	1/2	9/32	5 1/8	2	9	*
28732	9/16	11/32	5 1/8	2	9	49.02
*	5/8	3/8	6 1/8	2	10	*
28733	11/16	25/64	7 1/8	3	11 3/4	66.80
*	3/4	7/16	7 3/8	3	12	*
28734	13/16	1/2	7 3/8	3	12	76.65
*	7/8	9/16	7 3/8	3	12	*
28735	15/16	5/8	7 3/8	3	12	86.96
*	1	11/16	7 3/8	3	12	*
28736	1 1/16	3/4	7 3/8	3	12	101.85
*	1 1/8	13/16	7 3/8	3	12	*
28737	1 3/16	7/8	7 3/8	3	12	127.09
*	1 1/4	15/16	7 3/8	4	13	*
28738	1 5/16	1	7 3/8	4	13	160.91

STRAIGHT FLUTE No. 980



Catalog EDI-Number	Nominal Dia.	Point Dia.	Flute Length	Morse Taper Shank	OAL	List Price
28761	7/16	1/4	4 3/8	2	8 1/4	\$41.10
28762	1/2	9/32	5 1/8	2	9	43.54
28763	9/16	11/32	5 1/8	2	9	45.61
28764	5/8	3/8	6 1/8	2	10	51.60
28765	11/16	25/64	7 1/8	3	11 3/4	61.77
28766	3/4	7/16	7 3/8	3	12	67.57
28767	13/16	1/2	7 3/8	3	12	69.83
28768	7/8	9/16	7 3/8	3	12	80.78
28769	15/16	5/8	7 3/8	3	12	83.87
28770	1	11/16	7 3/8	3	12	92.63
28771	1 1/16	3/4	7 3/8	3	12	101.85
28772	1 1/8	13/16	7 3/8	3	12	114.46
28773	1 3/16	7/8	7 3/8	3	12	127.09
28774	1 1/4	15/16	7 3/8	4	13	140.30
28775	1 5/16	1	7 3/8	4	13	160.91

LEFT HAND HELICAL FLUTE No. 982



Catalog EDI-Number	Nominal Dia.	Point Dia.	Flute Length	Morse Taper Shank	OAL	List Price
*	7/16	1/4	4 3/8	2	8 1/4	*
*	1/2	9/32	5 1/8	2	9	*
*	9/16	11/32	5 1/8	2	9	*
*	5/8	3/8	6 1/8	2	10	*
28796	11/16	25/64	7 1/8	3	11 3/4	\$111.18
*	3/4	7/16	7 3/8	3	12	*
28797	13/16	1/2	7 3/8	3	12	131.54
*	7/8	9/16	7 3/8	3	12	*
28798	15/16	5/8	7 3/8	3	12	150.42
*	1	11/16	7 3/8	3	12	*
28799	1 1/16	3/4	7 3/8	3	12	171.28
*	1 1/8	13/16	7 3/8	3	12	*
*	1 3/16	7/8	7 3/8	3	12	*
*	1 1/4	15/16	7 3/8	4	13	*
*	1 5/16	1	7 3/8	4	13	*

RIGHT HAND HELICAL FLUTE No. 984



F&D BRIDGE REAMERS

ALIGNING REAMERS

HIGH SPEED STEEL
Short Straight Shank,
LH Spiral - RH Cut



Catalog EDI-#	Cut Dia.	Point Dia.	Flute Length	Shank Dia.	# of Teeth	OAL	List Price
29160	1/4	5/32	2 1/2	5/16	4	4 3/8	\$47.41
29161	5/16	3/16	2 3/4	3/8	4	4 5/8	48.00
29162	3/8	1/4	2 3/4	13/32	4	4 5/8	48.44
29163	7/16	1/4	3 1/2	1/2	5	5 3/8	53.09
29164	1/2	9/32	4	1/2	5	5 7/8	57.13
29165	9/16	11/32	4	1/2	5	5 7/8	60.81
29166	5/8	11/32	4 1/2	1/2	5	6 3/8	67.19
29167	21/32	3/8	4 1/2	1/2	5	6 3/8	74.92
29168	11/16	3/8	4 1/2	1/2	5	6 3/8	83.36
29169	3/4	13/32	5	1/2	5	6 7/8	89.28
29170	25/32	13/32	5	1/2	5	6 7/8	89.92
29171	13/16	7/16	5	1/2	5	6 7/8	92.05
29172	7/8	15/32	5	1/2	5	6 7/8	100.56
29173	15/16	9/16	5	1/2	5	6 7/8	116.72
29174	1	19/32	5	1/2	5	6 7/8	119.43
29175	1 1/16	5/8	5	1/2	5	6 7/8	136.05

TAPER PIN REAMERS

STRAIGHT FLUTES
High Speed Steel
No. 776



SPIRAL FLUTES
High Speed Steel
No. 777



HELICAL FLUTES
High Speed Steel
No. 778



						Straight Flute Number 776		Spiral Flute Number 777		Helical Flute Number 778	
Size No.	Dia. of Shank	Dia. Small End	Dia. Large End	Flute Length	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
7/0	5/64	.0497	.0666	13/16	1 13/16	27896	\$33.55	27931	\$35.10	27971	\$31.54
6/0	3/32	.0611	.0806	15/16	1 15/16	27897	33.55	27932	35.10	27972	29.38
5/0	7/64	.0719	.0966	1 3/16	2 3/16	27898	30.60	27933	33.55	27973	30.47
4/0	1/8	.0869	.1142	1 5/16	2 5/16	27899	30.60	27934	32.78	27974	30.47
3/0	9/64	.1029	.1302	1 5/16	2 5/16	27900	30.60	27935	33.55	27975	27.52
2/0	5/32	.1137	.1462	1 9/16	2 9/16	27901	27.52	27936	29.38	27976	26.36
0	11/64	.1287	.1638	1 11/16	2 15/16	27902	25.74	27937	27.52	27977	27.52
1	3/16	.1447	.1798	1 11/16	2 15/16	27903	25.74	27938	28.60	27978	28.99
2	13/64	.1605	.2008	1 15/16	3 3/16	27904	25.74	27939	28.99	27979	32.78
3	15/64	.1813	.2294	2 5/16	3 11/16	27905	25.74	27940	28.99	27980	34.16
4	17/64	.2071	.2604	2 9/16	4 1/16	27906	28.60	27941	31.24	27981	41.35
5	5/16	.2409	.2994	2 13/16	4 5/16	27907	30.60	27942	33.40	27982	44.30
6	23/64	.2773	.3540	3 11/16	5 7/16	27908	37.03	27943	41.12	27983	51.95
7	13/32	.3297	.4220	4 7/16	6 5/16	27909	47.62	27944	51.62	27984	62.69
8	7/16	.3971	.5050	5 3/16	7 3/16	27910	60.74	27945	66.56	27985	72.05
9	9/16	.4805	.6066	6 1/16	8 5/16	27911	73.98	27946	80.56	27986	89.96
10	5/8	.5799	.7216	6 13/16	9 5/16	27912	81.17	27947	89.22	27987	103.27
11	3/4	.7060	.8780	8 1/4	11 1/4	27913	220.92	27948	235.08	27988	*
12	7/8	.8420	1.0500	10	13 5/8	27914	322.33	27949	368.64	27989	*
13	1 1/4	1.0090	1.2590	12	16	27915	489.77	27950	521.86	27990	*
14	1 1/2	1.2500	1.5420	14	18 1/4	27916	578.74	27951	587.63	27991	*

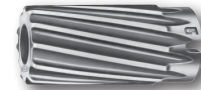
SHELL REAMERS HIGH SPEED STEEL

Fluted shell reamers are designed as a sizing or finishing reamer and are held on an arbor provided with driving lugs. Flutes are cleared to edge. The holes in these reamers are tapered, 1/8 inch per foot.

Dia.	No. 910 Catalog EDI-No.	Straight Flute	No. 911 Catalog EDI-No.	Spiral Flute	Hole Dia LG End	Fitting Arbor No.	OAL
3/4	28011	\$88.66	28091	\$106.06	3/8	4	2 1/4
13/16	28012	81.87	28092	95.91	1/2	5	2 1/2
7/8	28013	87.60	28093	95.91	1/2	5	2 1/2
15/16	28014	92.05	28094	100.75	1/2	5	2 1/2
1	28015	97.53	28095	108.09	1/2	5	2 1/2
1 1/16	28016	105.71	28096	115.95	5/8	6	2 3/4
1 1/8	28017	107.77	28097	121.04	5/8	6	2 3/4
1 3/16	28018	115.95	28098	125.23	5/8	6	2 3/4
1 1/4	28019	117.62	28099	130.63	5/8	6	2 3/4
1 5/16	28020	124.90	28100	136.11	3/4	7	3
1 3/8	28021	132.96	28101	144.29	3/4	7	3
1 7/16	28022	146.16	28102	158.01	3/4	7	3
1 1/2	28023	154.86	28103	166.78	3/4	7	3
1 9/16	28024	174.26	28104	187.01	3/4	7	3
1 5/8	28025	185.52	28105	203.94	3/4	7	3
1 11/16	28026	203.94	28106	223.26	1	8	3 1/2
1 3/4	28027	215.86	28107	236.98	1	8	3 1/2
1 13/16	28028	230.48	28108	253.80	1	8	3 1/2
1 7/8	28029	245.69	28109	269.19	1	8	3 1/2
1 15/16	28030	260.95	28110	286.92	1	8	3 1/2
2	28031	270.61	28111	294.96	1	8	3 1/2
2 1/16	28032	292.64	28112	322.28	1 1/4	9	3 3/4
2 1/8	28033	307.14	28113	337.74	1 1/4	9	3 3/4
2 3/16	28034	326.32	28114	359.63	1 1/4	9	3 3/4
2 1/4	28035	337.74	28115	370.78	1 1/4	9	3 3/4
2 5/16	28036	356.73	28116	392.63	1 1/4	9	3 3/4
2 3/8	28037	371.61	28117	408.72	1 1/4	9	3 3/4



STRAIGHT FLUTE
No. 910



SPIRAL FLUTE
No. 911

Dia.	No. 910 Catalog EDI-No.	Straight Flute	No. 911 Catalog EDI-No.	Spiral Flute	Hole Dia LG End	Fitting Arbor No.	OAL
2 7/16	28038	\$383.47	28118	\$425.02	1 1/4	9	3 3/4
2 1/2	28039	397.19	28119	436.68	1 1/4	9	3 3/4
2 9/16	28040	416.46	28120	459.29	1 1/2	10	4
2 5/8	28041	442.48	28121	487.18	1 1/2	10	4
2 11/16	28042	468.24	28122	514.68	1 1/2	10	4
2 3/4	28043	492.98	28123	543.03	1 1/2	10	4
2 13/16	28044	518.55	28124	570.28	1 1/2	10	4
2 7/8	28045	549.79	28125	604.29	1 1/2	10	4
2 15/16	28046	580.65	28126	637.46	1 1/2	10	4
3	28047	610.60	28127	671.74	1 1/2	10	4
3 1/16	28048	*	28128	*	1 3/4	11	4 1/2
3 1/8	28049	*	28129	*	1 3/4	11	4 1/2
3 3/16	28050	*	28130	*	1 3/4	11	4 1/2
3 1/4	28051	*	28131	*	1 3/4	11	4 1/2
3 5/16	28052	*	28132	*	1 3/4	11	4 1/2
3 3/8	28053	*	28133	*	1 3/4	11	4 1/2
3 7/16	28054	*	28134	*	1 3/4	11	4 1/2
3 1/2	28055	*	28135	*	1 3/4	11	4 1/2
3 9/16	28056	*	28136	*	2	12	5
3 5/8	28057	*	28137	*	2	12	5
3 11/16	28058	*	28138	*	2	12	5
3 3/4	28059	*	28139	*	2	12	5
3 13/16	28060	*	28140	*	2	12	5
3 7/8	28061	*	28141	*	2	12	5
3 15/16	28062	*	28142	*	2	12	5
4	28063	*	28143	*	2	12	5

* Call for Pricing

SHELL REAMERS CARBIDE TIPPED



Dia.	Straight Flute EDI-#	List Price	Spiral Flute EDI-#	List Price	Hole Dia LG End	Fits Arbor #	# Of Flts	Length		
								Flt	Carb	OAL
3/4	29200	\$206.84	29300	267.09	3/8	4	6	1 3/4	1	2 1/4
25/32	29202	209.68	29301	272.23	3/8	4	6	1 3/4	1	2 1/4
13/16	29204	209.68	29302	272.23	1/2	5	6	1 15/16	1	2 1/2
7/8	29206	221.14	29303	304.42	1/2	5	6	1 15/16	1	2 1/2
15/16	29208	221.14	29304	304.42	1/2	5	8	1 15/16	1	2 1/2
1	29210	224.04	29305	309.84	1/2	5	8	1 15/16	1	2 1/2
1 1/16	29212	229.77	29306	319.49	5/8	6	8	2 1/8	1	2 3/4
1 1/8	29214	232.60	29307	326.12	5/8	6	8	2 1/8	1	2 3/4
1 3/16	29216	235.50	29308	331.55	5/8	6	8	2 1/8	1 1/8	2 3/4
1 1/4	29218	246.97	29309	353.24	5/8	6	8	2 1/8	1 1/8	2 3/4
1 5/16	29220	249.81	29310	358.73	3/4	7	8	2 1/4	1 1/8	3
1 3/8	29222	255.53	29311	369.58	3/4	7	8	2 1/4	1 1/8	3
1 7/16	29224	261.27	29312	380.44	3/4	7	8	2 1/4	1 1/8	3
1 1/2	29226	269.90	29313	396.70	3/4	7	8	2 1/4	1 1/8	3
1 9/16	29228	292.83	29314	459.38	3/4	7	10	2 1/4	1 1/8	3
1 5/8	29230	304.30	29315	482.01	3/4	7	10	2 1/4	1 1/8	3
1 11/16	29232	324.40	29316	521.62	1	8	10	2 3/4	1 1/8	3 1/2
1 3/4	29234	324.40	29317	521.62	1	8	10	2 3/4	1 1/8	3 1/2

Dia.	Straight Flute EDI-#	List Price	Spiral Flute EDI-#	List Price	Hole Dia LG End	Fits Arbor #	# Of Flts	Length		
								Flt	Carb	OAL
1 13/16	29236	\$344.43	29318	\$561.02	1	8	10	2 3/4	1 1/8	3 1/2
1 7/8	29238	344.43	29319	561.02	1	8	10	2 3/4	1 1/8	3 1/2
1 15/16	29240	364.53	29320	601.14	1	8	10	2 3/4	1 1/8	3 1/2
2	29242	364.53	29321	601.14	1	8	10	2 3/4	1 1/8	3 1/2
2 1/16	29244	387.47	29322	646.39	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 1/8	29246	387.47	29323	646.39	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 3/16	29248	416.13	29324	703.19	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 1/4	29250	416.13	29325	703.19	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 5/16	29252	436.23	29326	742.89	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 3/8	29254	436.23	29327	742.89	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 7/16	29256	456.33	29328	782.57	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 1/2	29258	456.33	29329	782.57	1 1/4	9	12	2 7/8	1 1/8	3 3/4
2 9/16	29260	494.98	29330	859.08	1 1/2	10	14	3 1/8	1 1/8	4
2 5/8	29262	511.09	29331	890.99	1 1/2	10	14	3 1/8	1 1/8	4
2 11/16	29264	528.60	-	-	1 1/2	10	14	3 1/8	1 1/8	4
2 3/4	29266	544.83	-	-	1 1/2	10	14	3 1/8	1 1/8	4
2 13/16	29268	561.91	-	-	1 1/2	10	14	3 1/8	1 1/8	4
2 7/8	29270	581.94	-	-	1 1/2	10	14	3 1/8	1 1/8	4
2 15/16	29272	602.10	-	-	1 1/2	10	14	3 1/8	1 1/8	4
3	29274	622.19	-	-	1 1/2	10	14	3 1/8	1 1/8	4



JOBBER AND JIG BORE REAMERS

SHELL REAMER ARBORS

These arbors are designed to fit Shell Reamers and Shell Mills having taper holes 1/8 inch per foot

Catalog EDI-# 504	List Price	Catalog EDI-# 505	List Price	No.	Fitting Sizes	Morse Taper	Dia. Shank	OAL
30531	\$79.17	30561	\$89.81	4	21/32-25/32	2	1/2	9
30532	87.74	30562	105.84	5	13/16-1 1/32	2	5/8	9 1/2
30533	96.88	30563	115.04	6	1 1/16-1 9/32	3	3/4	10
30534	105.77	30564	125.41	7	1 5/16-1 21/32	3	7/8	11
30535	117.62	30565	140.55	8	1 11/16-2	4	1 1/8	12
30536	132.44	30566	157.75	9	2 1/16-2 1/2	4	1 3/8	13
30537	154.80	30567	185.13	10	2 9/16-3	5	1 5/8	14
30538	220.82	30568	348.43	11	3 1/16-3 1/2	5	2	15
30539	306.82	30569	428.05	12	3 9/16-4	5	2 1/8	16



NO. 504 STRAIGHT SHANK



NO. 505 MORSE TAPER SHANK

JOBBER REAMERS

TAPER SHANK - STRAIGHT FLUTE

These reamers have the same design as Hand Reamers but with a tapered shank.

Catalog EDI-Number	Dia.	Flute Length	Morse Taper	Overall Length	List Price
52001	1/4	2	1	5 3/16	\$61.52
52002	9/32	2	1	5 3/16	61.52
52003	5/16	2 1/4	1	5 1/2	61.52
52004	11/32	2 1/4	1	5 1/2	63.47
52005	3/8	2 1/2	1	5 13/16	63.47
52006	13/32	2 1/2	1	5 13/16	63.47
52007	7/16	2 3/4	1	6 1/8	63.47
52008	15/32	2 3/4	1	6 1/8	67.42
52009	1/2	3	1	6 7/16	67.42
52010	17/32	3	1	6 7/16	67.42
52011	9/16	3 1/4	1	6 3/4	69.25
52012	19/32	3 1/4	1	6 3/4	69.25
52013	5/8	3 1/2	2	7 9/16	71.27
52014	21/32	3 1/2	2	7 9/16	71.27
52015	11/16	3 7/8	2	8	84.88



Catalog EDI-Number	Dia.	Flute Length	Morse Taper	Overall Length	List Price
52016	23/32	3 7/8	2	8	\$96.31
52017	3/4	4 3/16	2	8 3/8	100.88
52018	25/32	4 3/16	2	8 3/8	110.99
52019	13/16	4 9/16	2	8 3/8	110.99
52020	27/32	4 7/8	2	9 3/16	131.03
52021	7/8	4 7/8	2	9 3/16	131.03
52022	15/16	5 1/8	3	10	143.46
52023	1	5 7/16	3	10 3/8	150.82
52024	1 1/16	5 5/8	3	10 5/8	170.46
52025	1 1/8	5 13/16	3	10 7/8	183.36
52026	1 3/16	6	3	11 1/8	200.28
52027	1 1/4	6 1/8	4	12 9/16	212.72
52028	1 5/16	6 1/4	4	12 11/16	255.71
52029	1 3/8	6 5/16	4	12 13/16	262.50
52030	1 7/16	6 7/16	4	13	283.07
52031	1 1/2	6 1/2	4	13 1/8	293.04

JIG BORER REAMERS

STRAIGHT SHANK

RH Spiral - RH Cut

Catalog EDI-Number	Sizes	Dec. Equiv.	Shank Dia.	No. of Flutes	Overall Length	List Price
52101	1/8	.1250	3/8	4	2 9/16	\$110.00
52102	5/32	.1562	3/8	4	2 9/16	110.00
52103	3/16	.1875	3/8	4	2 13/16	110.00
52104	7/32	.2188	3/8	4	2 13/16	110.00
52105	1/4	.2500	3/8	4	3 5/16	110.00
52106	9/32	.2812	3/8	4	3 5/16	110.00
52107	5/16	.3125	3/8	6	3 9/16	122.00
52108	11/32	.3438	3/8	6	3 9/16	122.00
52109	3/8	.3750	3/8	6	3 9/16	122.00
52110	13/32	.4062	1/2	6	4 5/16	135.00



Catalog EDI-Number	Sizes	Dec. Equiv.	Shank Dia.	No. of Flutes	Overall Length	List Price
52111	7/16	.4375	1/2	6	4 5/16	\$135.00
52112	15/32	.4688	1/2	6	4 5/16	135.00
52113	1/2	.5000	1/2	6	4 5/16	135.00
52114	9/16	.5625	1/2	6	4 5/16	156.00
52115	5/8	.6250	1/2	6	4 5/16	168.00
52116	11/16	.6875	1/2	6	4 5/16	177.00
52117	3/4	.7500	1/2	8	4 5/16	198.00
52118	13/16	.8125	1/2	8	4 5/16	235.00
52119	7/8	.8750	1/2	8	4 5/16	249.00
52120	15/16	.9375	1/2	8	4 5/16	258.00
52121	1	1.0000	1/2	8	4 5/16	269.00



STRAIGHT FLUTE Number 820 & 920

SPIRAL FLUTES Number 821 & 921

Dia.	Flute Length	OAL	Number 820 Carbon Steel		Number 920 High Speed Steel		Number 821 Carbon Steel		Number 921 High Speed Steel	
			Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
1/8	1 1/2	3	28161	\$29.45	28231	\$37.97	28291	\$33.37	*	*
9/64	1 5/8	3 1/4	28162	32.42	*	*	*	*	*	*
5/32	1 5/8	3 1/4	28163	32.42	28232	44.19	28292	35.83	*	*
11/64	1 3/4	3 1/2	28164	32.42	*	*	*	*	*	*
3/16	1 3/4	3 1/2	28165	32.42	28233	40.35	28293	35.83	*	*
13/64	1 7/8	3 3/4	28166	34.65	*	*	*	*	*	*
7/32	1 7/8	3 3/4	28167	34.65	28234	44.46	28294	46.93	*	*
15/64	2	4	28168	34.65	*	*	*	*	*	*
1/4	2	4	28169	34.65	28235	42.67	28295	46.93	28331	47.87
17/64	2 1/8	4 1/4	28170	36.95	*	*	*	*	*	*
9/32	2 1/8	4 1/4	28171	36.95	28236	47.87	28296	40.87	28332	52.56
19/64	2 1/4	4 1/2	28172	36.95	*	*	*	*	*	*
5/16	2 1/4	4 1/2	28173	36.95	28237	46.76	28297	40.87	28333	36.52
21/64	2 3/8	4 3/4	28174	45.05	*	*	*	*	*	*
11/32	2 3/8	4 3/4	28175	45.05	28238	53.33	28298	45.66	28334	59.05
23/64	2 1/2	5	28176	45.05	*	*	*	*	*	*
3/8	2 1/2	5	28177	45.05	28239	52.22	28299	45.66	28335	59.05
25/64	2 5/8	5 1/4	28178	51.29	*	*	*	*	*	*
13/32	2 5/8	5 1/4	28179	51.29	28240	60.40	28300	52.56	28336	65.52
27/64	2 3/4	5 1/2	28180	51.29	*	*	*	*	*	*
7/16	2 3/4	5 1/2	28181	51.29	28241	59.05	28301	52.56	28337	65.52
29/64	2 7/8	5 3/4	28182	56.15	*	*	*	*	*	*
15/32	2 7/8	5 3/4	28183	56.15	28242	65.52	28302	57.33	28338	72.44
31/64	3	6	28184	56.15	*	*	*	*	*	*
1/2	3	6	28185	56.15	28243	62.96	28303	57.33	28339	70.32
17/32	3 1/8	6 1/4	28186	59.98	28244	73.89	*	*	28340	82.08
9/16	3 1/4	6 1/2	28187	59.98	28245	72.44	28304	62.88	28341	82.42
19/32	3 3/8	6 3/4	28188	64.58	28246	80.38	*	*	28342	89.60
5/8	3 1/2	7	28189	64.58	28247	78.08	28305	62.88	28343	88.14
21/32	3 11/16	7 3/8	28190	70.32	28248	87.30	*	*	28344	96.85
11/16	3 7/8	7 3/4	28191	70.32	28249	85.67	28306	67.99	28345	95.99
23/32	4 1/16	8 1/8	28192	75.17	28250	93.68	*	*	28346	103.74
3/4	4 3/16	8 3/8	28193	75.17	28251	91.30	28307	74.14	28347	101.79
25/32	4 3/8	8 3/4	28194	80.21	28252	99.65	*	*	28348	110.66
13/16	4 9/16	9 1/8	28195	80.21	28253	99.41	28308	79.00	28349	110.66
27/32	4 11/16	9 3/8	28196	87.53	28254	104.60	*	*	28350	121.25
7/8	4 7/8	9 3/4	28197	87.53	28255	110.66	28309	84.21	28351	120.32
29/32	5	10	28198	105.63	28256	116.73	*	*	28352	134.81
15/16	5 1/8	10 1/4	28199	105.63	28257	123.36	28310	83.02	28353	134.81
31/32	5 5/16	10 5/8	28200	116.21	28258	128.49	*	*	28354	148.63
1	5 7/16	10 7/8	28201	116.21	28259	133.95	28311	103.74	28355	149.66
1 1/16	5 5/8	11 1/4	28202	118.86	28260	165.96	*	*	28356	164.93
1 1/8	5 13/16	11 5/8	28203	129.69	28261	194.62	*	*	28357	181.82
1 3/16	6	12	28204	144.03	28262	203.92	*	*	28358	203.92
1 1/4	6 1/8	12 1/4	28205	158.95	28263	204.43	*	*	28359	221.48
1 5/16	6 1/4	12 1/2	28206	171.15	28264	241.37	*	*	28360	245.54
1 3/8	6 5/16	12 5/8	28207	187.29	28265	241.63	*	*	28361	264.15
1 7/16	6 7/16	12 7/8	28208	203.33	28266	284.88	*	*	28362	290.00
1 1/2	6 1/2	13	28209	236.68	28267	285.14	*	*	28363	312.78

* Prices upon application

***ARBORS, BROACHES,
AND MISC.***





SQUARE TOOL BITS

Red Nose (Cobalt) - A superior quality Full Ground Tool Bit that performs exceptionally well on forgings, castings and any cuts of heavy nature or where high heat is a factor.

Blue Tip (HSS) - A fine general purpose Ground Tool Bit that shows exceptional results on mild steel, alloys and tool steels. This tool bit makes an incomparable finishing tool.

Red Nose (Cobalt)		Blue Tip (HSS)		T-15		Inches Square	Length Overall
Catalog EDI-Number	List Price	Catalog EDI-Number	List Price	Catalog EDI-Number	List Price		
30261-X608	\$8.54	30281-X608	\$6.23	30311-X608	\$14.64	1/8	2 1/2
30262-X610	6.52	30282-X610	5.33	30312-X610	15.93	3/16	2 1/2
30263-X612	6.79	30283-X612	5.78	30313-X612	19.23	1/4	2 1/2
30264-X614	8.54	30284-X614	6.23	30314-X614	24.79	5/16	2 1/2
30265-X616	11.29	30285-X616	8.40	30315-X616	26.86	3/8	3
30266-X618	15.76	30286-X618	11.46	30316-X618	31.99	7/16	3 1/2
30267-X620	22.57	30287-X620	16.61	30317-X620	43.69	1/2	4
30273-X621	34.06	30293-X621	24.08	30323-X621	70.45	1/2	6
30268-X622	35.16	30288-X622	24.56	30318-X622	72.19	5/8	4 1/2
30269-X624	56.22	30289-X624	38.53	30319-X624	105.71	3/4	5
30270-X626	89.24	30290-X626	61.82	30320-X626	183.23	7/8	6
30271-X628	132.85	30291-X628	88.10	30321-X628	258.80	1	7
30272-X629	233.78	30292-X629	179.87	30322-X629	422.37	1 1/4	7



RECTANGULAR TOOL BITS

Red Nose (Cobalt)		Blue Tip (HSS)		Width	Height	Length Overall
Catalog EDI-Number	List Price	Catalog EDI-Number	List Price			
30341-RX30	\$21.18	30391-RX30	\$14.60	1/8	5/8	5
30342-RX32	31.50	30392-RX32	13.84	1/8	3/4	6
30343-RX34	37.10	30393-RX34	25.72	1/8	7/8	6
30344-RX36	44.99	30394-RX36	30.77	1/8	1	6 1/2
30345-RX62	37.71	30395-RX62	25.96	3/16	3/4	6
30346-RX64	43.88	30396-RX64	29.64	3/16	7/8	6
30347-RX66	52.61	30397-RX66	36.26	3/16	1	6 1/2
30348-RX110	10.16	30398-RX110	8.13	1/4	3/8	3
30349-RX112	14.13	30399-RX112	11.21	1/4	1/2	4
30350-RX114	22.38	30400-RX114	16.85	1/4	3/4	5
30351-RX116	34.31	30401-RX116	25.72	1/4	1	6
30352-RX120	14.13	30402-RX120	11.21	5/16	7/16	3 1/2
30353-RX124	22.38	30403-RX124	16.54	5/16	5/8	4
30354-RX130	19.31	30404-RX130	14.29	3/8	1/2	4
30355-RX132	28.29	30405-RX132	20.47	3/8	1/2	6
30356-RX134	23.54	30406-RX134	17.45	3/8	5/8	4 1/2

Red Nose (Cobalt)		Blue Tip (HSS)		Width	Height	Length Overall
Catalog EDI-Number	List Price	Catalog EDI-Number	List Price			
30357-RX136	\$31.77	30407-RX136	\$25.19	3/8	5/8	6
30358-RX138	24.65	30408-RX138	19.33	3/8	3/4	4
30359-RX140	36.77	30409-RX140	28.65	3/8	3/4	6
30360-RX142	44.12	30410-RX142	33.46	3/8	1	6
30361-RX160	28.55	30411-RX160	21.59	1/2	5/8	4 1/2
30362-RX162	27.45	30412-RX162	20.47	1/2	3/4	4
30363-RX164	41.59	30413-RX164	31.36	1/2	3/4	6
30364-RX166	82.33	30414-RX166	53.47	1/2	1	8
30365-RX180	46.50	30415-RX180	31.90	5/8	3/4	5
30366-RX182	63.87	30416-RX182	44.53	5/8	7/8	6
30367-RX184	113.94	30417-RX184	85.51	5/8	1 1/4	6
30368-RX206	86.40	30418-RX206	58.73	3/4	1	6
30369-RX212	133.08	30419-RX212	99.94	3/4	1 1/4	7
30370-RX214	147.39	30420-RX214	110.93	3/4	1 1/2	7
30371-RX230	116.48	30421-RX230	86.18	7/8	1 1/8	7
30372-RX234	154.51	30422-RX234	115.97	7/8	1 1/4	7
30373-RX268	147.82	30423-RX268	106.94	1	1 1/4	6



LATHE MANDRELS / SCREW EXTRACTORS

LATHE MANDRELS



F&D Lathe Mandrels are precision made of tool steel hardened and accurately ground. Tapered .0005" to 1". Those from 3/16" to 1" are .0005" undersize at small end. Those from 1 1/16" to 3" are .001" undersize at small end.

SCREW EXTRACTOR

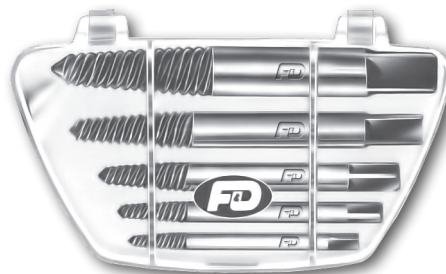


No. 1136

Screw Extractors will quickly remove broken screws, studs, pipe fittings, etc. without damaging the threads. To remove broken screws or studs, drill a hole in the broken end and start the extractor with a tap wrench, turning to the left.

Catalog EDI-#	Dia	OAL	List Price
30441-X810	3/16	3	\$31.18
30442-X812	1/4	3 3/4	32.09
30443-X814	5/16	4	32.88
30444-X816	3/8	4 1/4	34.52
30445-X818	7/16	4 1/2	35.58
30446-X820	1/2	5	40.17
30447-X822	9/16	5 1/4	41.55
30448-X824	5/8	5 1/2	41.55
30449-X826	11/16	5 3/4	48.50
30450-X828	3/4	6	48.50
30451-X830	13/16	6 1/4	54.48
30452-X832	7/8	6 1/2	54.48
30453-X834	15/16	6 3/4	63.73
30454-X836	1	7	63.73
30455-X838	1 1/16	7 1/4	75.54
30456-X840	1 1/8	7 1/2	75.54
30457-X842	1 3/16	7 3/4	89.98
30458-X844	1 1/4	8	89.98
30459-X846	1 5/16	8 1/4	106.46
30460-X848	1 3/8	8 1/2	106.46
30461-X850	1 7/16	8 3/4	124.84
30462-X852	1 1/2	9	124.84
30463-X854	1 9/16	9 1/4	141.38
30464-X856	1 5/8	9 1/2	142.88
30465-X858	1 11/16	9 3/4	161.13
30466-X860	1 3/4	10	161.13
30467-X862	1 13/16	10 1/4	177.73
30468-X864	1 7/8	10 1/2	177.73
30469-X866	1 15/16	10 3/4	201.22
30470-X868	2	11	201.22
30471-X870	2 1/8	11 1/2	239.49
30472-X872	2 1/4	12	261.35
30473-X874	2 3/8	12	285.63
30474-X876	2 1/2	12 1/2	310.24
30475-X878	2 5/8	12 1/2	347.12
30476-X880	2 3/4	13	381.66
30477-X882	2 7/8	13	416.10
30478-X884	3	13	454.37

Catalog EDI-#	No.	Dia. Small End	Dia. Large End	Length of Thread	OAL	Size Drill to Use	For Screw and Bolt Sizes	For Pipe Sizes	List Price
30501	1	1/16	1/8	1/2	2	5/64	3/16-1/4	-	\$2.79
30502	2	3/32	13/64	7/8	2 3/8	7/64	1/4-5/16	-	2.98
30503	3	1/8	1/4	1	2 11/16	5/32	5/16-7/16	-	3.65
30504	4	3/16	11/32	1 1/4	3	1/4	7/16-9/16	-	4.01
30505	5	1/4	7/16	1 1/2	3 3/8	17/64	9/16-3/4	1/8	4.74
30506	6	3/8	19/32	1 3/4	3 3/4	13/32	3/4-1	-	9.72
30507	7	1/2	25/32	2 1/4	4 1/8	17/32	1-1 3/8	-	16.95
30508	8	3/4	1 1/32	2 1/4	4 3/8	13/16	1 3/8-1 3/4	3/4	23.09
30509	9	1	1 9/32	2 1/4	4 5/8	1 1/6	1 3/4-2 1/8	1	39.98
30510	10	1 7/32	1 17/32	2 1/4	5	1 9/32	2 1/8-2 1/2	1 1/4	51.47
30511	11	1 15/32	1 27/32	2 1/2	5 5/8	1 17/32	2 1/2-3	1 1/2	72.07
30512	12	1 27/32	2 9/32	2 1/2	6 1/4	1 15/16	3-3 1/2	2	115.65



SCREW EXTRACTOR SET

No. 1136S

Catalog EDI-#	List Price
30520	Set of #1 - #5 \$17.26



MORSE TAPER

					Carbon Steel		HSS Tipped		Carbide Tipped	
Taper No.	Size Line	Small Dia.	Length Taper	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
0	.3561	.259	2	2 7/8	30001-X710	\$16.37	30161-X710	\$20.49	30209-X710	*
1	.475	.376	2 1/8	3 5/16	30002-X712	20.03	30162-X712	21.64	30210-X712	*
2	.700	.579	2 9/16	4 3/16	30003-X714	24.41	30163-X714	25.45	30211-X714	\$57.84
3	.938	.785	3 3/16	5 1/4	30004-X716	35.81	30164-X716	46.82	30212-X716	77.03
4	1.231	1.027	4 1/16	6 3/4	30005-X718	52.82	30165-X718	70.85	30213-X718	108.99
5	1.748	1.482	5 3/16	8 1/2	30006-X720	103.06	30166-X720	115.11	30214-X720	167.81
6	2.494	2.130	7 1/8	11 3/4	30007-X722	265.84	30167-X722	345.72	30215-X722	367.10

BROWN & SHARPE TAPER

					Carbon Steel		HSS Tipped		Carbide Tipped	
Taper No.	Size Line	Small Dia.	Length Taper	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
6	.599	15/32	2 3/8	3 5/8	30008-X730	\$24.86	30168-X730	\$29.50	30216-X730	\$45.42
7	.725	37/64	3	4 1/2	30009-X732	26.79	30169-X732	37.95	30217-X732	64.42
8	.898	45/64	3 9/16	5 9/16	30010-X734	41.74	30170-X734	65.77	30218-X734	95.47
9	1.067	7/8	4	6 1/4	30011-X736	52.24	30171-X736	74.02	30219-X736	106.42
10	1.289	1 1/64	5 11/16	7 1/2	30012-X738	69.26	30172-X738	95.53	30220-X738	133.02
11	1.531	1 7/32	6 3/4	9 5/8	30013-X740	93.28	30173-X740	131.21	30221-X740	199.38
12	1.797	1 15/32	7 1/8	10 3/8	30014-X742	233.57	30174-X742	273.19	30222-X742	310.29

JARNO TAPER

					Carbon Steel		HSS Tipped		Carbide Tipped	
Taper No.	Size Line	Small Dia.	Length Taper	OAL	Catalog EDI-#	List Price	Catalog EDI-#	List Price	Catalog EDI-#	List Price
6	.750	.600	3	4 1/2	30015-X750	\$30.79	30175-X750	\$46.32	30223-X750	82.07
7	.875	.700	3 1/2	5 1/4	30016-X752	42.96	30176-X752	65.19	30224-X752	115.95
8	1.000	.800	4	6 1/4	30017-X754	63.97	30177-X754	82.26	30225-X754	133.72
9	1.125	.900	4 1/2	6 3/4	30018-X756	73.88	30178-X756	101.77	30226-X756	151.11
10	1.250	1.000	5	7 1/2	30019-X758	86.83	30179-X758	119.50	30227-X758	167.87
11	1.375	1.100	5 1/2	8	30020-X760	99.14	30180-X760	129.16	30228-X760	190.41
12	1.500	1.200	6	8 7/8	30021-X762	114.34	30181-X762	153.00	30229-X762	194.67
13	1.625	1.300	6 1/2	9 7/8	30022-X764	164.00	30182-X764	181.39	30230-X764	239.31
14	1.750	1.400	7	10 3/4	30023-X766	202.78	30183-X766	237.12	30231-X766	335.87
15	1.875	1.500	7 1/2	11 1/4	30024-X768	221.21	30184-X768	264.81	30232-X768	354.09
16	2.000	1.600	8	12	30025-X770	*	30185-X770	283.30	30233-X770	442.28
17	2.125	1.700	8 1/2	12 3/4	30026-X772	*	30186-X772	307.53	30234-X772	*



ENDMILL ADAPTERS

With Morse Taper Shanks



Style A - With Tang



Style B - Threaded for draw bar

Style A Catalog EDI-#	Style B Catalog EDI-#	Morse Taper	Bore Dia.	List Price
30801-EH-200A	30802-EH-200B	2	3/16	\$103.65
30803-EH-201A	30804-EH-201B	2	3/8	92.19
30805-EH-202A	30806-EH-202B	2	1/2	92.19
30807-EH-210A	30808-EH-210B	3	3/16	108.67
30809-EH-211A	30810-EH-211B	3	3/8	95.85
30811-EH-212A	30812-EH-212B	3	1/2	92.19
30813-EH-213A	30814-EH-213B	3	5/8	98.82
30815-EH-214A	30816-EH-214B	3	3/4	108.67
30817-EH-220A	30818-EH-220B	4	3/8	106.29
30819-EH-221A	30820-EH-221B	4	1/2	106.29
30821-EH-222A	30822-EH-222B	4	5/8	106.29
30823-EH-223A	30824-EH-223B	4	3/4	106.29
30825-EH-224A	30826-EH-224B	4	7/8	109.89
30827-EH-225A	30828-EH-225B	4	1	114.79

Style A Catalog EDI-#	Style B Catalog EDI-#	Morse Taper	Bore Dia.	List Price
30829-EH-230A	30830-EH-230B	5	3/8	\$141.78
30831-EH-231A	30832-EH-231B	5	1/2	141.78
30833-EH-232A	30834-EH-232B	5	5/8	141.78
30835-EH-233A	30836-EH-233B	5	3/4	145.20
30837-EH-234A	30838-EH-234B	5	7/8	145.20
30839-EH-235A	30840-EH-235B	5	1	149.19
30841-EH-236A	30842-EH-236B	5	1 1/4	164.71
30843-EH-237A	-	5	1 1/2	221.33
-	30844-EH-237B	5	1 1/2	344.76
30845-EH-238A	-	5	2	283.17
-	30846-EH-238B	5	2	431.59
30847-EH-240A	30848-EH-240B	6	1 1/2	724.81
30849-EH-241A	-	6	2	531.17
30851-EH-250A	-	7	1 1/2	737.44
30853-EH-251A	-	7	2	826.14
30855-EH-252A	-	7	2 1/2	885.34

SHELL ENDMILL ARBORS

B & S Taper



Style A Catalog EDI #	Style B Catalog EDI #	Arbor Dia.	B&S Taper	To Fit Dia. Range of Shell Endmills	List Price
30621-SEH-102A	30622-SEH-102B	1/2	7	1 1/4 - 1 1/2	\$236.09
30623-SEH-104A	30624-SEH-104B	3/4	7	1 3/4 - 2	236.09
30625-SEH-106A	30626-SEH-106B	1	7	2 1/4 - 2 3/4	236.09
30627-SEH-112A	30628-SEH-112B	1/2	9	1 1/4 - 1 1/2	257.53
30629-SEH-114A	30630-SEH-114B	3/4	9	1 3/4 - 2	257.53
30631-SEH-116A	30632-SEH-116B	1	9	2 1/4 - 2 3/4	257.53
30633-SEH-117A	30634-SEH-117B	1 1/4	9	3 - 3 1/2	268.23
30635-SEH-118A	30636-SEH-118B	1 1/2	9	4-5	278.92
30637-SEH-119A	30638-SEH-119B	2	9	5 1/2 - 6	321.89
30639-SEH-122A	30640-SEH-122B	1/2	10	1 1/4 - 1 1/2	278.92
30641-SEH-124A	30642-SEH-124B	3/4	10	1 3/4 - 2	278.92
30643-SEH-126A	30644-SEH-126B	1	10	2 1/4 - 2 3/4	289.81
30645-SEH-127A	30646-SEH-127B	1 1/4	10	3 - 3 1/2	321.89
30647-SEH-128A	30648-SEH-128B	1 1/2	10	4-5	354.09
30649-SEH-129A	30650-SEH-129B	2	10	5 1/2 - 6	375.48
30651-SEH-132A	30652-SEH-132B	1/2	11	1 1/4 - 1 1/2	354.09
30653-SEH-134A	30654-SEH-134B	3/4	11	1 3/4 - 2	375.48
30655-SEH-136A	30656-SEH-136B	1	11	2 1/4 - 2 3/4	396.93
30657-SEH-137A	30658-SEH-137B	1 1/4	11	3 - 3 1/2	429.21
30659-SEH-138A	30660-SEH-138B	1 1/2	11	4-5	514.81
30661-SEH-139A	30662-SEH-139B	2	11	5 1/2 - 6	557.85

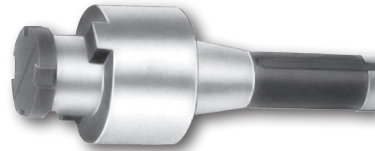
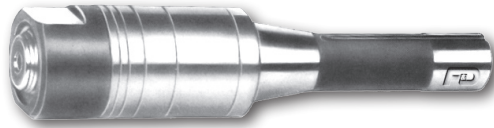
ENDMILL ADAPTERS

B & S Taper



Style A Catalog EDI #	Style B Catalog EDI #	B&S Taper	Bore Dia.	List Price
30731-EH-100A	30732-EH-100B	7	3/16	\$98.49
30733-EH-101A	30734-EH-101B	7	3/8	87.02
30735-EH-102A	30736-EH-102B	7	1/2	82.78
30737-EH-110A	30738-EH-110B	9	3/16	108.28
30739-EH-111A	30740-EH-111B	9	3/8	97.78
30741-EH-112A	30742-EH-112B	9	1/2	92.19
30743-EH-113A	30744-EH-113B	9	5/8	87.16
30745-EH-114A	30746-EH-114B	9	3/4	95.72
30747-EH-115A	30748-EH-115B	9	7/8	98.49
30749-EH-116A	30750-EH-116B	9	1	101.27
30751-EH-120A	30752-EH-120B	10	3/8	99.27
30753-EH-121A	30754-EH-121B	10	1/2	99.27
30755-EH-122A	30756-EH-122B	10	5/8	98.49
30757-EH-123A	30758-EH-123B	10	3/4	103.20
30759-EH-124A	30760-EH-124B	10	7/8	134.31
30761-EH-125A	30762-EH-125B	10	1	149.19
30763-EH-126A	30764-EH-126B	10	1 1/4	156.91
30765-EH-130A	30766-EH-130B	11	3/8	152.47
30767-EH-131A	30768-EH-131B	11	1/2	152.47
30769-EH-132A	30770-EH-132B	11	5/8	152.47
30771-EH-133A	30772-EH-133B	11	3/4	156.91
30773-EH-134A	30774-EH-134B	11	7/8	156.91
30775-EH-135A	30776-EH-135B	11	1	159.81
30777-EH-136A	30778-EH-136B	11	1 1/4	167.35

R-8 ARBORS & ADAPTERS



STUB MILLING MACHINE ARBORS

Arbors furnished with spacers

Catalog EDI-No.	Diameter of Arbor	Length Shoulder to Nut	List Price
31101-R8-1	1	2	\$198.09
31102-R8-1 1/4	1 1/4	2	206.84



SHELL ENDMILL ARBORS

Catalog EDI-No.	Diameter of Arbor	Dia. Range of Std Shell Endmill	List Price
31121-R8-S 1/2	1/2	1 1/4 - 1 1/2	\$140.81
31122-R8-S 3/4	3/4	1 3/4 - 2	147.58
31123-R8-S 1	1	2 1/4 - 2 3/4	166.32
31124-R8-S 1-1/4	1 1/4	3 - 3 1/2	179.14
31125-R8-S 1-1/2	1 1/2	4-5	214.37



ENDMILL ADAPTERS

Catalog EDI-No.	Diameter of Arbor	List Price
31151-R8-E10	3/16	\$93.28
31152-R8-E11	3/8	93.28
31153-R8-E12	1/2	93.28
31154-R8-E13	5/8	94.69
31155-R8-E14	3/4	101.27
31156-R8-E15	7/8	108.03
31157-R8-E16	1	116.28
31158-R8-E17	1 1/4	140.81

TAPER SHANK ADAPTERS

Catalog EDI-No.	Inside Taper	List Price
31176-R8-M2	MT #2	\$127.99
31177-R8-M3	MT #3	166.32
31178-R8-B7	B&S #7	126.59

SHELL ENDMILL ARBORS

MORSE TAPER SHANK



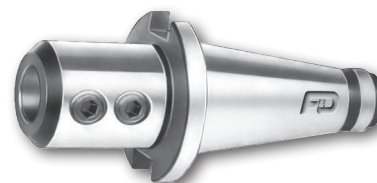
Draw Bar Catalog EDI-#	Tanged Catalog EDI-#	Morse Taper Shank	Arbor Dia.	List Price
67001	67009	4	1/2	\$108.86
67002	67010	4	3/4	108.86
67003	67011	4	1	115.63
67004	67012	4	1 1/4	128.64
67005	67013	4	1 1/2	135.40
67006	67014	5	1	152.09
67007	67015	5	1 1/4	161.42
67008	67016	5	1 1/2	164.00

Catalog EDI-Number	Shank Size	Bore Dia.	List Price
30681-EH-10	30	3/16	\$131.79
30682-EH-11	30	3/8	122.59
30683-EH-12	30	1/2	120.52
30684-EH-13	30	5/8	120.52
30685-EH-14	30	3/4	120.52
30686-EH-15	30	7/8	137.59
30687-EH-16	30	1	137.59
30688-EH-17	30	1 1/4	172.12
30689-EH-20	40	3/16	155.57
30690-EH-21	40	3/8	155.57
30691-EH-22	40	1/2	144.43
30692-EH-23	40	5/8	137.59
30693-EH-24	40	3/4	137.59
30694-EH-25	40	7/8	155.11

Catalog EDI-Number	Shank Size	Bore Dia.	List Price
30695-EH-26	40	1	\$155.11
30696-EH-27	40	1 1/4	172.12
30697-EH-28	40	1 1/2	227.13
30698-EH-30	50	3/16	227.13
30699-EH-31	50	3/8	227.13
30700-EH-32	50	1/2	227.13
30701-EH-33	50	5/8	227.13
30702-EH-34	50	3/4	227.13
30703-EH-35	50	7/8	246.64
30704-EH-36	50	1	246.64
30705-EH-37	50	1 1/4	246.64
30706-EH-38	50	1 1/2	286.84
30707-EH-39	50	2	355.77
30708-EH-40	50	2 1/2	482.22

ENDMILL ADAPTERS

With #30, 40, & 50 Tapers



MILLING MACHINE ARBORS

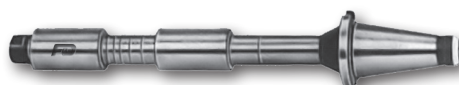
#30, 40 OR 50 Tapers

Each arbor is supplied with assorted spacers and running bushings as shown. Arbors have standard keyway and threads for drawbar.

#30 Taper 1/2-13, #40 Taper 5/8-11, #50 Taper 1"-8



STYLE A



STYLE B

STYLE A

Catalog EDI-Number	Taper	Dia. of Arbor	Length Shoulder to Nut	Dia. of Running Bushing	No. of Bushings Furnished	List Price
31011-30 7/8 A10-2	30	7/8	10	1 5/8	1	\$448.28
31012-31 A10-2	30	1	10	1 5/8	1	488.99
31013-31 1/4 A10-2	30	1 1/4	10	1 5/8	1	543.40
31014-40 7/8 A10	40	7/8	10	-	0	421.40
31015-40 7/8 A16-3	40	7/8	16	1 7/8	1	553.10
31016-41 A8	40	1	8	-	0	448.28
31017-41 A12	40	1	12	-	0	498.15
31018-41 A16-3	40	1	16	1 7/8	1	597.68
31019-41 1/4 A8	40	1 1/4	8	-	0	502.62
31020-41 1/4 A12	40	1 1/4	12	-	0	543.40
31021-41 1/4 A16-3	40	1 1/4	16	1 7/8	1	651.96
31022-41 1/2 A10	40	1 1/2	10	-	0	543.40
31023-50 7/8 A10	50	7/8	10	-	0	502.62
31024-50 7/8 A18-4	50	7/8	18	2 1/8	1	651.96
31025-51 A8	50	1	8	-	0	529.89
31026-51 A12	50	1	12	-	0	570.60
31027-51 A18-4	50	1	18	2 1/8	1	733.59
31028-51 1/4 A8	50	1 1/4	8	-	0	574.96
31029-51 1/4 A12	50	1 1/4	12	-	0	625.02
31030-51 1/4 A18-4	50	1 1/4	18	2 1/8	1	634.84
31031-51 1/2 A18-4	50	1 1/2	18	2 1/8	1	712.58

STYLE B

Catalog EDI-Number	Taper	Dia. of Arbor	Length Shoulder to Nut	Dia. of Running Bushing	No. of Bushings Furnished	List Price
31051-31 B2	30	1	2	-	0	\$244.66
31052-31 1/4 B2	30	1 1/4	2	-	0	282.69
31053-40 7/8 B14-3	40	7/8	14	1 7/8	1	498.15
31054-40 7/8 B20-3	40	7/8	20	1 7/8	1	638.53
31055-41 B3	40	1	3	-	0	317.05
31056-41 B14-3	40	1	14	1 7/8	1	574.96
31057-41 B20-3	40	1	20	1 7/8	1	724.63
31058-41 1/4 B3	40	1 1/4	3	-	0	326.01
31059-41 1/4 B14-3	40	1 1/4	14	1 7/8	1	661.12
31060-41 1/4 B20-3	40	1 1/4	20	1 7/8	1	778.83
31061-41 1/2 B20-4	40	1 1/2	20	2 1/8	1	837.66
31062-51 B3 1/2	50	1	3 1/2	-	0	380.30
31063-51 B15-4	50	1	15	2 1/8	1	606.70
31064-51 B18-4	50	1	18	2 1/8	2	683.85
31065-51 B24-4	50	1	24	2 1/8	2	801.57
31066-51 1/4 B3 1/2	50	1 1/4	3 1/2	-	0	407.69
31067-51 1/4 B15-4	50	1 1/4	15	2 1/8	1	661.12
31068-51 1/4 B18-4	50	1 1/4	18	2 1/8	2	738.19
31069-51 1/4 B24-4	50	1 1/4	24	2 1/8	2	846.75
31070-51 1/4 B30-4	50	1 1/4	30	2 1/8	2	1,086.79
31071-51 1/2 B3 1/2	50	1 1/2	3 1/2	-	0	434.77
31072-51 1/2 B18-4	50	1 1/2	18	2 1/8	2	801.49
31073-51 1/2 B24-5	50	1 1/2	24	2 3/4	2	996.09
31074-51 1/2 B30-5	50	1 1/2	30	2 3/4	2	1,195.43
31075-51 1/2 B36-5	50	1 1/2	36	2 3/4	2	1,412.94
31076-52 B24-5	50	2	24	2 3/4	2	1,222.42
31077-52 B30-5	50	2	30	2 3/4	2	1,521.71
31078-52 B36-5	50	2	36	2 3/4	2	1,684.41
31079-52 B48-5	50	2	48	2 3/4	2	3,151.56
31080-52 1/2 B36-6	50	2 1/2	36	3 3/8	2	2,581.10

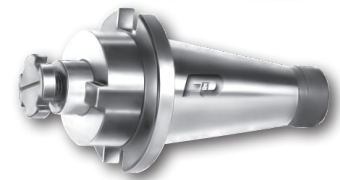
ARBOR SPACER SHIMS IN SETS

Arbor Spacers and Shims are used for fast, accurate spacing of milling cutters, saws and grinding tools. Available in thicknesses from .001" to .025", with hole diameters from 1/2" to 2".

F&D Arbor Spacers and Shims are made from high quality material and have the same exacting thickness tolerance standards as our cutting tools. I.D. tolerances are within -.000 + .001; O.D. tolerances are ±.002.

Conveniently packaged in air tight poly bags, 19 pieces per package consists of; 2 Ea: .001, .002, .003, .004, .005, .006 and 1 Ea: .007, .008, .010, .012, .015, .020, .025. Arbor shims are made without keyways. Spacers are made with keyways.

Catalog EDI-Number	Hole Dia.	Outside Dia.	List Price
30990	1/2	3/4	\$16.23
30991	5/8	1	16.55
30992	3/4	1 1/8	17.65
30993	7/8	1 3/8	19.39
30994	1	1 1/2	26.48
30995	1 1/4	1 3/4	29.18
30996	1 1/2	2 1/8	31.95
30997	2	3	47.86



SHELL ENDMILL ARBORS

With National Standard Tapers No. 40 & No. 50

Shell Endmill Arbors for Milling Machines having #40 or #50 national standard spindles. Shanks are tapped for draw-in bolt. All arbors are packed with spanner wrench.

Catalog EDI-#	Arbor Number	Arbor Dia.	Shank Size	To Fit Dia. Range of Shell Endmills	List Price
30591	40 1/2 C5/8	1/2	40	1 1/4 - 1 1/2	\$409.56
30592	50 1/2 C5/8	1/2	50	1 1/4 - 1 1/2	539.54
30593	40 3/4 C5/8	3/4	40	1 3/4 - 2	409.56
30594	50 3/4 C5/8	3/4	50	1 3/4 - 2	539.54
30595	41 C7/8	1	40	2 1/4 - 2 3/4	409.56
30596	51 C7/8	1	50	2 1/4 - 2 3/4	539.54
30597	41 1/4 C7/8	1 1/4	40	3 - 3 1/2	409.56
30598	51 1/4 C7/8	1 1/4	50	3 - 3 1/2	539.54
30599	41 1/2 C7/8	1 1/2	40	4-5	409.56
30600	51 1/2 C7/8	1 1/2	50	4-5	539.54
30601	42 C7/8	2	40	5 1/2 - 6	409.56
30602	52 C7/8	2	50	5 1/2 - 6	539.54
30603	52 1/2 C7/8	2 1/2	50	6 1/2 - Larger	539.54

ARBOR SPACERS – LIST NO. AR100

Arbor Spacers are hardened and ground.

Width	3/4" Bore		7/8" Bore		1" Bore		1-1/4" Bore		1-1/2" Bore		2" Bore		2-1/2" Bore	
	EDI-# 1 1/8" OD	List Price	EDI-# 1 3/8" OD	List Price	EDI-# 1 1/2" OD	List Price	EDI-# 1 3/4" OD	List Price	EDI-# 2 1/8" OD	List Price	EDI-# 2 3/4" OD	List Price	EDI-# 3 1/2" OD	List Price
1/16	30871	\$26.56	30872	\$8.96	30873	\$11.18	30874	\$13.03	30875	\$16.16	30876	\$19.53	30877	\$34.17
3/32	30878	26.56	30879	8.96	30880	11.18	30881	13.03	30882	16.16	30883	19.53	30884	34.17
1/8	30885	26.56	30886	8.96	30887	11.18	30888	13.03	30889	16.16	30890	19.53	30891	34.17
3/16	30892	26.56	30893	8.96	30894	11.18	30895	13.03	30896	16.16	30897	19.53	30898	34.17
1/4	30899	28.86	30900	9.73	30901	13.03	30902	14.63	30903	17.59	30904	22.75	30905	35.60
5/16	30906	33.10	30907	11.18	30908	13.03	30909	14.63	30910	19.53	30911	24.17	30912	38.73
3/8	30913	33.10	30914	11.18	30915	13.03	30916	16.16	30917	19.53	30918	25.80	30919	45.25
7/16	30920	38.60	30921	13.03	30922	14.63	30923	17.59	30924	22.75	30925	29.00	30926	46.94
1/2	30927	43.36	30928	14.63	30929	16.16	30930	17.59	30931	24.17	30932	30.69	30933	53.18
5/8	30934	43.36	30935	14.63	30936	17.59	30937	19.53	30938	25.80	30939	35.60	30940	56.40
3/4	30941	47.90	30942	16.16	30943	19.53	30944	22.75	30945	27.33	30946	38.73	30947	61.39
7/8	30948	52.14	30949	17.59	30950	22.75	30951	25.80	30952	30.69	30953	40.17	30954	59.86
1	30955	52.14	30956	17.59	30957	22.75	30958	30.69	30959	32.22	30960	43.29	30961	72.81
1 1/4	30962	57.92	30963	19.53	30964	25.80	30965	30.69	30966	35.60	30967	45.25	30968	82.11
1 1/2	30969	67.44	30970	22.75	30971	29.00	30972	34.67	30973	40.32	30974	49.98	30975	71.80
2	30976	86.00	30977	29.00	30978	32.22	30979	40.32	30980	45.75	30981	61.39	30982	104.94
3	30983	119.10	30984	40.17	30985	46.94	30986	53.18	30987	64.35	30988	87.36	30989	129.29



STUB ARBOR HOLDERS

Straight Shank Stub Milling Machine Arbors

See Page 7

STUB ARBOR HOLDERS

Face is held perpendicular to center line within point .0002".

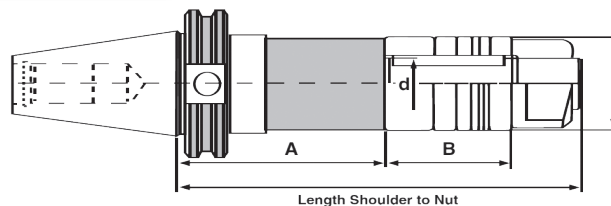
Pilot diameter is keyed for positive drive.

RH heavy duty locking nut.

5 arbor spacers included - 1/16", 1/8", 1/4", 3/8", 3/4".

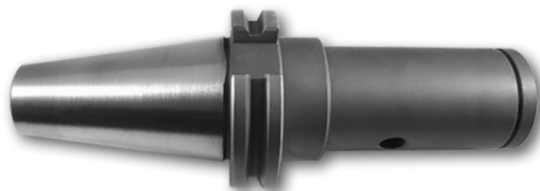
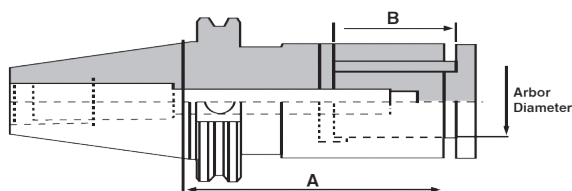
For additional spacers see page 130.

Retention knobs are sold separately.



**Slitting/Slotting Saw Arbors for
Screw and Jeweler's Saws**
See Page 43

Taper	Arbor Dia.	A	B	Holder Dia.	Length Shoulder to Nut	Catalog EDI-#	List Price
40	1	4	2	1 1/2	7 1/2	53001	\$283.12
40	1 1/4	4	2	1 3/4	7 3/4	53002	324.40
40	1 1/2	4	2	2 1/8	8	53003	385.98
50	1	4	2	1 1/2	7 1/2	53004	376.32
50	1	6	2	1 1/2	9 1/2	53005	422.31
50	1 1/4	4	2	1 3/4	7 3/4	53006	393.45
50	1 1/4	6	2	1 3/4	9 3/4	53007	475.26
50	1 1/2	4	2	2 1/8	8	53008	496.98
50	1 1/2	6	2	2 1/8	10	53009	592.05



SEMI-FLUSH SLITTING SAW HOLDERS

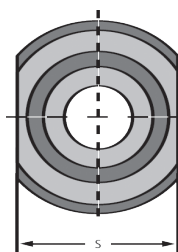
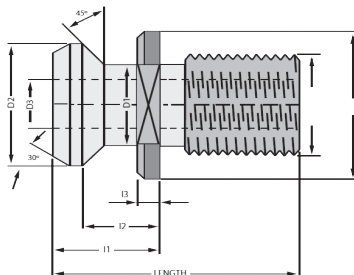
Face is held perpendicular to center line within point .0002".

Pilot diameter is keyed for positive drive.

Designed for saws up to 5/16" thick, for wider cutters, use Stub Arbor Holder.

Retention knobs are sold separately.

Taper	Arbor Dia.	A	B	Holder Screw Size	Catalog EDI-#	List Price
40	5/8	4	1 3/4	M8x1.25	53020	\$199.43
40	1	4	1 3/4	M10x1.5	53021	215.28
40	1 1/4	4	1 3/4	M10x1.5	53022	247.43
50	1	4	1 3/4	M10x1.5	53023	275.06
50	1	6	3	M10x1.5	53024	319.84
50	1 1/4	4	1 3/4	M10x1.5	53025	290.39
50	1 1/4	6	3	M10x1.5	53026	370.90



RETENTION KNOBS

Taper	Thread	D	D1	D2	D3	Length	I1	I2	I3	S	Catalog EDI-Number	List Price
40	5/8-11UNC	.898	.492	.280	.744	1.496	.640	.437	.118	.748	53030	\$28.98
40	1-8	1.400	.823	.471	1.146	2.244	1.000	.700	.197	1.185	53031	35.81
HAAS 40	5/8-11UNC	1.280	.394	-	.591	2.299	1.260	.984	.236	.748	53032	38.58

KEYWAY BROACHES

(STANDARD BROACH TOLERANCES)

Pressures listed below are for maximum length of cut. If these lengths must be exceeded, a special keyway broach should be ordered. For minimum length of cut, pieces may be broached by stacking and clamping

LIST NO. BR100

Broach	Catalog EDI-No.	Keyway Width Tol.	Dimen.	No. of Shims	Min. Length of Cut	Max. of Length	Pressure Required For Max. L/C	List Price
1/16-I	33931	.0625-.0635	1/8 x 5 1/4	0	13/64	1 1/8	270lbs.	\$64.42
3/32-I	33932	.0937-.0947	1/8 x 5 1/4	0	13/64	1 1/8	810lbs.	64.42
1/8-I	33933	.1252-.1262	1/8 x 5 1/4	1	13/64	1 1/8	720lbs.	64.42
3/32-II	33934	.0937-.0947	3/16 x 7	0	19/64	1 11/16	990lbs.	73.28
1/8-II	33935	.1252-.1262	3/16 x 7	1	19/64	1 11/16	780lbs.	73.28
5/32-II	33936	.1564-.1574	3/16 x 7	1	19/64	1 11/16	1,560lbs.	73.28
3/16-II	33937	.1877-.1887	3/16 x 7	1	19/64	1 11/16	2,100lbs.	73.28
3/16-III	33938	.1877-.1887	3/8 x 12	1	13/32	2 1/2	1,440lbs.	93.34
1/4-III	33939	.2502-.2512	3/8 x 12	1	13/32	2 1/2	2,580lbs.	93.34
5/16-III	33940	.3127-.3137	3/8 x 12	1	13/32	2 1/2	4,200lbs.	93.34
3/8-III	33941	.3755-.3765	3/8 x 12	2	13/32	2 1/2	3,600lbs.	93.34
5/16-IV	33942	.3127-.3137	9/16 x 13 3/4	1	3/4	6	9,250lbs.	125.19
3/8-IV	33943	.3755-.3765	9/16 x 13 3/4	2	3/4	6	8,000lbs.	125.19
7/16-IV	33944	.4380-.4390	9/16 x 13 3/4	2	3/4	6	11,750lbs.	125.19
1/2-IV	33945	.5006-.5016	9/16 x 13 3/4	3	3/4	6	11,000lbs.	125.19
5/8-V	33946	.6260-.6270	3/4 x 15 1/4	4	3/4	6	11,500lbs.	216.22
3/4-V	33947	.7515-.7525	3/4 x 15 1/4	5	3/4	6	13,500lbs.	216.22
7/8-VI	33948	.8765-.8775	1 x 19 1/4	6	3/4	6	11,000lbs.	330.59
1"-VI	33949	1.0015-1.0025	1 x 19 1/4	7	3/4	6	14,000lbs.	330.59



FULL SQUARE BROACHES

F&D Tool offers the following high-speed steel, full square broaches as standard items, available directly from stock. Other sizes may be furnished on special order.

LIST NO. BR300

Size Square	Catalog EDI-No.	Tolerances	Dimensions Across Corners	Pilot Dia.	Broach Length	Min. Length of Cut	Max. Length of Cut	Pressure for Max. L/C	List Price
3/16	33971	.1880-.1890	.2628-.2632	.1870	6 1/4	3/16	1/2	1,200lbs.	\$188.93
1/4	33972	.2505-.2515	.3513-.3517	.2495	8 5/8	1/4	5/8	1,600lbs.	192.76
5/16	33973	.3130-.3140	.4375-.4380	.3120	10 1/4	1/4	3/4	2,300lbs.	197.75
3/8	33974	.3755-.3765	.5243-.5247	.3745	12 1/4	3/8	1	3,750lbs.	248.43
1/2	33975	.5005-.5015	.6980-.6990	.4995	14 7/16	3/8	1	5,000lbs.	343.83





STANDARD INCH SQUARE BROACHES



Standard inch square broaches are high-speed steel, push type – designed for one pass finishing when used with arbor or hydraulic press, or vertical broaching machines.

LIST NO. BR500

Size Square	Catalog EDI-No.	Tolerances	Dimensions Across Corners	Pilot Dia.	Broach Length	Min. Length of Cut	Max. Length of Cut	Pressure for Max. L/C	List Price
1/8	34001	.1250-.1260	.1750-.1770	.1285	4 5/8	3/16	1/2	700lbs.	\$149.37
5/32	34002	.1565-.1575	.2180-.2200	.159	5 5/8	1/4	1/2	800lbs.	149.37
3/16	34003	.1880-.1890	.2620-.2640	.193	5 11/16	1/4	5/8	1,120lbs.	149.37
7/32	34004	.2190-.2200	.3050-.3070	.228	6 7/8	1/4	3/4	1,580lbs.	149.37
1/4	34005	.2505-.2515	.3500-.3520	17/64	7	1/4	3/4	1,740lbs.	149.37
9/32	34006	.2815-.2825	.3930-.3950	19/64	7 1/4	3/8	1	2,300lbs.	156.66
5/16	34007	.3130-.3140	.4370-.4390	21/64	8 1/8	3/8	1	2,630lbs.	156.66
11/32	34008	.3440-.3450	.4810-.4830	23/64	9 5/8	3/8	1 1/4	3,050lbs.	191.91
3/8	34009	.3755-.3765	.5230-.5250	25/64	9 7/8	3/8	1 1/4	3,625lbs.	191.91
13/32	34010	.4065-.4075	.5680-.5700	27/64	10 7/8	1/2	1 3/8	5,200lbs.	239.50
7/16	34011	.4385-.4395	.6100-.6130	29/64	11 3/8	1/2	1 3/8	5,700lbs.	255.05
15/32	34012	.4690-.4700	.6560-.6580	1/2	12 1/2	1/2	1 3/8	5,900lbs.	273.10
1/2	34013	.5005-.5015	.6970-.6990	17/32	12 5/8	1/2	1 3/8	6,000lbs.	297.71
9/16	34014	.5630-.5640	.7860-.7880	19/32	14 7/8	1/2	1 1/2	6,200lbs.	356.66
5/8	34015	.6260-.6270	.8710-.8730	21/32	16 13/16	5/8	1 5/8	7,100lbs.	395.92
11/16	34016	.6885-.6895	.9610-.9630	3/4	18 1/2	5/8	1 5/8	7,300lbs.	447.39
3/4	34017	.7510-.7520	1.0450-1.0470	13/16	18 7/8	5/8	1 5/8	8,600lbs.	465.37
7/8	34018	.8765-.8775	1.2280-1.2300	15/16	22 3/4	1/2	2	12,000lbs.	572.09
1	34019	1.0020-1.0030	1.4030-1.4050	1 3/32	24 1/2	1/2	2	12,500lbs.	667.56

STANDARD HEXAGON BROACHES

All hexagon broaches are push type. They can be used: (a) with hydraulic press; (b) with arbor press; and (c) with vertical broaching machine. Made of high speed steel, they will produce a finely finished hex in one pass, in a cast or drilled hole.

LIST NO. BR700

Size Square	Catalog EDI-No.	Tolerances	Diagonal Dimension	Pilot Dia.	Broach Length	Min. Length of Cut	Max. Length of Cut	Pressure for Max. L/C	List Price
1/8	34041	.1255-.1260	.1450-.1470	1/8	4 5/8	3/16	3/8	120lbs.	\$173.44
5/32	34042	.1565-.1570	.1800-.1820	5/32	5 1/2	1/4	1/2	340lbs.	173.44
3/16	34043	.1880-.1890	.2145-.2155	3/16	5 9/16	1/4	5/8	520lbs.	173.44
7/32	34044	.2190-.2200	.2500-.2520	7/32	6	1/4	3/4	890lbs.	173.44
1/4	34045	.2505-.2515	.2865-.2875	1/4	6 1/2	1/4	3/4	1,200lbs.	173.44
9/32	34046	.2815-.2825	.3220-.3240	9/32	7 3/4	3/8	1	1,650lbs.	176.96
5/16	34047	.3130-.3140	.3580-.3590	5/16	8 1/4	3/8	1	2,175lbs.	176.96
11/32	34048	.3440-.3450	.3950-.3970	11/32	8 1/4	3/8	1 1/4	3,500lbs.	223.70
3/8	34049	.3755-.3765	.4300-.4310	3/8	9	3/8	1 1/4	3,700lbs.	223.70
13/32	34050	.4065-.4075	.4670-.4690	13/32	10	1/2	1 3/8	4,100lbs.	281.00
7/16	34051	.4385-.4395	.5020-.5030	7/16	10 3/4	1/2	1 3/8	4,575lbs.	281.00
15/32	34052	.4690-.4700	.5390-.5410	15/32	12 3/8	1/2	1 3/8	4,700lbs.	325.18
1/2	34053	.5005-.5015	.5740-.5750	1/2	12 1/2	1/2	1 3/8	5,300lbs.	325.18
9/16	34054	.5630-.5640	.6480-.6500	9/16	14 1/4	1/2	1 1/2	6,700lbs.	512.23
5/8	34055	.6260-.6270	.7170-.7185	5/8	16 7/8	5/8	1 5/8	7,250lbs.	431.22
11/16	34056	.6880-.6890	.7930-.7950	11/16	17	5/8	1 5/8	9,300lbs.	495.28
3/4	34057	.7510-.7520	.8610-.8625	3/4	17 7/8	5/8	1 5/8	13,500lbs.	511.38
7/8	34058	.8755-.8765	1.0060-1.0075	7/8	18 7/8	5/8	1 5/8	18,500lbs.	578.17
1	34059	1.0020-1.0030	1.1520-1.1530	1	19 7/8	5/8	1 5/8	22,051lbs.	679.47

KEYWAY BROACHES - COMBINATION SETS

Packaged in attractive hardwood boxes with dividers for orderly tool arrangement, F&D Tool Broach Sets include broaches, bushings and shims. Instructions and lubrication guide are included. All broaches are high-speed steel. Individual items are all standard, for easy replacement.

PRECISION SET 1

High-speed steel broaches

3 broaches and 5 bushings = 15 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
1/16"	I	1/4", 5/16", 3/8", 7/16", 1/2"
3/32"	I	
1/8"	I	

34201 - Set No. 1, collared bushings Price

\$293.59

STANDARD SET C-1

SET NO. C-1 – High-speed steel broaches

4 broaches and 9 bushings = 18 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
1/8"	II	1/2", 5/8", 3/4", 7/8"
3/16"	II	
1/4"	III	1", 1-1/8", 1-1/4", 1-3/8", 1-1/2"
3/8"	III	

34202 - Set No. C-1, collared bushings

\$529.50

STANDARD SET C-1A

SET NO. C-1A – High-speed steel broaches

4 broaches and 9 bushings = 18 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
1/8"	II	9/16", 11/16", 13/16"
3/16"	II	
1/4"	III	15/16", 1-1/16", 1-3/16", 1-5/16", 1-7/16", 1-9/16"
3/8"	III	

34203 - Set No. C-1A, collared bushings

\$538.56

STANDARD SETS C-10 AND C-10A

SET NO. C-10 – High-speed steel broaches

4 broaches and 18 bushings = 36 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
1/8"	II	1/2", 9/16", 5/8", 11/16", 3/4", 13/16", 7/8"
3/16"	II	
1/4"	III	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"
3/8"	III	

34204 - Set No. C-10, collared bushings

\$681.04

SET NO. C-10A – High-speed steel broaches

3 broaches and 18 bushings = 30 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
1/8"	II	1/2", 9/16", 5/8", 11/16", 3/4", 13/16"
3/16"	III	
1/4"	III	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"

34205 - Set No. C-10A, collared bushings

\$617.18

STANDARD SET 3-D

SET NO. 3-D – High-speed steel broaches

3 broaches and 8 bushings = 24 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
3/8"	IV	1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8", 2-1/4", 2-1/2"
7/16"	IV	
1/2"	IV	

34206 - Set No. 3-D

\$712.11

STANDARD SET 3-DA

SET NO. 3-DA – High-speed steel broaches

3 broaches and 8 bushings = 24 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
3/8"	IV	1-7/16", 1-9/16", 1-11/16", 1-13/16", 1-15/16", 2-3/8", 2-7/16", 2-15/16"
7/16"	IV	
1/2"	IV	

34207 - Set No. 3-DA

\$639.84

HEAVY DUTY SET NO. 4-E

High-speed steel broaches

2 broaches and 6 bushings = 12 keyway combinations

Keyway Sizes	Broach Style	Bushing Diameters (and hole sizes)
5/8"	IV	2-3/8", 2-1/2", 2-5/8", 2-3/4", 2-7/8", 3"
3/4"	IV	

34208 - Set No. 4-E

\$810.05

NOTE: High-speed steel keyway broach sets will be furnished, **2-3/4", 2-7/8", 3"** unless carbon steel sets are specified on order.

KEYWAY BUSHINGS

No. Q-200 Plain

No. Q-400 Collared



I Bushings for I Broaches

Catalog EDI-Number	Dia.	Length	Price Collared
34161	1/4	1 1/8	\$12.03
34162	5/16	1 1/8	12.03
34163	3/8	1 1/8	12.03
34164	7/16	1 1/8	12.03
34165	1/2	1 1/8	12.03

II Bushings for II Broaches

Catalog EDI-Number	Price Plain	Catalog EDI-Number	Price Collared	Dia.	Length
34081	\$6.44	34166	\$10.08	1/2	1 11/16
34082	6.44	34167	10.08	9/16	1 11/16
34083	6.44	34168	10.08	5/8	1 11/16
34084	6.44	34169	10.08	11/16	1 11/16
34085	6.44	34170	10.08	3/4	1 11/16
34086	6.44	34171	10.08	13/16	1 11/16
34087	6.44	34172	10.08	7/8	1 11/16

III Bushings for III Broaches

Catalog EDI-Number	Price Plain	Catalog EDI-Number	Price Collared	Dia.	Length
34088	\$6.44	34173	\$16.83	3/4	2 1/2
34089	6.44	34174	16.83	13/16	2 1/2
34090	6.44	34175	16.83	7/8	2 1/2
34091	6.44	34176	16.83	15/16	2 1/2
34092	6.44	34177	16.83	1	2 1/2
34093	6.44	34178	16.83	1 1/16	2 1/2
34094	6.44	34179	16.83	1 1/8	2 1/2
34095	7.65	34180	15.99	1 3/16	2 1/2
34096	7.65	34181	15.99	1 1/4	2 1/2
34097	7.65	34182	15.99	1 5/16	2 1/2
34098	7.65	34183	15.99	1 3/8	2 1/2
34099	7.65	34184	15.99	1 7/16	2 1/2
34100	7.65	34185	15.99	1 1/2	2 1/2
34101	7.65	34186	15.99	1 9/16	2 1/2

IV Bushings for IV Broaches

Catalog EDI-Number	Dia.	Length	Price Plain
34102	1 7/16	4	\$15.99
34103	1 1/2	4	15.99
34104	1 9/16	4	15.99
34105	1 5/8	4	15.99
34106	1 11/16	4	22.00
34107	1 3/4	4	22.00
34108	1 13/16	5	22.00
34109	1 7/8	5	22.00
34110	1 15/16	5	23.76
34111	2	5	23.76
34112	2 1/16	5	23.76
34113	2 1/8	5	23.76
34114	2 3/16	5	23.76

IV Bushings for IV Broaches

Catalog EDI-Number	Dia.	Length	Price Plain
34115	2 1/4	5	\$29.90
34116	2 5/16	5	29.90
34117	2 3/8	6	29.90
34118	2 7/16	6	29.90
34119	2 1/2	6	29.90
34120	2 9/16	6	35.85
34121	2 5/8	6	35.85
34122	2 11/16	6	35.85
34123	2 3/4	6	35.85
34124	2 13/16	6	35.85
34125	2 7/8	6	35.85
34126	2 15/16	6	35.85
34127	3	6	35.85

V Bushings for V Broaches

Catalog EDI-Number	Dia.	Length	Price Plain
34128	2 5/16	6	29.90
34129	2 3/8	6	29.90
34130	2 7/16	6	29.90
34131	2 1/2	6	29.90
34132	2 9/16	6	35.85
34133	2 5/8	6	35.85
34134	2 11/16	6	35.85
34135	2 3/4	6	35.85
34136	2 13/16	6	35.85
34137	2 7/8	6	35.85
34138	2 15/16	6	35.85
34139	3	6	35.85

Note: VI Bushings are available on special order only.



TAPS & DIES





The Standard in Excellence



STANDARD HAND TAPS HIGH SPEED STEEL



Ground Thread, List No. 3102

High speed ground thread taps are regularly supplied in taper plug and bottoming style with exceptions shown below.

Sizes and dimensions not listed are special.

Supplied in 4 flutes.

Taper EDI-#	Plug EDI-#	Bottoming EDI-#	Size	Overall Length	List Price
32201	32202	32203	1/4-20	2 1/2	\$5.55
32204	32205	32206	1/4-28	2 1/2	5.55
32207	32208	32209	5/16-18	2 23/32	6.67
32210	32211	32212	5/16-24	2 23/32	6.67
32213	32214	32215	3/8-16	2 15/16	7.49
32216	32217	32218	3/8-24	2 15/16	7.49
32219	32220	32221	7/16-14	3 5/32	12.99
32222	32223	32224	7/16-20	3 5/32	12.99
32225	32226	32227	1/2-13	3 3/8	12.99
32228	32229	32230	1/2-20	3 3/8	15.69
32231	32232	32233	9/16-12	3 19/32	22.32
32234	32235	32236	9/16-18	3 19/32	22.32
32237	32238	32239	5/8-11	3 13/36	27.05
32240	32241	32242	5/8-18	3 13/36	27.05
32243	32244	32245	11/16-11	4 1/32	33.51
32246	32247	32248	11/16-16	4 1/32	33.51
32249	32250	32251	3/4-10	4 1/4	37.38
32252	32253	32254	3/4-16	4 1/4	37.38
32255	32256	32257	7/8-9	4 11/16	52.09
32258	32259	32260	7/8-14	4 11/16	52.09
32261	32262	32263	1-8	5 1/8	69.63
32264	32265	32266	1-12	5 1/8	69.63
32267	32268	32269	1-14	5 1/8	69.63
32270	32271	32272	1 1/8-7	5 7/16	97.90
32273	32274	32275	1 1/8-12	5 7/16	103.62
32276	32277	32278	1 1/4-7	5 3/4	128.87
32279	32280	32281	1 1/4-12	5 3/4	130.81
32282	32283	32284	1 3/8-6	6 1/16	128.33
32285	32286	32287	1 3/8-12	6 1/16	163.86
32288	32289	32290	1 1/2-6	6 3/8	186.46
32291	32292	32293	1 1/2-12	6 3/8	187.22

STANDARD MACHINE SCREW TAPS HIGH SPEED STEEL



Ground Thread, List No. 3117

These taps are standard in ground thread right hand American National form with standard number of flutes in taper, plug or bottoming style.

Taper EDI-#	Plug EDI-#	Bottoming EDI-#	Size	Overall Length	List Price
32311	32312	32313	0-80	1 5/8	\$13.76
32314	32315	32316	1-64	1 11/16	12.63
32317	32318	32319	1-72	1 11/16	12.63
32320	32321	32322	2-56	1 3/4	10.96
32323	32324	32325	2-64	1 3/4	11.51
32326	32327	32328	3-48	1 13/16	8.48
32329	32330	32331	3-56	1 13/16	9.06
32332	32333	32334	4-40	1 7/8	7.57
32335	32336	32337	4-48	1 7/8	6.99
32338	32339	32340	4-36	1 7/8	6.99
32341	32342	32343	5-40	1 15/16	6.99
32344	32345	32346	5-44	1 15/16	7.22
32347	32348	32349	6-32	2	6.77
32350	32351	32352	6-40	2	5.55
32353	32354	32355	8-32	2 1/8	5.55
32356	32357	32358	8-36	2 1/8	5.55
32359	32360	32361	10-24	2 3/8	5.55
32362	32363	32364	10-32	2 3/8	5.55
32365	32366	32367	12-24	2 3/8	5.86
32368	32369	32370	12-28	2 3/8	6.36

SPIRAL POINTED HAND TAPS HIGH SPEED STEEL



Ground Thread, List No. 3114

These taps are standard in ground thread right hand American National form in plug style only.

Catalog EDI-#	Size	Pitch Dia. Limits	No. of Flutes	Length of Thread	Overall Length	List Price
32391	1/4-20	H3	2	1	2 1/2	\$6.54
32392	1/4-28	H3	2	1	2 1/2	6.54
32393	5/16-18	H3	2	1 1/8	2 23/32	7.17
32394	5/16-24	H3	2	1 1/8	2 23/32	7.17
32395	3/8-16	H3	3	1 1/4	2 15/16	8.48
32396	3/8-24	H3	3	1 1/4	2 15/16	8.84
32397	7/16-14	H3	3	1 7/16	3 5/32	14.21
32398	7/16-20	H3	3	1 7/16	3 5/32	14.21
32399	1/2-13	H3	3	1 21/32	3 3/8	14.39
32400	1/2-20	H3	3	1 21/32	3 3/8	15.78
32401	5/8-11	H3	3	1 13/16	3 13/36	31.97
32402	3/4-10	H3	3	2	4 1/4	45.23

**SPIRAL POINTED MACHINE SCREW TAPS
HIGH SPEED STEEL**

Ground Thread, List No. 3122

These taps are standard in ground thread right hand American National form. Ground thread taps are standard in plug style.

Catalog EDI-#	Size	Pitch Dia. Limits	No. of Flutes	Length of Thread	Overall Length	List Price
32421	0-80	H1	2	5/16	1 5/8	\$16.91
32422	1-64	H1	2	3/8	1 11/16	15.24
32423	1-72	H1	2	3/8	1 11/16	15.24
32424	2-56	H2	2	7/16	1 3/4	13.03
32425	2-64	H2	2	7/16	1 3/4	14.70
32426	3-48	H2	2	1/2	1 13/16	10.32
32427	3-56	H2	2	1/2	1 13/16	10.32
32428	4-40	H2	2	9/16	1 7/8	8.48
32429	4-48	H2	2	9/16	1 7/8	9.47
32430	4-36	H2	2	9/16	1 7/8	9.47
32431	5-40	H2	2	5/8	1 15/16	8.48
32432	5-44	H2	2	5/8	1 15/16	9.60
32433	6-32	H3	2	11/16	2	6.81
32434	6-40	H3	2	11/16	2	8.06
32435	8-32	H3	2	3/4	2 1/8	6.81
32436	8-36	H3	2	3/4	2 1/8	8.06
32437	10-24	H3	2	7/8	2 3/8	6.81
32438	10-32	H3	2	7/8	2 3/8	6.81
32439	12-24	H3	2	15/16	2 3/8	8.06
32440	12-28	H3	2	15/16	2 3/8	8.06

**SPIRAL FLUTED MACHINE SCREW TAPS
HIGH SPEED STEEL**

Ground Thread, List No. 3107

These taps are standard in ground right hand American National form in plug style only

These taps are furnished with a right hand spiral flute.

Catalog EDI-#	Size	Pitch Dia. Limits	No. of Flutes	Length of Thread	Overall Length	List Price
32461	4-40	H2	2	9/16	1 7/8	\$13.88
32462	5-40	H2	2	5/8	1 15/16	13.93
32463	6-32	H3	2	11/16	2	11.32
32464	8-32	H3	2	3/4	2 1/8	11.32
32465	10-24	H3	2	7/8	2 3/8	11.41
32466	10-32	H3	2	7/8	2 3/8	11.41

**NUT TAPS
HIGH SPEED STEEL**

Ground Thread, List No. 3142

These taps are standard in high speed ground thread, right hand American National form.

Catalog EDI-#	Size	Pitch Dia. Limits	No. of Flutes	Length of Thread	Overall Length	List Price
32481	1/4-20	H3	4	1 5/8	5	\$57.00
32482	1/4-28	H3	4	1 5/8	5	57.00
32483	5/16-18	H3	4	1 13/16	5 1/2	64.44
32484	5/16-24	H3	4	1 13/16	5 1/2	64.44
32485	3/8-16	H3	4	2	6	76.02
32486	3/8-24	H3	4	2	6	76.02
32487	1/2-13	H3	4	2 1/2	7	98.30
32488	1/2-20	H3	4	2 1/2	7	98.30

**SPIRAL FLUTED HAND TAPS
HIGH SPEED STEEL**

Ground Thread, List No. 3104

These taps are standard in ground thread right hand American National form in plug style only.

These taps are furnished with a right hand spiral flute.

Catalog EDI-#	Size	Pitch Dia. Limits	No. of Flutes	Length of Thread	Overall Length	List Price
32501	1/4-20	H3	2	1	2 1/2	\$12.12
32502	1/4-28	H3	3	1	2 1/2	12.12
32503	5/16-18	H3	2	1 1/8	2 23/32	15.24
32504	5/16-24	H3	3	1 1/8	2 23/32	15.24
32505	3/8-16	H3	3	1 1/4	2 15/16	17.63
32506	3/8-24	H3	3	1 1/4	2 15/16	17.63
32507	7/16-14	H3	3	1 7/16	3 5/16	26.15
32508	7/16-20	H3	3	1 7/16	3 5/32	26.15
32509	1/2-13	H3	3	1 21/32	3 3/8	31.52
32510	1/2-20	H3	3	1 21/32	3 3/8	31.52

PULLEY TAPS HIGH SPEED STEEL

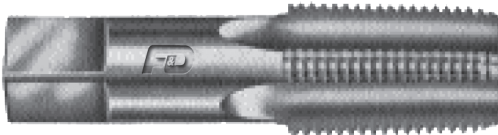
Ground Thread, List No. 3152

These taps are standard in high speed thread right hand American National form in plug style only.



Size	Catalog EDI-#	List Price	Length	Pitch Dia. Limits	No. of Flutes	Length of Thread
1/4-20	32531	\$41.49	6	H3	4	1
5/16-18	32532	43.02	6	H3	4	1 1/8
3/8-16	32533	48.61	6	H3	4	1 1/4
7/16-14	32534	51.76	6	H3	4	1 7/16
1/2-13	32535	54.12	6	H3	4	1 21/32
5/8-11	32536	69.80	6	H3	4	1 13/16
1/4-20	32537	50.28	8	H3	4	1
5/16-18	32538	50.28	8	H3	4	1 1/8
3/8-16	32539	57.54	8	H3	4	1 1/4
7/16-14	32540	65.84	8	H3	4	1 7/16
1/2-13	32541	67.77	8	H3	4	1 21/32
5/8-11	32542	88.96	8	H3	4	1 13/16
3/8-16	32543	72.06	10	H3	4	1 1/4
1/2-13	32544	83.69	10	H3	4	1 21/32
5/8-11	32545	112.51	10	H3	4	1 13/16
3/4-10	32546	132.39	10	H3	4	2
1/2-13	32547	102.54	12	H3	4	1 21/32
5/8-11	32548	131.41	12	H3	4	1 13/16
3/4-10	32549	156.92	12	H3	4	2

TAPER PIPE TAPS HIGH SPEED STEEL



Ground Thread, List No. 3177

These taps are standard in American Standard Pipe form (NPTF), American Standard Dryseal Pipe form (NPTF)

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
34301	1/16-27	4	11/16	2 1/8	\$24.08
34302	1/8-27	4	3/4	2 1/8	24.08
34303	1/4-18	4	1 1/16	2 7/16	26.87
34304	3/8-18	4	1 1/16	2 9/16	34.95
34305	1/2-14	4	1 3/8	3 1/8	55.51
34306	3/4-14	5	1 3/8	3 1/4	78.09
34307	1-11 1/2	5	1 3/4	3 3/4	118.54
34308	1 1/4-11 1/2	5	1 3/4	4	168.64
34309	1 1/2-11 1/2	7	1 3/4	4 1/4	225.68
34310	2-11 1/2	7	1 3/4	4 1/2	308.02

STRAIGHT PIPE TAPS HIGH SPEED STEEL

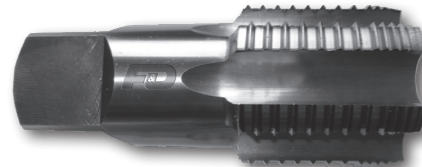


Ground Thread, List No. 3178

These taps are standard in cut thread or ground thread right hand American Standard Pipe Thread form in plug style only.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
34331	1/8-27	4	3/4	2 1/8	\$24.08
34332	1/4-18	4	1 1/16	2 7/16	26.87
34333	3/8-18	4	1 1/16	2 9/16	34.95
34334	1/2-14	4	1 3/8	3 1/8	55.51
34335	3/4-14	5	1 3/8	3 1/4	78.05
34336	1-11 1/2	5	1 3/4	3 3/4	118.50

TAPER PIPE TAPS HIGH SPEED STEEL

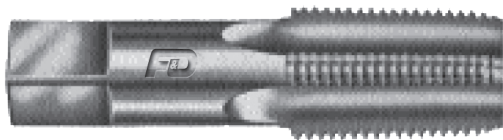


Ground Thread Interrupted, List No. 3179

These taps are standard in American Standard Pipe form (NPT), American Standard Dryseal form (NPTF) and Aeronautical (ANPT). The first few threads on an interrupted thread pipe tap are left full.

N.P.T.—N.P.T.F.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
34361	1/8-27	5	3/4	2 1/8	\$30.21
34362	1/4-18	5	1 1/16	2 7/16	33.55
34363	3/8-18	5	1 1/16	2 9/16	42.12
34364	1/2-14	5	1 3/8	3 1/8	65.29
34365	3/4-14	5	1 3/8	3 1/4	95.59
34366	1-11 1/2	5	1 3/4	3 3/4	146.55
34367	1 1/4-11 1/2	5	1 3/4	4	205.17
34368	1 1/2-11 1/2	7	1 3/4	4 1/4	275.74
34369	2-11 1/2	7	1 3/4	4 1/2	373.85

**TAPER PIPE TAPS
HIGH SPEED STEEL**

Cut Thread Regular, List No. 2177

These taps are standard in American Standard Pipe form of thread.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
32671	1/8-27	4	3/4	2 1/8	\$17.85
32672	1/4-18	4	1 1/16	2 7/16	19.98
32673	3/8-18	4	1 1/16	2 9/16	25.51
32674	1/2-14	4	1 3/8	3 1/8	42.89
32675	3/4-15	5	1 3/8	3 1/4	59.66
32676	1-11 1/2	5	1 3/4	3 3/4	89.24
32677	1 1/4-11 1/2	5	1 3/4	4	126.94
32678	1 1/2-11 1/2	7	1 3/4	4 1/4	171.48
32679	2-11 1/2	7	1 3/4	4 1/2	232.00

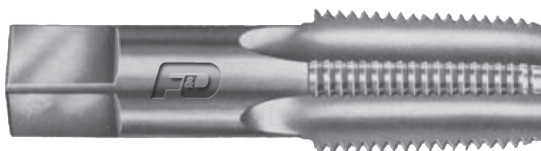
**TAPER PIPE TAPS
HIGH SPEED STEEL**

Cut Thread Interrupted, List No. 2179

These taps are standard in American Standard Pipe form (NPT), American Standard Pipe form (NPTF) and Aeronautical (ANPT). The first few threads on an interrupted thread pipe tap are left full.

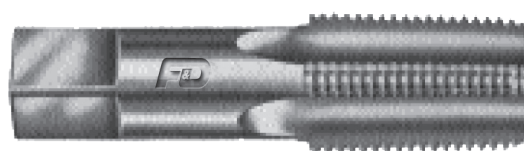
Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
32721	1/8-27	5	3/4	2 1/8	\$23.40
32722	1/4-18	5	1 1/16	2 7/16	25.48
32723	3/8-18	5	1 1/16	2 9/16	34.27
32724	1/2-14	5	1 3/8	3 1/8	52.76
32725	3/4-14	5	1 3/8	3 1/4	73.63
32726	1-11 1/2	5	1 3/4	3 3/4	112.51
32727	1 1/4-11 1/2	5	1 3/4	4	128.55
32728	1 1/2-11 1/2	7	1 3/4	4 1/4	159.81
32729	2-11 1/2	7	1 3/4	4 1/2	172.25

* Unless otherwise noted, orders for 1/8 inch taps will be filled with taps having the large shank.

**STRAIGHT PIPE TAPS
HIGH SPEED STEEL**

Cut Thread, List No. 2178

These taps are standard in cut thread right hand American Standard Thread form in plug style only.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
32701	1/8-27	4	3/4	2 1/8	\$20.69
32702	1/4-18	4	1 1/16	2 7/16	23.40
32703	3/8-18	4	1 1/16	2 9/16	30.21
32704	1/2-14	4	1 3/8	3 1/8	49.15
32705	3/4-14	5	1 3/8	3 1/4	70.98
32706	1-11 1/2	5	1 3/4	3 3/4	107.73

**TAPER PIPE TAPS
CARBON STEEL**

List No. 177

These taps are standard in cut thread right hand American Standard Pipe form.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
32761	1/8-27	4	3/4	2 1/8	\$9.20
32762	1/4-18	4	1 1/16	2 7/16	10.37
32763	3/8-18	4	1 1/16	2 9/16	13.93
32764	1/2-14	4	1 3/8	3 1/8	18.49
32765	3/4-14	5	1 3/8	3 1/4	29.31
32766	1-11 1/2	5	1 3/4	3 3/4	43.73
32767	1 1/4-11 1/2	5	1 3/4	4	56.81
32768	1 1/2-11 1/2	7	1 3/4	4 1/4	72.50
32769	2-11 1/2	7	1 3/4	4 1/2	110.83
32770	2 1/2-8	8	2 9/16	5 1/2	259.91
32771	3-8	8	2 5/8	6	387.52

STANDARD HAND TAPS HIGH SPEED STEEL



Cut Thread, List No. 2102

These taps are standard in ground thread right hand American National form in taper, plug or bottoming style. High speed cut thread taps are regularly supplied in sizes 1/4" to 1" inclusive only. Plug taps will be supplied unless otherwise specified.

Catalog EDI Number			Size	OAL	List Price
Taper	Plug	Bottoming			
34391	34392	34393	1/4-20	2 1/2	\$5.82
34394	34395	34396	1/4-28	2 1/2	5.82
34397	34398	34399	5/16-18	2 23/32	6.54
34400	34401	34402	5/16-24	2 23/32	6.54
34403	34404	34405	3/8-16	2 15/16	7.71
34406	34407	34408	3/8-24	2 15/16	7.71
34409	34410	34411	7/16-14	3 5/32	12.12
34412	34413	34414	7/16-20	3 5/32	12.12
34415	34416	34417	1/2-13	3 3/8	13.71
34418	34419	34420	1/2-20	3 3/8	13.71
34421	34422	34423	9/16-12	3 19/32	22.59
34424	34425	34426	9/16-18	3 19/32	22.59
34427	34428	34429	5/8-11	3 13/16	30.21
34430	34431	34432	5/8-18	3 13/16	30.21
34433	34434	34435	11/16-11	4 1/32	36.88
34436	34437	34438	11/16-16	4 1/32	36.88
34439	34440	34441	3/4-10	4 1/4	40.77
34442	34443	34444	3/4-16	4 1/4	40.77
34445	34446	34447	7/8-9	4 11/16	53.65
34448	34449	34450	7/8-14	4 11/16	53.65
34451	34452	34453	1-8	5 1/8	74.63
34454	34455	34456	1-12	5 1/8	74.63
34457	34458	34459	1-14	5 1/8	74.63

STANDARD POINTED HAND TAPS HIGH SPEED STEEL



Cut Thread, List No. 2114

These taps are standard in cut thread right hand American National form in plug style only.

Catalog EDI #	No. of Flutes	Length of Thread	Size	OAL	List Price
32561	2	1	1/4-20	2 1/2	\$6.54
32562	2	1	1/4-28	2 1/2	6.54
32563	2	1 1/8	5/16-18	2 23/32	7.71
32564	2	1 1/8	5/16-24	2 23/32	7.71
32565	3	1 1/4	3/8-16	2 15/16	9.29
32566	3	1 1/4	3/8-24	2 15/16	9.29
32567	3	1 7/16	7/16-14	3 5/32	14.88
32568	3	1 7/16	7/16-20	3 5/32	14.88
32569	3	1 21/32	1/2-13	3 3/8	15.74
32570	3	1 21/32	1/2-20	3 3/8	15.74

MACHINE SCREW TAPS HIGH SPEED STEEL



Cut Thread, List No. 2117

These taps are standard in cut thread right hand American National form with standard number of flutes in taper, plug or bottoming style.

Catalog EDI Number			Size	OAL	List Price
Taper	Plug	Bottoming			
32591	32592	32593	3-48	1 13/16	\$6.81
32594	32595	32596	3-56	1 13/16	6.81
32597	32598	32599	4-40	1 7/8	6.67
32600	32601	32602	4-48	1 7/8	6.67
32603	32604	32605	4-36	1 7/8	6.67
32606	32607	32608	5-40	1 15/16	6.67
32609	32610	32611	6-32	2	5.41
32612	32613	32614	6-40	2	3.52
32615	32616	32617	8-32	2 1/8	3.52
32618	32619	32620	8-36	2 1/8	5.27
32621	32622	32623	10-24	2 3/8	5.82
32624	32625	32626	10-32	2 3/8	5.82
32627	32628	32629	12-24	2 3/8	6.31
32630	32631	32632	12-28	2 3/8	6.31

STANDARD POINTED MACHINE SCREW TAPS HIGH SPEED STEEL



Cut Thread, List No. 2122

These taps are standard in cut thread right hand American National form. Cut thread taps are standard in plug style only.

Catalog EDI #	No. of Flutes	Length of Thread	Size	OAL	List Price
32651	2	1/2	3-48	1 13/16	\$6.36
32652	2	9/16	4-40	1 7/8	7.71
32653	2	5/8	5-40	1 15/16	7.71
32654	2	11/16	6-32	2	6.26
32655	2	3/4	8-32	2 1/8	6.26
32656	2	7/8	10-24	2 3/8	6.54
32657	2	7/8	10-32	2 3/8	6.54
32658	2	15/16	12-24	2 3/8	7.71

STANDARD HAND TAPS**Carbon Steel****List No. 102**

These taps are standard in cut thread right hand American National form in taper, plug or bottoming style.

Catalog EDI Number			Size	Overall Length	List Price
Taper	Plug	Bottoming			
32791	32792	32793	1/16-64	1 5/8	\$7.71
32794	32795	32796	3/32-48	1 13/16	5.10
32797	32798	32799	1/8-40	1 15/16	4.24
32800	32801	32802	5/32-32	2 1/8	4.24
32803	32804	32805	5/32-36	2 1/8	4.24
32806	32807	32808	3/16-24	2 3/8	4.78
32809	32810	32811	3/16-32	2 3/8	4.78
32812	32813	32814	7/32-24	2 3/8	5.23
32815	32816	32817	7/32-32	2 3/8	5.23
32818	32819	32820	1/4-20	2 1/2	5.77
32821	32822	32823	1/4-28	2 1/2	5.77
32824	32825	32826	1/4-24	2 1/2	5.77
32827	32828	32829	1/4-32	2 1/2	5.77
32830	32831	32832	5/16-18	2 23/32	6.99
32833	32834	32835	5/16-24	2 23/32	6.99
32836	32837	32838	5/16-32	2 23/32	6.99
32839	32840	32841	3/8-16	2 15/16	7.44
32842	32843	32844	3/8-24	2 15/16	7.44
32845	32846	32847	7/16-14	3 5/32	10.16
32848	32849	32850	7/16-20	3 5/32	10.16
32851	32852	32853	1/2-13	3 3/8	11.28
32854	32855	32856	1/2-20	3 3/8	11.28
32857	32858	32859	9/16-12	3 19/32	15.56
32860	32861	32862	9/16-18	3 19/32	15.56
32863	32864	32865	5/8-11	3 13/16	17.18
32866	32867	32868	5/8-18	3 13/16	17.18
32869	32870	32871	11/16-11	4 1/32	21.01
32872	32873	32874	11/16-16	4 1/32	21.01
32875	32876	32877	3/4-10	4 1/4	24.71
32878	32879	32880	3/4-16	4 1/4	24.71
32881	32882	32883	7/8-9	4 11/16	36.47
32884	32885	32886	7/8-14	4 11/16	36.47
32887	32888	32889	1-8	5 1/8	42.65
32890	32891	32892	1-12	5 1/8	42.65
32893	32894	32895	1-14	5 1/8	42.65
32896	32897	32898	1 1/8-7	5 7/16	85.05
32899	32900	32901	1 1/8-12	5 7/16	85.05
32902	32903	32904	1 1/4-7	5 3/4	96.77
32905	32906	32907	1 1/4-12	5 3/4	96.77
32908	32909	32910	1 3/8-6	6 1/16	113.09
32911	32912	32913	1 3/8-12	6 1/16	113.09
32914	32915	32916	1 1/2-6	6 3/8	132.88
32917	32918	32919	1 1/2-12	6 3/8	132.88
32920	32921	32922	1 3/4-5	7	189.07
32923	32924	32925	2-4 1/2	7 5/8	264.60

MACHINE SCREW TAPS**CARBON STEEL****List No. 117**

These taps are standard in cut thread or ground thread right hand American National form with standard number of flutes in taper, plug or bottoming style.

Catalog EDI Number			Size	Overall Length	List Price
Taper	Plug	Bottoming			
32941	32942	32943	0-80	1 5/8	\$7.93
32944	32945	32946	1-64	1 11/16	7.44
32947	32948	32949	1-72	1 11/16	7.44
32950	32951	32952	2-56	1 3/4	7.03
32953	32954	32955	2-64	1 3/4	7.03
32956	32957	32958	3-48	1 13/16	5.23
32959	32960	32961	3-56	1 13/16	5.23
32962	32963	32964	4-40	1 7/8	5.23
32965	32966	32967	4-48	1 7/8	5.23
32968	32969	32970	4-36	1 7/8	5.23
32971	32972	32973	4-32	1 7/8	5.23
32974	32975	32976	5-40	1 15/16	4.24
32977	32978	32979	5-44	1 15/16	4.24
32980	32981	32982	6-32	2	4.24
32983	32984	32985	6-40	2	4.24
32986	32987	32988	6-36	2	4.24
32989	32990	32991	8-32	2 1/8	4.24
32992	32993	32994	8-36	2 1/8	4.24
32995	32996	32997	8-40	2 1/8	4.24
32998	32999	33000	10-24	2 3/8	4.78
33001	33002	33003	10-32	2 3/8	4.78
33004	33005	33006	10-30	2 3/8	4.78
33007	33008	33009	12-24	2 3/8	5.33
33010	33011	33012	12-28	2 3/8	5.33
33013	33014	33015	12-32	2 3/8	5.33
33016	33017	33018	14-20	2 1/2	7.03
33019	33020	33021	14-24	2 1/2	7.03

SPIRAL POINTED HAND TAPS**CARBON STEEL****List No. 114**

These taps are standard in cut thread, or ground thread right hand American National form in plug style only.

Catalog EDI-#	No. of Flutes	Length of Thread	Size	Overall Length	List Price
33041	2	1	1/4-20	2 1/2	\$6.50
33042	2	1 1/8	5/16-18	2 23/32	7.44
33043	3	1 1/4	3/8-16	2 15/16	8.97
33044	3	1 7/16	7/16-14	3 5/32	11.63
33045	3	1 21/32	1/2-13	3 3/8	12.40

SPIRAL POINTED MACHINE SCREW TAPS CARBON STEEL



List No. 122

These taps are standard in cut thread or ground thread right hand American National form. Cut thread taps are standard in plug style only.

Catalog EDI-#	Size	No. of Flutes	Length of Thread	Overall Length	List Price
33061	6-32	2	11/16	2	\$5.99
33062	8-32	2	3/4	2 1/8	6.50
33063	10-24	2	7/8	2 3/8	6.50
33064	10-32	2	7/8	2 3/8	6.50
33065	12-24	2	15/16	2 3/8	5.69
33066	12-28	2	15/16	2 3/8	5.69

HEXAGON RETHREADING DIES CARBON STEEL

List No. 276

Hexagon rethreading dies are standard with right hand American National form of thread.



Catalog EDI-#	Size	Across Flats	Thickness	List Price
33091	1/4-20	19/32	1/4	\$25.83
33092	1/4-28	19/32	1/4	25.83
33093	5/16-18	11/16	5/16	28.68
33094	5/16-24	11/16	5/16	28.68
33095	3/8-16	25/32	3/8	30.27
33096	3/8-24	25/32	3/8	30.27
33097	7/16-14	7/8	7/16	34.07
33098	7/16-20	7/8	7/16	34.07
33099	1/2-13	1 1/16	1/2	36.78
33100	1/2-20	1 1/16	1/2	36.78
33101	9/16-12	1 1/16	1/2	39.16
33102	9/16-18	1 1/16	1/2	39.16
33103	5/8-11	1 1/4	5/8	44.77
33104	5/8-18	1 1/4	5/8	44.77
33105	11/16-11	1 7/16	3/4	49.92
33106	11/16-16	1 7/16	3/4	49.92
33107	3/4-10	1 7/16	3/4	57.39
33108	3/4-16	1 7/16	3/4	57.39
33109	7/8-9	1 5/8	7/8	66.93
33110	7/8-14	1 5/8	7/8	66.93
33111	1-8	1 13/16	1	76.53
33112	1-12	1 13/16	1	76.53
33113	1-14	1 13/16	1	76.53
33114	1 1/8-7	2	1	93.09
33115	1 1/8-12	2	1	93.09
33116	1 1/4-7	2 3/16	1	103.77
33117	1 1/4-12	2 3/16	1	103.77
33118	1 3/8-6	2 3/8	1	118.21
33119	1 3/8-12	2 3/8	1	118.21
33120	1 1/2-6	2 9/16	1	133.54
33121	1 1/2-12	2 9/16	1	133.54

SOLID SQUARE BOLT DIES CARBON STEEL

List No. 297

These dies are furnished with American National form of thread. Sizes and dimensions not listed are special. Left hand dies are special.

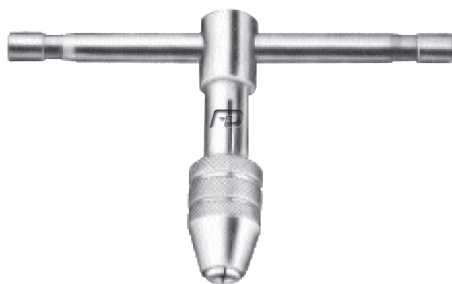


Catalog EDI-#	Size	Size Square	Thickness	List Price
33141	1/4-20	2 1/2	1/2	\$70.73
33142	5/16-18	2 1/2	1/2	76.53
33143	3/8-16	2 1/2	1/2	79.50
33144	7/16-14	2 1/2	1/2	85.36
33145	1/2-13	2 1/2	3/4	97.47
33146	5/8-11	2 1/2	3/4	108.03
33147	3/4-10	2 1/2	3/4	110.15
33148	7/8-9	2 1/2	3/4	119.37
33149	1-8	2 1/2	1	133.54
33150	1 1/8-7	2 1/2	1	148.87
33151	1 1/4-7	2 1/2	1	163.88
33152	1 3/8-6	2 1/2	1	183.13
33153	1 1/2-6	3	1	194.22
33154	1 3/4-5	3	1 1/4	304.18
33155	2-4 1/2	3 3/4	2	608.02

SOLID SQUARE PIPE DIES CARBON STEEL

Catalog EDI-#	Size	Across Flats	Square Size	Thickness	List Price
33181	1/8-27-0	0	2	1/2	\$49.92
33182	1/8-27-1	1	2 1/2	3/4	60.62
33183	1/4-18-0	0	2	1/2	49.92
33184	1/4-18-1	1	2 1/2	3/4	60.62
33185	3/8-18-0	0	2	1/2	49.92
33186	3/8-18-1	1	2 1/2	3/4	60.62
33187	1/2-14-0	0	2	1/2	49.92
33188	1/2-14-1	1	2 1/2	3/4	60.62
33189	1/2-14-1 1/2	1 1/2	3	3/4	58.95
33190	3/4-14-1	1	2 1/2	3/4	60.62
33191	3/4-14-1 1/2	1 1/2	3	3/4	58.95
33192	1-11 1/2-1	1	2 1/2	3/4	60.62
33193	1-11 1/2-1 1/2	1 1/2	3	3/4	58.95
33194	1-11 1/2-2	2	4	1	87.54
33195	1 1/4-11 1/2-1 1/2	1 1/2	3	3/4	58.95
33196	1 1/4-11 1/2-2	2	4	1	113.05
33197	1 1/2-11 1/2-2	2	4	1	131.79
33198	2-11 1/2-2	2	4	1	147.38





T-HANDLE TAP WRENCHES

These tap wrenches are made from steel carefully selected for its toughness. The chuck jaws are hardened and tempered, which greatly lengthens the life of the tool. The design is simple throughout, and with proper care these wrenches will last a lifetime.

Wrenches Nos. 328 and 332 are furnished with sliding handles, Nos. 329 and 333 with stationary handles; Nos. 338 and 339 with a Ratchet type T-Handle. The sliding handle and Ratchet T-Handle enable the user to work in close quarters where a rigid handle would not have room enough to turn. Can be used with other tools to be turned by hand.

No.	Catalog EDI-#	Hand Inches	Machine Screw	Length Inches	List Price
328	33221	1/16-1/4	0-14	2 3/4	\$19.69
329	33222	1/16-1/4	0-14	2 3/4	15.25
332	33223	7/32-1/2	12-14	3 5/8	28.82
333	33224	7/32-1/2	12-14	3 5/8	24.84
336	33225	1/16-1/4	0-14	8 3/4	34.91
337	33226	7/32-1/2	12-14	10 5/8	48.62
338	33227	1/16-1/4	0-14	3 3/4	47.77
339	33228	7/32-1/2	12-14	5	51.38

ADJUSTABLE TAP AND REAMER WRENCHES

List No. 1825

The jaws are made of tool steel, carefully hardened and tempered. They will not break or get out of line.

The larger sizes, Nos. 7 1/2 and 8, have malleable iron bodies and steel tubing handles.

No.	Catalog EDI-#	Hand Inches	Machine Screw	Pipe	Hand Reamer Inches	Length Inches	Weight	List Price
00	33251	1/16-1/4	0-14	-	1/8-17/64	5	2 oz.	\$35.29
0	33252	1/16-1/4	0-14	-	1/8-21/64	7	4 oz.	39.78
4	33253	1/16-3/8	0-14	-	1/8-25/64	9	7 oz.	55.59
5	33254	5/32-1/2	7-14	1/8	11/64-7 1/16	11	11 oz.	67.57
6	33255	5/32-3/4	7-14	1/8-1/4	11/64-4 1/64	15	1 lb. 10 oz.	67.57
7	33256	1/4-1 1/8	-	1/8-3/4	9/32-29/32	19	2 lb. 14 oz.	94.52
7 1/2	33257	1/2-1 3/8	-	1/8-1	3/8-1 5/32	31	4 lb. 8 oz.	159.28
8	33258	3/4-1 5/8	-	3/8-1 1/4	37/64-1 11/32	40	8 lbs.	193.26

STOCKS FOR ADJUSTABLE ROUND SPLIT DIES

These die stocks are designed to accommodate the round screw adjustable dies listed on the following page.



Single Screw Type	Catalog EDI-#	Takes Dies Outside Diameter Inches	Length Inches	Weight Pounds	List Price
1850*	33281	5/8	5	1/16	\$33.29
1851	33282	13/16	6 1/4	1/8	33.29
1852	33283	1	9	5/16	37.83
1853	33285	1 1/2	14	1 1/4	58.90
1857	33286	2	23	1 7/8	76.74
1858	33287	2 1/2	29	2 1/2	106.15
1859	33288	3	40	2 7/8	182.76

*Furnished in three screw type dies with open type adjustments

ADJUSTABLE ROUND SPLIT DIES


**MACHINE SCREW SIZES
CARBON STEEL**
List No. 282

Carbon steel dies are standard with right hand American National form of thread.

5/8" O.D. 1/4" Thickness

Catalog EDI-#	Size	List Price
33381	0-80	\$27.63
33382	1-72	27.63
33383	2-56	24.74
33384	2-64	24.74
33385	3-48	20.99
33386	3-56	20.99
33387	4-40	18.61
33388	4-48	18.61
33389	5-40	18.61
33390	6-32	18.61
33391	6-40	18.61
33392	8-32	18.61
33393	10-24	18.61
33394	10-32	18.61
33395	12-24	18.61


**MACHINE SCREW SIZES
HIGH SPEED STEEL**
List No. 2282

High speed steel dies are standard with right hand American National form of thread.

13/16" O.D. 1/4" Thickness

Catalog EDI-#	Size	List Price
33311	5-40	\$41.29
33312	5-44	41.29
33313	6-32	41.29
33314	6-40	41.29
33315	8-32	41.29
33316	8-36	41.29
33317	10-24	41.29
33318	10-32	41.29
33319	12-24	41.29
33320	12-28	41.29

1" O.D. 3/8" Thickness

33351	6-32	\$51.47
33352	6-40	51.47
33353	8-32	51.47
33354	8-36	51.47
33355	10-24	51.47
33356	10-32	51.47
33357	12-24	51.47
33358	12-28	51.47

**FRACTIONAL SIZES
HIGH SPEED STEEL**
List No. 2277

High speed steel dies are standard with right hand American National form of thread.

13/16" O.D. - 1/4" Thickness

Catalog EDI-#	Size	List Price
33441	1/4-20	\$33.05
33442	1/4-28	33.05
33443	5/16-18	33.05
33444	5/16-24	33.05

1" O.D. - 3/8" Thickness

33445	1/4-20	\$51.47
33446	1/4-28	51.47
33447	5/16-18	51.47
33448	5/16-24	51.47
33449	3/8-16	51.47
33450	3/8-24	51.47
33451	7/16-14	51.47
33452	7/16-20	51.47

13/16" O.D. 1/4" Thickness

33396	0-80	\$30.86
33397	1-64	30.86
33398	1-72	30.86
33399	2-56	26.92
33400	2-64	26.92
33401	3-48	24.41
33402	3-56	24.41
33403	4-40	24.41
33404	4-48	24.41
33405	4-36	24.41
33406	5-40	24.41
33407	5-44	24.41
33408	6-32	24.41
33409	6-40	24.41
33410	8-32	24.41
33411	8-36	24.41
33412	10-24	24.41
33413	10-32	24.41
33414	12-24	24.41
33415	12-28	24.41

1" O.D. 3/8" Thickness

33416	6-32	\$26.15
33417	8-32	26.15
33418	10-24	26.15
33419	10-32	26.15
33420	12-24	26.15

1 1/2" O.D. - 1/2" Thickness

33453	1/4-20	\$82.19
33454	1/4-28	82.19
33455	5/16-18	82.19
33456	5/16-24	82.19
33457	3/8-16	82.19
33458	3/8-24	82.19
33459	7/16-14	82.19
33460	7/16-20	82.19
33461	1/2-13	82.19
33462	1/2-20	82.19
33463	9/16-12	82.19
33464	9/16-18	82.19
33465	5/8-11	82.19
33466	5/8-18	82.19

2" O.D. - 5/8" Thickness

33467	5/8-11	\$143.26
33468	5/8-18	143.26
33469	3/4-10	143.26
33470	3/4-16	143.26
33471	7/8-9	143.26
33472	7/8-14	143.26

ADJUSTABLE ROUND SPLIT DIES

Fractional Sizes, **List No. 277**

Pipe Sizes, **List No. 278**

Carbon steel dies are standard with right hand American National form of thread.

13/16" O.D. - 1/4" Thickness

Fractional Sizes

List No. 277

Catalog EDI-#	Size	List Price
33491	1/16-64	\$29.96
33492	3/32-48	24.41
33493	1/8-40	20.99
33494	5/32-32	20.99
33495	5/32-36	20.99
33496	3/16-24	20.99
33497	3/16-32	20.99
33498	7/32-24	20.99
33499	7/32-32	20.99
33500	1/4-20	20.99
33501	1/4-28	20.99
33502	1/4-24	20.99
33503	1/4-32	20.99
33504	5/16-18	20.99
33505	5/16-24	20.99
33506	5/16-32	20.99

1" O.D. - 3/8" Thickness

Fractional Sizes

Catalog EDI-#	Size	List Price
33507	1/8-40	\$26.21
33508	3/16-24	26.21
33509	3/16-32	26.21
33510	1/4-20	26.21
33511	1/4-28	26.21
33512	1/4-24	26.21
33513	1/4-32	26.21
33514	5/16-18	26.21
33515	5/16-24	26.21
33516	5/16-32	26.21
33517	3/8-16	26.21
33518	3/8-24	26.21
33519	7/16-14	26.21
33520	7/16-20	26.21

1 5/16" O.D. - 7/16" Thickness

Fractional Sizes

Catalog EDI-#	Size	List Price
33521	1/4-20	\$40.96
33522	1/4-28	40.96
33523	5/16-18	40.96
33524	5/16-24	40.96
33525	3/8-16	40.96
33526	3/8-24	40.96
33527	7/16-14	40.96
33528	7/16-20	40.96
33529	1/2-13	40.96
33530	1/2-20	40.96

1 1/2" O.D. - 1/2" Thickness

Fractional Sizes

List No. 277

Catalog EDI-#	Size	List Price
33531	1/4-20	\$40.96
33532	1/4-28	40.96
33533	5/16-18	40.96
33534	5/16-24	40.96
33535	3/8-16	40.96
33536	3/8-24	40.96
33537	7/16-14	40.96
33538	7/16-20	40.96
33539	1/2-13	40.96
33540	1/2-20	40.96
33541	9/16-12	40.96
33542	9/16-18	40.96
33543	5/8-11	40.96
33544	5/8-18	40.96

2" O.D. - 5/8" Thickness

Fractional Sizes

Catalog EDI-#	Size	List Price
33545	1/4-20	\$74.02
33546	1/4-28	74.02
33547	5/16-18	74.02
33548	5/16-24	74.02
33549	3/8-16	74.02
33550	3/8-24	74.02
33551	7/16-14	74.02
33552	7/16-20	74.02
33553	1/2-13	74.02
33554	1/2-2	74.02
33555	9/16-12	74.02
33556	9/16-18	74.02
33557	5/8-11	74.02
33558	5/8-18	74.02
33559	1 1/16-11	74.02
33560	1 1/16-16	74.02
33561	3/4-10	74.02
33562	3/4-16	74.02
33563	7/8-9	74.02
33564	7/8-14	74.02

2 1/2" O.D. - 3/4" Thickness

Fractional Sizes

Catalog EDI-#	Size	List Price
33565	5/8-11	\$102.04
33566	3/4-10	102.04
33567	3/4-16	102.04
33568	7/8-9	102.04
33569	7/8-14	102.04
33570	1-8	102.04
33571	1-12	102.04
33572	1-14	102.04



3" O.D. - 1" Thickness

Fractional Sizes

List No. 277

Catalog EDI-#	Size	List Price
33573	1-8	\$201.95
33574	1-12	201.95
33575	1-14	201.95
33576	1 1/8-7	201.95
33577	1 1/8-12	201.95
33578	1 1/4-7	201.95
33579	1 1/4-12	201.95
33580	1 3/8-6	201.95
33581	1 3/8-12	201.95
33582	1 1/2-6	201.95
33583	1 1/2-12	201.95

1" O.D. - 3/8" Thickness

Pipe Sizes

List No. 278

Catalog EDI-#	Size	List Price
33601	1/8-27	\$30.86

1 1/2" O.D. - 1/2" Thickness

Pipe Sizes

List No. 278

Catalog EDI-#	Size	List Price
33602	1/8-27	\$40.96
33603	1/4-18	40.96
33604	3/8-18	40.96

2" O.D. - 5/8" Thickness

Pipe Sizes

Catalog EDI-#	Size	List Price
33605	1/4-18	\$74.02
33606	3/8-18	74.02
33607	1/2-14	74.02

ADJUSTABLE TWO PIECE DIES

National Coarse Thread furnished unless otherwise specified. In ordering Adjustable Two Piece Dies, specify cutting size, number of threads per inch and outside diameter of collet in which they are to be used.

List No. 215
FRACTIONAL SIZES
CARBON STEEL



Plug Catalog EDI-#	Bottom Size	List Price
33631	1/16-64	\$109.57
33632	3/32-48	109.57
33633	1/8-40	109.57
33634	5/32-32	109.57
33635	5/32-36	109.57
33636	3/16-24	109.57
33637	3/16-32	109.57
33638	7/32-24	109.57
33639	7/32-32	109.57
33640	1/4-20	109.57
33641	*1/4-20	109.57
33642	1/4-28	109.57
33643	*1/4-28	109.57
33644	1/4-24	109.57
33645	*1/4-24	109.57
33646	1/4-32	109.57
33647	*1/4-32	109.57
33648	5/16-18	109.57
33649	*5/16-18	109.57
33650	5/16-24	109.57
33651	*5/16-24	109.57
33652	5/16-32	109.57
33653	*5/16-32	109.57
33654	3/8-16	131.03
33655	*3/8-16	131.03
33656	3/8-24	131.03
33657	*3/8-24	131.03
33658	7/16-14	131.03
33659	*7/16-14	131.03
33660	7/16-20	131.03
33661	*7/16-20	131.03
33662	1/2-13	156.72
33663	*1/2-13	156.72
33664	1/2-20	156.72
33665	*1/2-20	156.72
33666	9/16-12	156.72
33667	*9/16-12	156.72
33668	9/16-18	156.72
33669	*9/16-18	156.72
33670	5/8-11	181.92

Plug Catalog EDI-#	Bottom Size	List Price
33671	*5/8-11	\$181.92
33672	5/8-18	181.92
33673	*5/8-18	181.92
33674	11/16-11	181.92
33675	*11/16-11	181.92
33676	11/16-16	181.92
33677	*11/16-16	181.92
33678	3/4-10	202.91
33679	*3/4-10	202.91
33680	3/4-16	202.91
33681	*3/4-16	202.91
33682	7/8-9	288.59
33683	*7/8-9	288.59
33684	7/8-14	288.59
33685	*7/8-14	288.59
33686	1-8	288.59
33687	*1-8	288.59
33688	1-12	288.59
33689	*1-12	288.59
33690	1-14	288.59
33691	*1-14	288.59
33692	1 1/8-7	410.66
33693	*1 1/8-7	410.66
33694	1 1/8-12	410.66
33695	*1 1/8-12	410.66
33696	1 1/4-7	410.66
33697	*1 1/4-7	410.66
33698	1 1/4-12	410.66
33699	*1 1/4-12	410.66
33700	1 3/8-6	527.31
33701	*1 3/8-6	527.31
33702	1 3/8-12	527.31
33703	*1 3/8-12	527.31
33704	1 1/2-6	527.31
33705	*1 1/2-6	527.31
33706	1 1/2-12	527.31
33707	*1 1/2-12	527.31

* Left Hand

List No. 216 – MACHINE SCREW SIZES – CARBON STEEL

33741	2-56	\$110.86
33742	2-64	110.86
33743	3-48	110.86
33744	3-56	110.86
33745	4-40	110.86
33746	4-48	110.86
33747	4-32	110.86
33748	4-36	110.86
33749	5-40	107.51
33750	5-44	107.51
33751	6-32	107.51
33752	6-40	107.51

33753	6-36	107.51
33754	8-32	107.51
33755	8-36	107.51
33756	8-40	107.51
33757	10-24	107.51
33758	10-32	107.51
33759	10-30	107.51
33760	12-24	107.51
33761	12-28	107.51
33762	12-32	107.51
33763	14-20	107.51
33764	14-24	107.51

DIE STOCKS FOR TWO PIECE DIE SCREW PLATES**List No. DS1860**

The body of each stock has a mottled and polished finish; the handles are polished with a knurling on the end so that greasy or oily hands will be able to take a sure grip.

Catalog EDI-#	Takes Collet Number	Overall Length Inches	List Price
33901-W1	W1	7 1/2	\$97.47
33902-1	1	14 1/2	163.17
33903-5	5	23	229.32
33904-7	5	26	253.53
33905-9	5	29	272.81
33906-20	20	41	463.80
33907-25	25	52	574.60

TWO PIECE DIE COLLETS**GUIDE****COLLET, COMPLETE****List No. 217**

In ordering extra collets or guides, it is only necessary to give the outside diameter of the collet and the cutting size of the die for which it is required.

Collet Number	Catalog EDI-#	Cap Only	Catalog EDI-#	Guide Only
W1	33791	\$9.08	33792	\$9.08
1	33793	29.37	33794	13.60
5	33795	51.02	33796	23.06
20	33797	120.79	33798	31.95
25	33799	146.16	33800	44.44



Bar Type	
A	Steel Bar w/ Coolant
C	Solid Carbide Bar
D	Heavy Metal Bar
E	Carbide Bar w/ Coolant
S	Steel Bar

Bar & Length	
3/16 - 5/16	4.50 oal
3/8	4.75 oal
1/2	5.00 oal
5/8 - 1.0	7.00 oal

Lead Angle	
F	0°
L	-5°
U	-3°
J	-2°

C16-SCLPR3

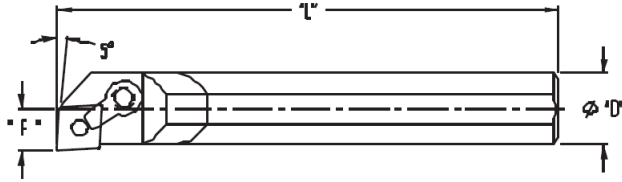
Insert Clamping	
M	Multi Clamp
N	Top Notch Clamp
S	Screw Down

Insert	
C	80° Diamond
D	55° Diamond
T	60° Triangle
V	35° Diamond

Insert Clearance	
Angle	
C	7°
N	0°
P	11°

Bar Cut	
L	Left Hand
R	Right Hand

Insert Size	
1.5	.187 IC
1.8	.218 IC
2	.250
3	.375 IC
4	.500 IC



Carbide Boring Bars - MCLN*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Clamp/Screw	Cam Screw	Insert	Solid Price	W/C Price
C16-MCLNR/L-4	1	7"	.625	1.135	CK-20/STC-11	NL-44	CNMG-432	\$570.43	\$652.71

Carbide Boring Bars - SCLP*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
C05-SCLPR/L-1.8	.312	4-1/2"	.219	.385	MS-1152	CPMT-1.81.51	\$190.75	\$224.32
C06-SCLPR/L-2	.375	4-3/4"	.25	.447	MS-1153	CPMT-21.51	193.69	224.66
C08-SCLPR/L-2	.5	5"	.312	.572	MS-1153	CPMT-21.51	229.03	268.10
C08-SCLPR/L-3	.5	5"	.312	.572	MS-1155	CPMT-32.52	224.83	263.59
C10-SCLPR/L-2	.625	7"	.406	.728	MS-1153	CPMT-21.51	326.86	371.55
C10-SCLPR/L-3	.625	7"	.406	.728	MS-1155	CPMT-32.52	324.33	364.44
C12-SCLPR/L-3	.75	7"	.5	.885	MS-1155	CPMT-32.52	437.11	487.25
C16-SCLPR/L-3	1	7"	.625	1.135	MS-1155	CPMT-32.52	578.45	641.76

Carbide Boring Bars - SCLC*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
C05-SCLCR/L-2	.312	4-1/2"	.219	.385	5513-020-03	CCMT-21.51	\$176.08	\$219.88
C06-SCLCR/L-2	.375	4-3/4"	.25	.447	5513-020-03	CCMT-21.51	191.33	218.92
C08-SCLCR/L-2	.5	5"	.312	.572	5513-020-03	CCMT-21.51	225.30	249.40
C08-SCLCR/L-3	.5	5"	.312	.572	5513-020-09	CCMT-32.52	227.72	247.70
C10-SCLCR/L-2	.625	7"	.406	.728	5513-020-03	CCMT-21.51	330.40	371.27
C10-SCLCR/L-3	.625	7"	.406	.728	5513-020-09	CCMT-32.52	332.19	348.67
C12-SCLCR/L-3	.75	7"	.5	.885	5513-020-09	CCMT-32.52	440.85	430.49
C16-SCLCR/L-3	1	7"	.625	1.15	5513-020-09	CCMT-32.52	583.34	651.22
C16-SCLCR/L-4	1	7"	.625	1.15	5513-020-17	CCMT-432	578.01	638.78

Carbide Boring Bars - SWLO**

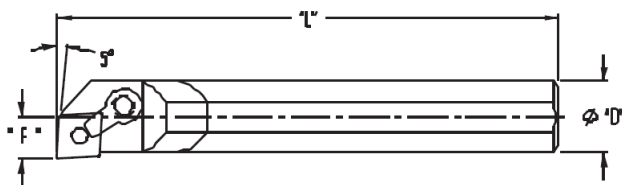
Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
CSWLOR 055	.187	4-1/2"	.114	.217	TS-21	WCMT 1.21	\$193.39	N/A
CSWLOR 065	.25	4-1/2"	.156	.291	TS-2	WCMT 1.21	189.85	223.98
CSWLOR 066	.312	4-1/2"	.188	.354	TS-2	WCMT 1.51.5	193.25	219.19
CSWLO504R	.312	4-1/2"	.203	.369	TS-25	WCMT 21.5	191.03	223.30
CSWLOR 070	.375	4-3/4"	.218	.416	TS-25	WCMT 21.5	192.22	222.10
CSWLOR 062	.375	4-3/4"	.25	.447	TS-25	WCMT 21.5	194.42	224.50
CSWLOR 082	.5	5"	.312	.572	TS-25	WCMT 21.5	229.21	263.39
CSWLOR 102	.625	7"	.375	.697	TS-25	WCMT 21.5	330.66	369.85
CSWLOR 103	.625	7"	.375	.697	TS-4	WCMT 32.5	331.17	374.12
CSWLOR 123	.75	7"	.5	.885	TS-4	WCMT 32.5	435.07	495.57

* prefix "C" for Solid Shank
 prefix "E" for Coolant Thru
 R for right hand bar
 L for left hand bar

** for Coolant Thru add C to the end of part number
 i.e) CSWLOR 123C



Steel Boring Bars



Steel Boring Bars - MCLN*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Clamp/Screw	Cam Screw	Insert	Solid Price	W/C Price
S16-MCLNR/L-4	1	7"	.625	1.135	CK-20/STC-11	NL-44	CNMG-432	\$178.24	\$202.43

Steel Boring Bars - SCLP*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
S05-SCLPR/L-1.8	.312	4-1/2"	.219	.385	MS-1152	CPMT-1.81.51	\$103.10	\$127.32
S06-SCLPR/L-2	.375	4-3/4"	.25	.447	MS-1153	CPMT-21.51	104.30	124.02
S08-SCLPR/L-2	.5	5"	.312	.572	MS-1153	CPMT-21.51	110.96	134.60
S08-SCLPR/L-3	.5	5"	.312	.572	MS-1155	CPMT-32.52	110.36	133.17
S10-SCLPR/L-2	.625	7"	.406	.728	MS-1153	CPMT-21.51	126.35	146.95
S10-SCLPR/L-3	.625	7"	.406	.728	MS-1155	CPMT-32.52	124.70	148.42
S12-SCLPR/L-3	.75	7"	.5	.885	MS-1155	CPMT-32.52	139.95	162.65
S16-SCLPR/L-3	1	7"	.625	1.135	MS-1155	CPMT-32.52	174.03	197.36

Steel Boring Bars - SCLC*

Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
S05-SCLCR/L-2	.312	4-1/2"	.219	.385	5513-020-03	CCMT-21.51	\$102.16	\$124.81
S06-SCLCR/L-2	.375	4-3/4"	.25	.447	5513-020-03	CCMT-21.51	103.19	125.47
S08-SCLCR/L-2	.5	5"	.312	.572	5513-020-03	CCMT-21.51	111.05	130.52
S08-SCLCR/L-3	.5	5"	.312	.572	5513-020-09	CCMT-32.52	109.60	131.44
S10-SCLCR/L-2	.625	7"	.406	.728	5513-020-03	CCMT-21.51	126.26	145.82
S10-SCLCR/L-3	.625	7"	.406	.728	5513-020-09	CCMT-32.52	125.38	145.25
S12-SCLCR/L-3	.75	7"	.5	.885	5513-020-09	CCMT-32.52	140.49	164.02
S16-SCLCR/L-3	1	7"	.625	1.15	5513-020-09	CCMT-32.52	176.34	200.58
S16-SCLR/L-4	1	7"	.625	1.15	5513-020-17	CCMT-432	179.20	201.82

Steel Boring Bars - SWLO**

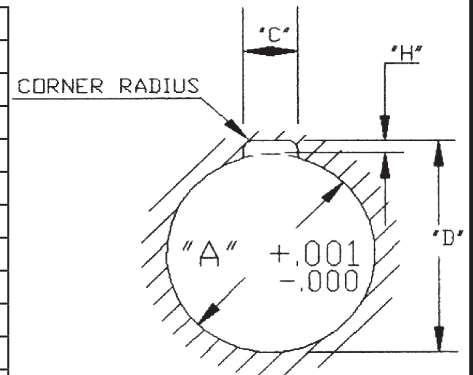
Catalog EDI-#	Shank Dia	L	F	Min. Bore	Insert Screw	Insert	Solid Price	W/C Price
S-SWLOR 070	.375	4-3/4"	.218	.416	TS-25	WCMT 21.5	\$101.84	\$124.90
S-SWLOR 062	.375	4-3/4"	.25	.447	TS-25	WCMT 21.5	103.50	124.70
S-SWLOR 082	.5	5"	.312	.572	TS-25	WCMT 21.5	111.65	132.56
S-SWLOR 102	.625	7"	.375	.697	TS-25	WCMT 21.5	124.22	146.72
S-SWLOR 103	.625	7"	.375	.697	TS-4	WCMT 32.5	126.44	147.40
S-SWLOR 123	.75	7"	.5	.885	TS-4	WCMT 32.5	138.98	159.53

* prefix "S" for Solid Shank
 prefix "A" for Coolant Thru
 R for right hand bar
 L for left hand bar

** for Coolant Thru add C to the end of part number
 i.e) S-SWLOR 123C

STANDARD KEYWAYS FOR CUTTERS

CUTTER	NOMINAL						
BORE	KEYSIZE	C		D		H	CORNER
"A"	(SQUARE)	MAXIMUM	MINIMUM	MAXIMUM	MINIMUM	NOMINAL	RADIUS
1/2	3/32			.5678	.5578	3/64	.020
5/8	1/8	.137	.130	.7085	.6985	1/16	1/32
3/4	1/8	.137	.130	.8325	.8225	1/16	1/32
7/8	1/8	.137	.130	.9575	.9475	1/16	1/32
1	1/4	.262	.255	1.1140	1.1040	3/32	3/64
1 1/4	5/16	.325	.318	1.3950	1.3850	1/8	1/16
1 1/2	3/8	.410	.385	1.6760	1.6660	5/32	1/16
1 3/4	7/16	.473	.448	1.9580	1.9480	3/16	1/16
2	1/2	.535	.510	2.2080	2.1980	3/16	1/16
2 1/2	5/8	.660	.635	2.7430	2.7330	Jul-32	1/16
3	3/4	.785	.760	3.2750	3.2650	1/4	3/32
3 1/2	7/8	.910	.885	3.9000	3.8900	3/8	3/32
4	1	1.035	1.011	4.4000	4.3900	3/8	3/32
4 1/2	1 1/8	1.160	1.135	4.9630	4.9530	7/16	1/8
5	1 1/4	1.285	1.260	5.5250	5.5150	1/2	1/8



For intermediate size bore use the keyway for the next larger size bore listed.

CUTTER CHART

*Since we are continuously improving our products, it is possible that the cutter chart is not 100% accurate. If a particular number of teeth is needed, then please specify.

CUTTERS	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4	2 3/8	2 1/2	2 5/8	2 3/4	2 7/8	3	3 1/4	3 1/2	3 3/4	4	4 1/2	5	5 1/2	6	6 1/2	7	8	9	10	12
Plain Mill									14		14				16				18										
Heavy Duty Plain Mill											8				10				10	10									
Helical															6				6	6									
Side Mill (Cobalt)							14				16				20(20)		20		24(24)	24	26(26)	28	30(30)		32	34	36	38	42
Half Side																			16		18		20		22	24			
Stag Tooth (Cobalt)								14			16		16		16(16)	18	18	18	18(18)	18	24(22)		24(24)			28	28	32	36
Stag Tooth T-15															18				22		26		30						
Stag Tooth for Aluminum																			10				16			20			
Shell Mill	8	8	8	8	8	10	10	10	10	10	10	10	10	12	12	12	12	14	14	14	16	16	16						
Shell Mill for Aluminum	4	4	4	4	4	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	8	8	8						
Double Angle													18						22		24		24						
Single Angle											18		20		22				22		24		24						
Convex*							12		14		12		12		18			12	20		18	12	16						
Concave*							12		14		12		12		18			12	20		18	12	16						
Corner Round							14		10		12				10/12	10/12	10	12		10/12	12								
Dovetail Diameter	3/8	1/2	3/4	1 3/8	1 7/8	2 1/4	2 1/2																						
Dovetail # of teeth	6	6	8	10	12	14	14																						
T-Slot Bolt Size	1/4	5/16	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2																				
T-Slot # of teeth	8	8	8	8	10	10	10	12	12																				
Plain Saw	28		26-32		24-30		28-34				28				30		30		36	36	40		42-44			52		56-62	
Side Chip Saw											28				32				36		40		42			48		56	64
Stag Tooth Side Chip											28				28,32				36		40		42		44	48		56	64

SPIRALS
STAGGERED TOOTH MILLS
PLAIN MILL Over 3/4" Width
HEAVY DUTY MILLS
HELICAL MILLS

12° ALTERNATE SPIRAL
20°
45°
52°

Left hand spiral will be furnished unless otherwise specified.



CUTTER DATA APPLICATION

FEED, SPEED AND HORSEPOWER CALCULATIONS

Modern milling cutters capable of operating at higher feeds and speeds, and removing more cubic inches of metal per minute, require greater machine rigidity and more power. Therefore it is important to ascertain that sufficient power is available to handle the desired depth and width of cut at the higher feeds and speeds.

The following formulae are suggested for the calculation of feeds and speeds plus horsepower requirements.

T	=	Number of teeth in cutter	f	=	Feed per tooth in inches
D	=	Cutter diameter in inches	W	=	Width of cut
RPM	=	Revolutions per minute	d	=	Depth of cut
SFM	=	Surface feet per minute	HP	=	Motor Horsepower
F	=	Feed in inches per minute	C	=	Machinability constant*

TO FIND	HAVING	RULE	FORMULA
Speed of Cutter In Surface Feet Per Minute (SFM)	Diameter of Cutter and Revolutions Per Minute	Diameter of Cutter (in.) multiplied by 3.1416 multiplied by Revolutions per minute divided by 12	$SFM = \frac{3.1416 \times D \times RPM}{12}$ $SFM = D \times .26 \times RPM$
Revolutions Per Minute (RPM)	Surface Feet Per Minute and Diameter of Cutter	Surface Feet per minute divided by Circumference of Cutter in Feet (Diameter x 3.1416 / 12)	$RMP = \frac{SFM \times 12}{3.1416 \times D}$ $RMP = \frac{SFM \times 3.82}{D}$
Feed in Inches Per Minute (IPM) or (F)	Feed Per Tooth Number of Teeth and Revolutions per Minute	Feed per tooth multiplied by Number of Teeth multiplied by Revolutions per Minute	$F = f \times T \times RPM$
Feed Per Tooth In Inches (FPT) or (f)	Feed in Inches per Minute, Number of Teeth and Revolutions per Minute	Feed in Inches per Minute divided by (Number of Teeth multiplied by Revolutions per minute)	$f = \frac{F}{T \times RPM}$
Horsepower (HP)	Depth of Cut, Width of Cut, Feed in Inches Per Minute and Machinability Constant	Depth of Cut multiplied by Width of Cut multiplied by Feed in Inches per Minute divided by Machinability Constant	$HP = \frac{d \times W \times F}{C}$ $HP = \frac{d \times W \times F}{C}$

Aluminum, Magnesium, Dural	4.0 plus	Cast Iron	1.5
Brass	2.5	Steel up to 150 Brinell, Malleable Iron	.75
Soft Bronze, Copper	2.0	Steel, 300 Brinell, Hard Bronze	.6
		Steel, 400 Brinell	.5

FEEDS AND SPEEDS

The proper choice of feeds and speeds are two of the most important factors that must be considered for economical application of any type of cutting tool.

FEED is generally specified as either feed in inches per revolution (IPR) or as tangential feed per tooth in inches (FPT). For practical use FPT must be converted to table travel in terms of inches per minute (IPM).

SPEED is generally specified as the rate of peripheal speed of a tool in terms of surface feet per minute (SFM). For practical use SFM must be converted to revolutions per minute (RPM).

The following tables give approximate ranges of feeds and speeds for various materials for the tools listed in the preceding pages of this catalog. Exact feeds and speeds cannot be specified since they will depend to a large extent upon the machinability of the work material, type of tool material, tool and work geometry, and condition of the machine and work holding fixture.

PART NO. _____

QUANTITY: ☐ ONE
☐ TWO
☐ THREE
☐ SIX
☐ TWELVE
☐ OTHER

SIZE/NO.: ☐ DIAMETER
☐ WIDTH
☐ INC ANGLE
☐ HOLE DIA.
☐ RADIUS
☐ NO. OF TEETH

MATERIAL: ☐ HIGH SPEED STEEL
☐ M42
☐ T-15 COBALT
☐ CARBIDE TIPPED

TOOTH STYLE:

- ☐ STRAIGHT TOOTH
- ☐ STAGGERED
- ☐ RIGHT HAND
- ☐ LEFT HAND

COATING: ☐ TiN
☐ TiALN
☐ TiCN
☐ UnCoated

SIDE ☐ WITH SIDE TEETH
TEETH: ☐ WITHOUT SIDE TEETH

NOTES:



REQUEST FOR QUOTATION

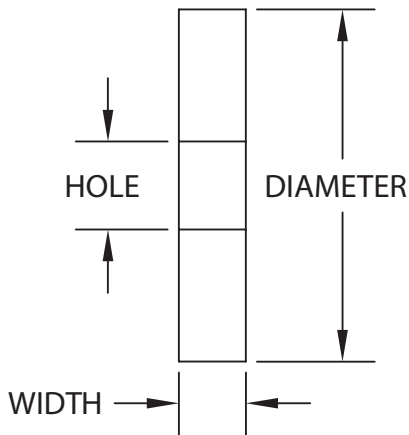
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Phone:

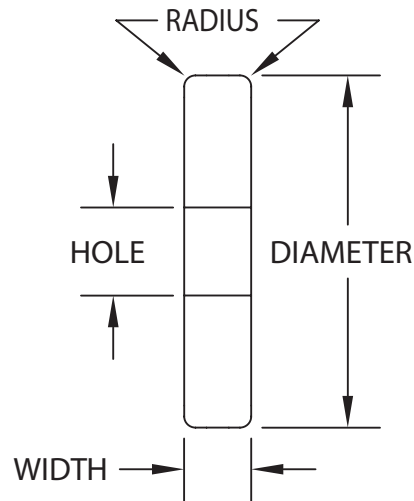
Contact:

Fax:

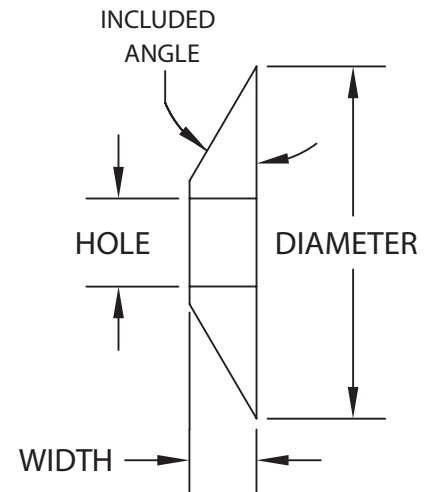
PART A



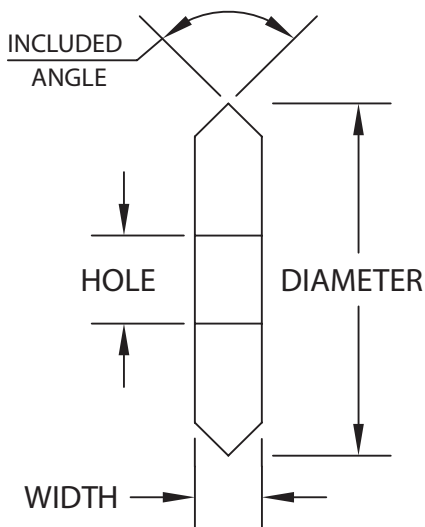
PART B



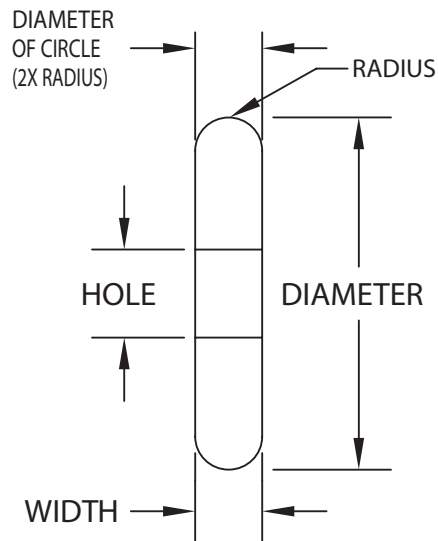
PART C



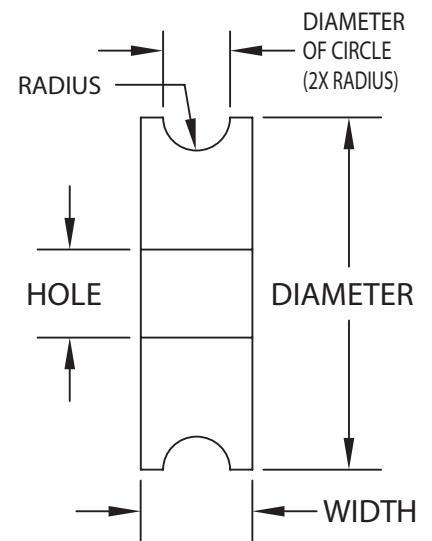
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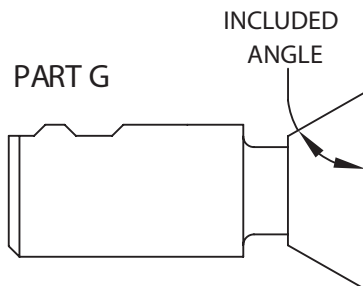
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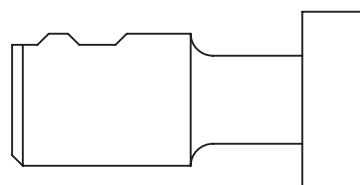
PART F



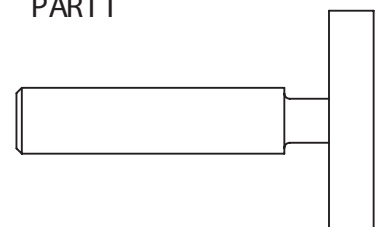
PART G



PART H



PART I



10100-10199 Keyseat Cutters - For Aluminum	53
10201-10226 Port Contour Cutters CT - Taper Shank	89
10250-10274 Port Contour Cutters CT - Straight Shank	89
10300-10325 Double Angle Shank Type Cutters - Carbide Tipped	56
10330-10351 Corner Rounding Endmills - Carbide Tipped	35
10352-10377 Port Contour Cutters CT - Extra Long Reamer - Taper Shank	89
10400-10427 Port Contour Cutters CT - Integral Reamer Pilot - Straight Shank	90
10428-10453 Port Contour Cutters CT - Metric Port Reamer Pilot Series - TS	90
10501-10563 HSS Plain Milling Cutters - Light Duty	6
10565-10590 HSS Plain Milling Cutters - Heavy Duty	7
10602-10627 Port Contour Cutters - Metric Port Without ID Groove - SS	91
10630-10667 Port Contour Cutters Integral Reamer Pilot - SS	91
10591-10601 HSS Plain Milling Cutters - Helical	7
10701-10982 HSS Side Milling Cutters	8-11
11001-11364 HSS Staggered Tooth Side Milling Cutters	12-15
11501-11536 Cobalt Staggered Tooth Side Milling Cutters	17
11551-11582 Cobalt Side Milling Cutters	17
11601-11630 T-15 Staggered Tooth Side Milling Cutters	18
11640-11654 HSS Full Radius Side Milling Cutters	19
11655-11669 HSS Full Radius Staggered Tooth Side Milling Cutters	19
11670-11696 HSS Full Radius Side Chip Slitting Saw	19
11701-11731 HSS Staggered Tooth Side Milling Cutters for Aluminum	16
11740-11754 Cobalt Full Radius Side Milling Cutters	19
11755-11769 Cobalt Full Radius Staggered Tooth Side Milling Cutters	19
11801-11816 HSS Half Side Milling Cutters	11
11821-11836 Cobalt Half Side Milling Cutters	11
11850-11861 Carbide Tipped Single Angle Cutters	25
11875-11886 Carbide Tipped Double Angle Cutters	25
11901-11944 HSS Single Angle Cutters	24
11945-11970 HSS Double Angle Cutters	24
11981-11996 HSS Double Angle Cutters - Shank Type	56
12001-12031C Carbide Tipped Side Milling Cutters - Non-Ferrous	20
12033-12063C Carbide Tipped Side Milling Cutters - Cast Iron	20
12064B-12069 Coarse Tooth Carbide Tipped Slitting Saws - Non-Ferrous	22
12069B-12076 Coarse Tooth Carbide Tipped Slitting Saws - Cast Iron	22
12076B-12083 Coarse Tooth Carbide Tipped Slitting Saws - Steel	22
12083B-12083U Coarse Tooth Carbide Tipped Slitting Saws - Stainless Steel	22
12084-12106M Carbide Tipped Side Milling Cutters - Steel	21
12122-12147 Carbide Tipped Side Milling Cutters - Stainless Steel	21
12175-12190 Carbide Tipped Dovetail Cutters	56
12191-12199 Carbide Tipped T-Slot Cutters - Non-Ferrous	55
12201-12216 HSS Dovetail Cutters - Shank Type	56
12217-12224 Threaded Hole Angle Cutters	26
12225-12232 Threaded Arbors for Angle Cutters	26
12280-12288 Carbide Tipped T-Slot Cutters - Steel	55
12301-12341 HSS Straight Tooth Woodruff Keyseat Cutters - Shank Type	50
12342-12382 HSS Staggered Tooth Woodruff Keyseat Cutters - Shank Type	50
12401-12434 HSS Corner Rounding Cutters	33
12451-12459 HSS Form Relieved Convex Cutters - Shank Type	33
12460-12473 HSS Shank Type Radius Cutters	33
12476-12484 HSS Form Relieved Concave Cutters - Shank Type	33
12493-12597 HSS Form Relieved Convex Cutter - Arbor Type	32
12601-12679 HSS Form Relieved Concave Cutter - Arbor Type	31
12701-13220 Involute Gear Cutters - 14 1/2° PA	36-37
13251-13770 Involute Gear Cutters - 20° PA	37-38
13800-13895 Involute Bevel Gear Cutters - 14 1/2° PA	38
14004-14078H Carbide Tipped Slitting Saws	23
14380-14389 Carbide Tipped Shell Mills - Steel	30
14401-14409 HSS T-Slot Cutters - Taper Shank	54
14410-14442 HSS T-Slot Cutters - Straight Shank	54
14465-14474 Carbide Tipped Shell Mills - Cast Iron	30
14480-14489 Carbide Tipped Shell Mills - Non-Ferrous	30
14496-14541 HSS Shell Endmills for Steel	27
14542-14577 Cobalt Shell Endmills	29
14586-14631 HSS Shell Endmills for Aluminum	28
14676-14759 HSS Plain Slitting Saws	39
14808-14914C HSS Side Chip Slitting Saws	40-41
14966-15061 HSS Staggered Tooth Slitting Saws	42
15111-15229 HSS Screw Slotting Saws	44
15251-15622 HSS Jeweler's Slotting Saws	45-48
16001-16109 Solid Carbide Slitting Saws	49
16120-16162 Cobalt Side Chip Slitting Saws	43

16164-16194 Cobalt Staggered Tooth Slitting Saws	43
16650-16657 2 Flute Extra Long Length Square End	81
16660-16667 4 Flute Extra Long Length Ball Nose	81
16670-16677 4 Flute Extra Long Length Single End	81
16680-16685 2 Flute Standard Length	81
16690-16697 3 Flute Standard Length	81
17001-17021 HSS Hollow Mills	57
17051-17074 HSS Corner Rounding Endmill - Fractional Sizes	34
17091-17111 HSS Two Flute Endmills for Aluminum - Single End	64
17131-17143 HSS Two Flute Endmills for Aluminum - Single End-Long	64
17161-17171 HSS Two Flute Endmills for Aluminum-Single End-Extra Long	64
17191-17211 HSS Two Flute Ball Endmills for Aluminum - Single End	64
17231-17243 HSS Two Flute Ball Endmills for Aluminum - Single End - Long	65
17261-17272 HSS Two Flute Ball Endmills for Alum	65
17291-17299 HSS Two Flute Endmills - Double End - Small Dia	62
17321-17325 HSS Two Flute Endmills - Double End - Small Dia	63
17341-17385 HSS Two Flute Endmills - Double End	62
17401-17418 HSS Two Flute Endmills - Double End - LH	62
17431-17483 HSS Two Flute Endmills - Single End	60
17551-17566 HSS Two Flute Endmills - LH	61
17581-17587 HSS Two Flute Endmills - Short	61
17611-17621 HSS Two Flute Endmills - Straight Flute	61
17641-17649 HSS Two Flute Endmills - Extension Type	61
17671-17681 HSS Two Flute Endmills - Double End - Straight Flute	63
17690-17691 4 Flute Single End Carbide Extra Extra Long Length	81
17701-17737 HSS Two Flute Endmills - Single End - Long	60
17750-17757 2 Flute Extra Long Length Carbide Ball Nose	81
17761-17771 HSS Two Flute Ball Endmills - Double End	63
17791-17796 HSS Two Flute Ball Endmills - Extension Type	63
17800-17808 45 Degree Carbide High Helix Endmill	80
17821-17846 HSS Two Flute Ball Endmills	63
17861-17872 HSS Three Flute Endmills - Double End	66
17891-17920 HSS Three Flute Endmills - Single End	66
17941-17953 HSS Three Flute Endmills - Single End-Long	66
17971-17974 HSS Four Flute Endmills - Double End-Small Diameter	71
17991-17994 HSS Four Flute Endmills - Double End-Small Diameter - Long	71
18011-18054 HSS Four Flute Endmills - Double End	71
18071-18086 HSS Four Flute Endmills - Double End - LH	70
18101-18153 HSS Multiple Flute Endmills - Single End	67
18171-18190 HSS Multiple Flute Endmills - Single End - LH	68
18211-18229 HSS Multiple Flute Endmills - Single End - RHC, LHS	68
18251-18262 HSS Four Flute Endmills - Short Series	67
18281-18286 HSS Multiple Flute Endmills - Single End - Medium	67
18301-18323 HSS Multiple Flute Endmills - Single End - Long	68
18341-18357 HSS Multiple Flute Endmills - Single End - Long - RHC, LHS	68
18381-18390 HSS Multiple Flute Endmills - Single End - Extra Long	69
18411-18420 HSS Multiple Flute Ball Endmills - Single End	69
18441-18463 HSS Multiple Flute Ball Endmills - Single End - Long	69
18481-18490 HSS Four Flute Endmills - Double End - Center Cutting	71
18511-18533 HSS Multiple Flute Endmills - Single End - Center Cutting	70
18551-18569 HSS Multiple Flute Endmills - Single End - Long - Center Cutting	70
18591-18603 HSS Multiple Flute Endmills - Single End - Extra Long - CC	69
18621-18636 HSS Multiple Flute Finishing Endmills - B&S Taper Shank	73
18651-18665 HSS Multiple Flute Light Duty Endmills - Morse Taper Shank	72
18681-18695 HSS Multiple Flute Heavy Duty Endmills - Morse Taper Shank	72
18721-18735 HSS Multiple Flute Finishing Endmills - Morse Taper Shank	72
18751-18762 HSS Multiple Flute Heavy Duty Endmills - MTS - Coarse Flutes	72
18781-18793 HSS Two Flute Endmills - B&S Taper Shank	65
18811-18823 HSS Two Flute Endmills - B&S Taper Shank - Straight Flute	65
18841-18856 HSS Multiple Flute Heavy Duty Endmills - B&S Taper Shank	73
18876-18891 HSS Multiple Flute Light Duty Endmills - B&S Taper Shank	73
18911-18937 Cobalt Multiple Flute Endmills - Single End	76
18961-18974 Cobalt Multiple Flute Endmills - Single End - Long	76
18991-19000 Cobalt Multiple Flute Endmills - Single End - Extra Long	76
19021-19039 Cobalt Two Flute Endmills - Single End	75
19061-19074 Cobalt Two Flute Ball Endmills - Single End	75
19091-19108 Cobalt Multiple Flute Ball Endmills - Single End	76
19121-19134 T-15 Two Flute Endmills - Single End	75
19151-19161 T-15 Two Flute Ball Endmills - Single End	75
19181-19196 T-15 Multiple Flute Endmills - Single End	77
19216-19227 T-15 Multiple Flute Endmills - Single End - Long	77
19241-19249 T-15 Multiple Flute Endmills - Single End - Extra Long	77



19271-19359 Cobalt Multiple Flute Roughing Endmills - Single End	74	28491-28530 Carbon Steel Expansion Hand Reamers - Straight Flute	116
20201-20222 Aircraft Counterbores - Narrow Shank	88	28541-28580 HSS Expansion Hand Reamers - Straight Flute	116
23001-23035 Solid Carbide Two Flute Endmills - Single End	78	28591-28634 Expanding Chucking Reamers - Straight Flute -Straight Shank ...	115
23061-23095 Solid Carbide Four Flute Endmills - Single End	79	28661-28704 Expanding Chucking Reamers - Straight Flute -Taper Shank	115
23121-23131 Solid Carbide Two Flute Endmills - Double End	78	28731-28738 HSS Bridge Reamers - Straight Flute	119
23151-23161 Solid Carbide Four Flute Endmills - Double End	79	28761-28775 HSS Bridge Reamers - LH	119
23181-23199 Solid Carbide Two Flute Ball Endmills - Single End	78	28796-28799 HSS Bridge Reamers - RH	119
23221-23239 Solid Carbide Four Flute Ball Endmills - Single End	79	28800-28809 HSS Taper Pipe Reamers - Straight Flute	117
23261-23270 Solid Carbide Two Flute Ball Endmills - Double End	78	28810-28819 HSS Taper Pipe Reamers - Spiral Flute	117
23291-23301 Solid Carbide Four Flute Ball Endmills - Double End	79	28821-28827 Carbon Steel Hand Finishing Reamers	118
24201-24230 Cobalt Split Point Drills - Heavy Duty	98	28851-28857 HSS Hand Finishing Reamers	118
24251-24258 Cobalt Split Point Drills - Heavy Duty - 3/8" Shank	98	28881-28887 Carbon Steel Hand Roughing Reamers	118
24401-24541 HSS Twist Drills - Taper Shank	100-101	28911-28917 HSS Hand Roughing Reamers	118
24601-24620 HSS Twist Drills - Taper Shank - Large Shanks	101	28941-28947 Carbon Steel Machine Finishing Reamers	118
24651-24703 HSS Twist Drills - Taper Shank - Small Shanks	102	28971-28977 HSS Machine Finishing Reamers	118
24721-24811 HSS Straight Shank Taper Length Drills - Fractional Sizes	99	29001-29007 Carbon Steel Machine Roughing Reamers	118
24831-24863 HSS Three Flute Core Drills - Taper Shank	103	29031-29037 HSS Machine Roughing Reamers	118
24881-24946 HSS Four Flute Core Drills - Taper Shank	103	29040-29048 HSS Car Reamers - Morse Taper Shank	117
24971-25000 HSS Three Flute Core Drills - Straight Shank	104	29049-29059 HSS Construction Taper Reamers	117
25083-25112 HSS Four Flute Core Drills - Straight Shank	104	29061-29070 Carbon Steel Brown & Sharpe Taper Reamers	117
25141-25186 HSS Silver & Deming Drills	98	29091-29100 HSS Brown & Sharpe Taper Reamers	117
25211-25232 Carbide Tipped Masonry Drills - Fast Spiral	102	29160-29175 HSS Bridge Reamers - Short Shank - LHS, RHC	120
25251-25256 HSS Drill Sets - Jobbers Lengths	105	29200-29274 Carbide Tipped Shell Reamers - Straight Flute	121
25281-25285 HSS Drill Blank Sets - Jobbers Lengths	105	29300-29317 Carbide Tipped Shell Reamers - Spiral Flute	121
25301-25344 HSS Jobbers Drills - Straight Shank - General Purpose	94	30001-30007 Carbon Steel Centers - Morse Taper	127
25361-25386 HSS Letter Drills - Straight Shank - General Purpose	94	30008-30014 Carbon Steel Centers - B&S Taper	127
25401-25480 HSS Wire Drills - Straight Shank - General Purpose	95	30015-30026 Carbon Steel Centers - Jarno Taper	127
25501-25530 HSS Short Length Screw Machine Drills - Fractional Sizes	96	30161-30167 HSS Tipped Center - Morse Taper	127
25551-25576 HSS Short Length Screw Machine Drills - Letter Sizes	96	30168-30174 HSS Tipped Center - B&S Taper	127
25601-25660 HSS Short Length Screw Machine Drills - Wire Gage Sizes	97	30175-30186 HSS Tipped Center - Jarno Taper	127
25691-25722 HSS Drill Blanks - Fractional Sizes	105	30209-30215 Carbide Tipped Center - Morse Taper	127
25741-25820 HSS Drill Blanks - Wire Gage Sizes	106	30216-30222 Carbide Tipped Center - B&S Taper	127
25841-25872 HSS Reamer Blanks - Fractional Sizes	107	30223-30234 Carbide Tipped Center - Jarno Taper	127
25891-25970 HSS Reamer Blanks - Wire Gage Sizes	107	30261-30272 Cobalt (Red Nose) Square Tool Bits	125
25991-25995 HSS Cap Screw Counterbores - Straight Shank	88	30281-30292 HSS (Blue Tip) Square Tool Bits	125
26021-26046 HSS Drill Blanks - Letter Sizes	105	30311-30322 T-15 Square Tool Bits	125
26071-26096 HSS Reamer Blanks - Letter Sizes	106	30341-30373 Cobalt (Red Nose) Rectangular Tool Bits	125
26110-26230 Pilots For Counterbores	86	30391-30423 HSS (Blue Tip) Rectangular Tool Bits	125
26240-26250 HSS Continuous Pilot Counterbores	88	30441-30478 Lathe Mandrels	126
26281-26299 HSS Solid Pilot Counterbores	88	30501-30520 Screw Extractors	126
26301-26308 HSS Single Angle Chamfering Cutters	55	30531-30539 Shell Reamer Arbors - Straight Shank	122
26401-26430 HSS Single Flute Countersinks	92	30561-30569 Shell Reamer Arbors - Morse Taper Shank	122
26851-26898 HSS Short Set Counterbores - Taper Shank	85	30591-30603 Shell Endmill Arbors - National Standard Taper	131
26921-26968 HSS Short Set Counterbores - Straight Shank	85	30621-30661 Shell Endmill Arbors - B&S Taper	128
26991-27012 Combined Drills & Countersinks - Plain Type - Std	93	30681-30708 Endmill Adapters - National Standard Taper	130
27015-27023 Solid Carbide Combined Drills & Countersinks - Plain Type - 60° ...	93	30731-30777 Endmill Adapters - B&S Taper	128
27031-27050 Combined Drills & Countersinks - Plain Type - New & Old Standard	93	30801-30855 Endmill Adapters - Morse Taper Shank	128
27071-27087 Combined Drills & Countersinks - Bell Type - New & Old Standard ...	93	30871-30989 Arbor Spacers	131
27111-27266 HSS Chucking Reamers - Straight Flute - Straight Shank	109-111	30990-30997 Arbor Spacer Sets	131
27291-27446 HSS Chucking Reamers - RHS - Straight Shank	109-111	31011-31080 Milling Machine Arbors - National Standard Taper	130
27471-27626 HSS Chucking Reamers - LHS - Straight Shank	109-111	31094-31100 Straight Shank Stub Milling Machine Arbors	7
27631-27663 HSS Chucking Reamers - Straight Flute - Taper Shank	112	31101-31102 R8 Stub Milling Machine Arbors	129
27691-27723 HSS Chucking Reamers - RHS - Taper Shank	112	31121-31125 R8 Shell Endmill Arbors	129
27741-27773 HSS Chucking Reamers - LHS - Taper Shank	112	31151-31158 R8 Endmill Adapters	129
27791-27796 HSS Three Groove Countersinks	92	31176-31178 R8 Taper Shank Adapters	129
27800-27808 60 Degree Carbide High Helix Endmill	80	30261-30272 Cobalt Square Tool Bits	125
27811-27840 HSS Center Reamers	92	30281-30292 HSS Square Tool Bits	125
27861-27870 HSS Machine Countersinks	92	30311-30322 T-15 Square Tool Bits	125
27896-27916 HSS Taper Pin Reamers - Straight Flute	120	30341-30373 Cobalt Rectangular Tool Bits	125
27931-27951 HSS Taper Pin Reamers - Spiral Flute	120	30391-30423 HSS Rectangular Tool Bits	125
27971-27991 HSS Taper Pin Reamers - Helical Flute	120	32201-32293 HSS Standard Hand Taps - Ground Thread	139
28011-28063 HSS Shell Reamers - Straight Flute	121	32311-32370 HSS Standard Machine Screw Taps - Ground Thread	139
28091-28143 HSS Shell Reamers - Spiral Flute	121	32391-32402 HSS Spiral Pointed Hand Taps - Ground Thread	139
28161-28209 Carbon Steel Hand Reamers - Straight Flute	123	32421-32440 HSS Spiral Pointed Machine Screw Taps - Ground Thread	140
28231-28267 HSS Hand Reamers - Straight Flute	123	32461-32466 HSS Spiral Fluted Machine Screw Taps - Ground Thread	140
28291-28311 Carbon Steel Hand Reamers - Spiral Flute	123	32481-32488 HSS Nut Taps - Ground Thread	140
28331-28363 HSS Hand Reamers - Spiral Flute	123	32501-32510 HSS Spiral Fluted Hand Taps - Ground Thread	140
28391-28430 Carbon Steel Expansion Hand Reamers - Spiral Flute	116	32531-32549 HSS Pulley Taps - Ground Thread	141
28441-28480 HSS Expansion Hand Reamers - Spiral Flute	116	32561-32570 HSS Spiral Point Hand Taps - Cut Thread	143
		32591-32632 HSS Machine Screw Taps - Cut Thread	143
		32651-32658 HSS Spiral Pointed Machine Screw Taps - Cut Thread	143
		32671-32679 HSS Taper Pipe Taps - Cut Thread	142

32701-32706 HSS Straight Pipe Taps - Cut Thread	142
32721-32729 HSS Taper Pipe Taps - Cut Thread Interrupted	142
32761-32771 Carbon Taper Pipe Taps	142
32791-32925 Carbon Standard Hand Taps	144
32941-33021 Carbon Machine Screw Taps	144
33041-33045 Carbon Spiral Pointed Hand Taps	144
33061-33066 Carbon Spiral Pointed Machine Screw Taps	145
33091-33121 Carbon Hexagon Rethreading Dies	145
33141-33155 Carbon Solid Square Bolt Dies	145
33181-33198 Carbon Solid Square Pipe Dies	145
33221-33228 T-Handle Tap Wrenches	146
33251-33258 Adjustable Tap & Reamer Wrenches	146
33281-33288 Stocks For Adjustable Round Split Dies	146
33311-33358 HSS Adjustable Round Split Dies - Machine Screw Sizes	147
33381-33420 Carbon Adjustable Round Split Dies - Machine Screw Sizes	147
33441-33472 HSS Adjustable Round Split Dies - Fractional Sizes	147
33491-33583 Carbon Adjustable Round Split Dies - Fractional Sizes	148
33601-33607 Carbon Adjustable Round Split Dies - Pipe Sizes	148
33631-33707 Carbon Adjustable Two Piece Dies - Fractional Sizes	149
33741-33764 Carbon Adjustable Two Piece Dies - Machine Screw Sizes	149
33791-33800 Two Piece Die Collets	149
33901-33907 Die Stocks For Two Piece Die Screw Plates	149
33931-33949 Keyway Broaches	133
33971-33975 Full Square Broaches	133
34001-34019 Standard Inch Square Broaches	134
34041-34059 Standard Hexagon Broaches	134
34081-34087 II Keyway Bushings - Plain	136
34088-34101 III Keyway Bushings - Plain	136
34102-34127 IV Keyway Bushings - Plain	136
34128-34139 V Keyway Bushings - Plain	136
34161-34165 I Keyway Bushings - Collared	136
34166-34172 II Keyway Bushings - Collared	136
34173-34186 III Keyway Bushings - Collared	136
34201-34208 Keyway Broach Sets	135
34301-34310 HSS Taper Pipe Taps - Ground Thread	141
34331-34336 HSS Straight Pipe Taps - Ground Thread	141
34361-34369 HSS Taper Pipe Taps - Ground Thread Interrupted	141
34391-34459 HSS Standard Hand Taps - Cut Thread	143
34470-34493 Cobalt Corner Rounding Endmills - Fractional Sizes	34
34501-34524 HSS Corner Rounding Endmills - Metric Sizes	34
34530-34553 Cobalt Corner Rounding Endmills - Metric Sizes	34
34920-34925 Cobalt Heavy Duty Roughing T-Slot Cutters	55
35100-35109 Cobalt Roughing Shell Endmills	28
35200-35234 CT Straight Tooth Woodruff Keyseat Cutters -Shank Type	52
35235-35269 CT Staggered Tooth Woodruff Keyseat Cutters-Shank Type	52
35270-35310 Cobalt Straight Tooth Woodruff Keyseat Cutters -Shank Type	50
35311-35351 Cobalt Staggered Tooth Woodruff Keyseat Cutters -Shank Type	50
35353-35399 Solid Carbide ST Woodruff Keyseat Cutters -Shank Type	52
37800-37806 45 Degree Helix With Corner Radius	80
47800-47821 4 Flute Variable Helix	80
50002-50084 HSS Annular Cutters	58
50086-50167 Cobalt Annular Cutters	58
50170-50191 HSS Metric Annular Cutters	58
50192-50213 Cobalt Metric Annular Cutters	58
52001-52031 Jobber Reamers - Taper Shank - Straight Flute	122
52101-52121 Jig Borer Reamers - Taper Shank - Straight Flute	122
56001-56008 Slitting & Slotting Saw Arbors - Standard	43
56101-56108 Slitting & Slotting Saw Arbors - Premium	43
57001-57041 Carbide Tipped Counterbores - Straight Shank	87
57101-57141 Carbide Tipped Counterbores - Taper Shank	87
57800-57805 5 Flute Variable Helix	80
60001-60068 Spotting Drills	97
67001-67016 Shell Endmill Arbors - Morse Taper Shank	129
68001-68044 Carbide Tipped Chucking Reamers-Straight Flute-Straight Shank	113
68051-68083 Carbide Tipped Chucking Reamers-Straight Flute-Taper Shank	113
69901-69908 Carbide Tipped Chamfering Cutters - Non-Ferrous	55
69921-69928 Carbide Tipped Chamfering Cutters - Steel	55
70000-70080 Woodruff Keyseat Cutters - Narrow Width	51
70096-70113 Large Diameter Keyseat Cutters	51

C16-MCLNR/L-4 Carbide Boring Bars MCLN	151
C05-SCLPR/L-1.8 - C16-SCLPR/L-3 Carbide Boring Bars SCLP	151
C05-SCLCR/L-2 - C16-SCLR/L-4 Carbide Boring Bars SCLC	151
CSWLOR 055 - CSWLOR 123 Carbide Boring Bars SWLO	151
S16-MCLNR/L-4 Steel Boring Bars MCLN	152
S05-SCLPR/L-1.8 - S16-SCLPR/L-3 Steel Boring Bars SCLP	152
S05-SCLCR/L-2 - S16-SCLR/L-4 Steel Boring bars SCLC	152
S-SWLOR 070 - S-SWLOR 123 Steel Boring Bars SWLO	152



DECIMAL EQUIVALENT CHART

Fractional, Metric, Wire Gage & Letter Sizes

SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES	SIZE	DECIMAL INCHES
#80	.0135"	#55	.0520"	#36	.1065"	#15	.1800"	6.5mm	.2559"	S	.3480"	39/64"	.6094"
.35mm	0.0138	1.35mm	0.0531	2.75mm	.1083"	4.6mm	0.1811	F	0.257	8.9mm	0.3504	15.5mm	0.6102
#79	0.0145	#54	0.055	7/64"	.1094"	#14	0.182	6.6mm	0.2598	9mm	0.3543	5/8"	0.625
1/64"	0.0156	1.4mm	0.0551	#35	0.11	#13	0.185	G	0.261	T	0.358	16mm	0.6299
.4mm	0.0157	1.45mm	0.0571	2.8mm	0.1102	4.7mm	0.185	6.7mm	0.2638	9.1mm	0.3583	41/64"	0.6406
#78	0.016	1.5mm	0.0591	#34	0.111	4.75mm	0.187	17/64"	0.2656	23/64"	0.3594	16.5mm	0.6496
.45mm	0.0177	#53	0.0595	#33	0.113	3/16"	0.1875	6.75mm	0.2657	9.2mm	0.3622	21/32"	0.6562
#77	0.018	1.55mm	0.061	2.9mm	0.1142	4.8mm	0.189	H	0.266	9.25mm	0.3642	17mm	0.6693
.5mm	0.0197	1/16"	0.0625	#32	0.116	#12	0.189	6.8mm	0.2677	9.3mm	0.3661	43/64"	0.6719
#76	0.02	1.6mm	0.063	3mm	0.1181	#11	0.191	6.9mm	0.2717	U	0.368	11/16"	0.6875
#75	0.021	#52	0.0635	#31	0.12	4.9mm	0.1929	I	0.272	9.4mm	0.3701	17.5mm	0.689
.55mm	0.0217	1.65mm	0.065	3.1mm	0.122	#10	0.1935	7mm	0.2756	9.5mm	0.374	45/64"	0.7031
#74	0.0225	1.7mm	0.0669	1/8"	0.125	#9	0.196	J	0.277	3/8"	0.375	18mm	0.7087
.6mm	0.0236	#51	0.067	3.2mm	0.126	5mm	0.1969	7.1mm	0.2795	V	0.377	23/32"	0.7188
#73	0.024	1.75mm	0.0689	3.25mm	0.128	#8	0.199	K	0.281	9.6mm	0.378	18.5mm	0.7283
#72	0.025	#50	0.07	#30	0.1285	5.1mm	0.2008	9/32"	0.2812	9.7mm	0.3819	47/64"	0.7344
.65mm	0.0256	1.8mm	0.0709	3.3mm	0.1299	#7	0.201	7.2mm	0.2835	9.75mm	0.3839	19mm	0.7480
#71	0.026	1.85mm	0.0728	3.4mm	0.1339	13/64"	0.2031	7.25mm	0.2854	9.8mm	0.3858	3/4"	0.75
.7mm	0.0276	#49	0.073	#29	0.136	#6	0.204	7.3mm	0.2874	W	0.386	49/64"	0.7656
#70	0.028	1.9mm	0.0748	3.5mm	0.1378	5.2mm	0.2047	L	0.29	9.9mm	0.3898	19.5mm	0.7677
#69	0.0292	#48	0.076	#28	0.1405	#5	0.2055	7.4mm	0.2913	25/62"	0.3906	25/32"	0.7812
.75mm	0.0295	1.95mm	0.0768	9/64"	0.1406	5.25mm	0.2067	M	0.295	10mm	0.3937	20mm	0.7874
#68	0.031	5/64"	0.0781	3.6mm	0.1417	5.3mm	0.2087	7.5mm	0.2953	X	0.397	51/64"	0.7969
1/32"	0.0312	#47	0.0785	#27	0.144	#4	0.209	19/64"	0.2969	Y	0.404	20.5mm	0.8071
.8mm	0.0315	2mm	0.0787	3.7mm	0.1457	5.4mm	0.2126	7.6mm	0.2992	13.32:	0.4062	13/16"	0.8125
#67	0.032	2.05mm	0.0807	#26	0.147	#3	0.213	N	0.302	Z	0.413	21mm	0.8268
#66	0.033	#46	0.081	3.75mm	0.1476	5.5mm	0.2165	7.7mm	0.3031	10.5mm	0.4134	53/64"	0.8281
.85mm	0.0335	#45	0.082	#25	0.1495	7/32"	0.2188	7.75mm	0.3051	27/64"	0.4219	27/32"	0.8438
#65	0.035	2.1mm	0.0827	3.8mm	0.1496	5.6mm	0.2205	7.8mm	0.3071	11mm	0.4331	21.5mm	0.8465
.9mm	0.0354	2.15mm	0.0846	#24	0.152	#2	0.221	7.9mm	0.311	7/16"	0.4375	55/64"	0.8594
#64	0.036	#44	0.086	3.9mm	0.1535	5.7mm	0.2244	5/16"	0.3125	11.5mm	0.4528	22mm	0.8661
#63	0.037	2.2mm	0.0866	#23	0.154	5.75mm	0.2264	8mm	0.315	29/64"	0.4531	7/8"	0.875
.95mm	0.0374	2.25mm	0.0886	5/32"	0.1562	#1	0.228	O	0.316	15/32"	0.4688	22.5mm	0.8858
#62	0.038	#43	0.089	#22	0.157	5.8mm	0.2283	8.1mm	0.3189	12mm	0.4724	57/64"	0.8906
#61	0.039	2.3mm	0.0906	4mm	0.1575	5.9mm	0.2323	8.2mm	0.3228	31/64"	0.4844	23mm	0.9055
1mm	0.0394	2.35mm	0.0925	#21	0.159	A	0.234	P	0.323	12.5mm	0.4921	29/32"	0.9062
#60	0.04	#42	0.0935	#20	0.161	15/64"	0.2344	8.25mm	0.3248	1/2"	0.5	59/64"	0.9219
#59	0.041	3/32"	0.0938	4.1mm	0.1614	6mm	0.2362	8.3mm	0.3268	13mm	0.5118	23.5mm	0.9252
1.05mm	0.0413	2.4mm	0.0945	4.2mm	0.1654	B	0.238	21/64"	0.3281	33/64"	0.5156	15/16"	0.9375
#58	0.042	#41	0.096	#19	0.166	6.1mm	0.2402	8.4mm	0.3307	17/32"	0.5312	24mm	0.9449
#57	0.043	2.45mm	0.0965	4.25mm	0.1673	C	0.242	Q	0.332	13.5mm	0.5315	61/64"	0.9531
1.1mm	0.0433	#40	0.098	4.3mm	0.1693	6.2mm	0.2441	8.5mm	0.3346	35/64"	0.5469	24.5mm	0.9646
1.15mm	0.0453	2.5mm	0.0984	#18	0.1695	D	0.246	8.6mm	0.3386	14mm	0.5512	31/32"	0.9688
#56	0.0465	#39	0.0995	11/64"	0.1719	6.25mm	0.2461	R	0.339	9/16"	0.5625	25mm	0.9843
3/64"	0.0469	#38	0.1015	#17	0.173	6.3mm	0.248	8.7mm	0.3425	14.5mm	0.5709	63/64"	0.9844
1.2mm	0.0472	2.6mm	0.1024	4.4mm	0.1732	E	0.25	11/32"	0.3438	37/64"	0.5781	1"	1
1.25mm	0.0492	#37	0.104	#16	0.177	1/4"	0.25	8.75mm	0.3445	15mm	0.5906		
1.3mm	0.0512	2.7mm	0.1063	4.5mm	0.1772	6.4mm	0.252	8.8mm	0.3465	19/32"	0.5938		

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