

PREMIUM QUALITY AMERICAN MADE CUTTING TOOLS
SOLID CARBIDE • HIGH SPEED STEEL • COBALT

2017

INNOVATIONS

MASTER CATALOG



TAKE 55% OFF LIST PRICES



TITANMAN.COM

MADE IN THE U.S.A.

888.482.6872

ENDMILLS • MICRO ENDMILLS • THREADMILLS • DRILLS • DRILL MILLS
CHAMFER MILLS • BURS • COUNTERSINKS • TAPS & DIES • REAMERS



MADE IN THE USA

Our commitment to only serve Industrial Distributors with premium quality, American-Made cutting tools endures as our number one priority. We strive to provide exceptional customer service and aggressive pricing, to ensure profitability for our customers.

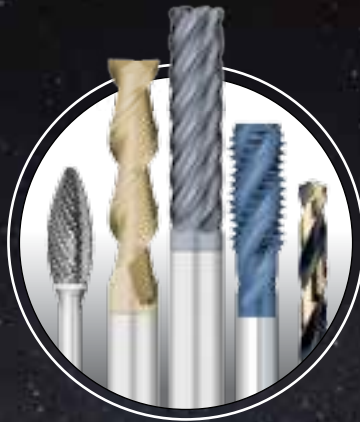
For over 46 years we've worked continuously to achieve these goals. We are proud to uphold this commitment to our valued distributors throughout North America. The "Titan Team" continues to grow, we invite you to join us today.



ALL TITAN USA TOOLS



100% MADE IN THE USA



Our commitment to you

- 100% Made in the USA
- Premium Quality Products
- Over 13,000 Items in Stock
- Special Tooling Available
- Carbide, HSS & Cobalt Tools
- On-site Platit PVD Coating Center
- On-site Otec Post Polishing
- On-Site Inspection Facility
- On-Site R & D Machining Center
- On-Site Technical Support
- Exceptional Customer Service
- All Orders Acknowledged Via Email within 15 Minutes
- Online, Phone or Email Orders
- No Minimum Order
- User Friendly Return Policy
- Custom Shipping Programs
- Same Day Shipping until 6pm EST
- Annual Catalog Development
- One Discount Selling
- Private Brand Program
- Custom Catalogs
- Custom Bar-Coding
- Custom Labeling
- Real - Time Stock Check
- Individual Log-in for Net Pricing
- Online Company Tour



Visit online at titanman.com

Distribution Center



We take pride in what we do, and it shows.

From basic orders to technical challenges, our dedicated customer service professionals and technical advisors are here to help you find the best tools for even the most challenging applications.

Our industry leading distribution center is setup to respond as though it were your own. Sell with confidence knowing that all orders are confirmed via email. Our strategic layout enables us to quickly access our expansive in-stock inventory for same day processing and shipment.

ALL TITAN USA TOOLS



100% MADE IN THE USA

Class



- 18,000 sq/ft of world class distribution space
- Over 300 Lista® cabinets to accommodate all existing and future inventory.
- 1400 additional new Micro items added - in stock!
- Multiple work-stations to handle customer requirements, reducing valuable wait times.

Many of our customers prefer to place their orders online through our easy-to-use Titan USA website at: titanman.com

Phone and email orders are always accepted as well. "Order today, and we'll ship today!"

Our inventory is your inventory

- Redesigned logistics for improved order picking and shipping. Those popular items that you need are now easily within reach.
- New and improved shipping, receiving and pick up area's to better service Titan customers.

All of the tools that Titan USA sells are made right here in the USA. That way you can be assured that you are ordering the highest quality tools available.

Join our team today to experience the TITAN USA difference

PVD Coating Center



PLATIT PL1001

- 4 High capacity hard coating machines
- Based on PLATIT's cathode ARC technology
- PVD Coating on HSS, Cobalt & Tungsten Carbide
- Produces the highest quality consistent coating



With PLATIT's easy loading carousel tool holder, different tool types and sizes can be mixed and coated in one load maximizing cycle times.

Partnering with PLATIT®, TITAN USA's 16,000 sq/ft PVD Coating Center, provides TITAN USA and our customers with the industry's highest quality PVD coatings. Maximizing tool coating capacity with four high production PLATIT PL1001 PVD coating machines, provides TITAN USA with uninterrupted tool coating production, allowing us to maintain a robust level of inventory.

TITAN USA's continued commitment to uncompromising quality and service to all our distributors throughout North America.

ating



Two completely automated, state-of-the-art EUROCOLD Pluritank[®] cleaning systems, removes oils and contaminants from tools prior to coating.



PLATIT's Degasser vaporizes oils and fluids from blind or coolant fed holes after the cleaning process, removes trapped gases from brazed cutting tools, and helps ensure proper coating adhesion.



PVD Coatings

Multi Layer ~ Physical Vapor Deposition

Increases cutting tool performance in terms of wear resistance, abrasion prevention, corrosion and oxidation at high temperatures.



ALCRO-MAX

ALCRO-MAX is a high performance Coating from the PLATIT coatings family. It is based on AlCrN with a titanium addition. Triple coatings are deposited with 3 sections freely programmed in one batch. ALCRO-MAX has been engineered to give an optimum balance between the toughness of the core layer and the abrasion resistance of the top nano-layer. Titanium's addition reduces the adhesive wear compared to conventional AlCrN coatings, also increasing the micro-hardness up to 3500Hv and stops the crack propagation through the coating.

Our case histories have shown ALCRO-MAX out performs ALTIN in multiple applications. ALCRO-MAX is recommended for a wider range of materials and exotics including high temp alloys, stainless steels, alloy steels, cast iron, high temp nickel base alloys, titanium alloys, hardened tool steel up to 50 HRC, and inconel. This coating has an excellent thermal and chemical stability. Which means it keeps its mechanical properties at very high temperatures up to 950°C. ALCRO-MAX has the best overall properties of any coating TITAN offers and outperforms all generic coatings available on the market.



ALTIN

ALTIN is a high performance coating for milling, drilling, and tapping. This coating works well in a wide range of materials and exotics including high temp alloys, stainless steels, alloy steels, cast iron, high temp nickel base alloys, titanium alloys, and inconel. ALTIN is extremely heat resistant and can be used with or without coolant. It is exceptional in difficult to machine materials where adhesive wear is particularly high.



TICN

TICN is a general purpose coating used for milling, drilling and tapping in all stainless steels, and a wide variety of other materials. This would be an option when ALTIN cannot be used, as in applications that can't generate the speeds and feeds required for higher cutting temperatures.



ZRN

ZRN is a high performance coating for milling non-ferrous materials such as aluminum, brass and bronze applications. It prevents edge build up that is typical in soft and sticky materials. This coating allows for higher speed and feed rates as well as prolonged tool life. ZRN does not have an affinity for aluminum.



TIN

TIN is a general purpose coating for drilling and tapping in a wide variety of materials, and generally used in applications with lower cutting speeds.

Titan Custom Tooling



Looking for something less common? Try our specials department. From minor alterations to completely unique tooling solutions – we'd love to hear about your project and help you to achieve it.

- Modify Standard Tooling
- Adding a Radius
- Grinding Diameters
- Chamfers
- Neck Downs
- Flats

We also quote on a variety of full special round tooling and coating. Contact us today by emailing: quotes@titanman.com



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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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VI-PRO

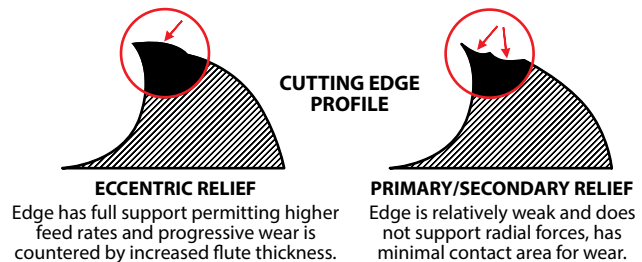
VARIABLE INDEX GEOMETRY

TITAN's VI-PRO is a High Performance, carbide end mill, that incorporates the ultimate in variable index geometry. Our flute configuration produces a harmonics shift, resulting in minimal chatter and an exceptional finish.

- Used in all slotting, roughing, profiling and finishing applications
- High Performance, chatter free machining provides versatility in use for all ferrous materials
- Designed for use in Alloy Steels, Inconel, Cast Iron, Titanium, Stainless Steel, High Temp and all other exotic materials up to 50HRc
- Enables higher SFM and heavier chip loads
- Eccentric Relief on the cutting edge provides enhanced edge strength
- Available in 4, 5 & 6 Flute - Stub, Regular, Long & Extra Long Lengths
- Available in Square End, Ball Nose and various  Corner Radius sizes
- Post polished ALCRO-MAX coating covers a wide range of materials
- Made in the USA from premium micrograin carbide

TITAN's High-Performance VI-PRO carbide end mill utilizes an Eccentric Relief on the cutting edge that provides enhanced edge strength and a smoother cutting action.

Eccentric Relief vs Primary/Secondary Relief



Why use TITAN's VI-PRO Corner Radius tools?

- The tools improve productivity and reduce costs.
- A sharp corner of an end mill is its weakest point. The corner radius design strengthens the end mill by reducing chipping and providing longer tool life.
- Extensive offering of Corner Radius tools: Stub, Regular, Long and Extra Long Lengths, with radius starting at 0.008 up to 0.250.

Benefits of Post polishing

ALCRO-MAX by nature of the coating process leaves tiny "droplets" of the coating on the surface of the tool. Proven results have shown that the removal of these droplets provide a smoother tool surface which results in a better cut. Perhaps the most important benefit, is that the tool is able to run at faster feed rates due to the smoothness of the flute area. This results in better chip evacuation and cooler temperatures resulting in longer tool life.



2 on-site Otec Post Polish machines



Carbide Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - SQUARE END



SERIES V42S
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	4	TC21133	25.99	-	-
3/16	3/16	3/8	2	4	TC21136	33.45	-	-
1/4	1/4	3/8	2	4	TC21139	37.84	-	-
5/16	5/16	7/16	2	4	TC21142	55.05	-	-
3/8	3/8	1/2	2	4	TC21145	61.03	-	-
7/16	7/16	5/8	2-1/2	4	TC21147	79.50	-	-
1/2	1/2	5/8	2-1/2	4	TC21148	91.25	TC21173	96.45
5/8	5/8	3/4	3	4	TC21151	179.65	TC21176	184.84
3/4	3/4	1	3	4	TC21154	236.94	TC21179	242.13

4 FLUTE - REGULAR LENGTH - SQUARE END



SERIES V42R
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/2	2	4	TC21821	31.06	-	-
3/16	3/16	9/16	2	4	TC21824	35.50	-	-
1/4	1/4	3/4	2-1/2	4	TC21827	45.06	-	-
5/16	5/16	13/16	2-1/2	4	TC21830	59.68	-	-
3/8	3/8	1	2-1/2	4	TC21833	69.91	-	-
7/16	7/16	1	2-3/4	4	TC21835	86.69	-	-
1/2	1/2	1	3	4	TC21836	104.86	TC21863	110.05
1/2	1/2	1-1/4	3	4	TC21839	104.86	TC21866	110.05
5/8	5/8	1-5/8	3-1/2	4	TC21842	189.83	TC21869	195.02
3/4	3/4	1-5/8	4	4	TC21845	262.28	TC21872	267.48
1	1	2	4	4	TC21848	489.61	TC21875	494.80

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

Carbide Endmills

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VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - SQUARE END



SERIES V42L
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	4	TC23201	51.32	-	-
5/16	5/16	1-1/8	3	4	TC23204	71.00	-	-
3/8	3/8	1-1/4	3	4	TC23207	95.36	-	-
7/16	7/16	2	4	4	TC23209	120.95	-	-
1/2	1/2	1-1/2	4	4	TC23210	131.66	TC23331	136.85
1/2	1/2	2	4	4	TC23213	145.99	TC23334	151.19
5/8	5/8	2-1/4	5	4	TC23216	271.53	TC23337	276.72
3/4	3/4	2-1/4	5	4	TC23219	328.55	TC23340	333.75
1	1	2-1/4	5	4	TC23222	541.49	TC23343	546.69

4 FLUTE - EXTRA LONG LENGTH - SQUARE END



SERIES V42XL
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC24408	61.30	-	-
3/8	3/8	2	4	4	TC24411	107.46	-	-
7/16	7/16	3	6	4	TC24413	176.20	-	-
1/2	1/2	3	6	4	TC24414	205.88	TC24543	211.07
5/8	5/8	3	6	4	TC24417	292.82	TC24546	298.01
3/4	3/4	3	6	4	TC24420	386.51	TC24549	391.71
3/4	3/4	4	7	4	TC24423	634.72	TC24552	639.92
1	1	3	6	4	TC24426	630.15	TC24555	635.34
1	1	4-1/4	7	4	TC24429	930.23	TC24558	935.80

The VI-PRO performs very well in a wide range of materials including:
 HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
 CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004



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VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - CORNER RADIUS



SERIES V42SR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	4	0.008	TC21503	29.96	-	-
3/16	3/16	3/8	2	4	0.008	TC21506	37.41	-	-
1/4	1/4	3/8	2	4	0.015	TC21509	44.10	-	-
5/16	5/16	7/16	2	4	0.015	TC21512	59.36	-	-
3/8	3/8	1/2	2	4	0.015	TC21515	65.34	-	-
7/16	7/16	5/8	2-1/2	4	0.030	TC21517	83.72	-	-
1/2	1/2	5/8	2-1/2	4	0.030	TC21518	99.87	TC21541	105.07
5/8	5/8	3/4	3	4	0.030	TC21521	188.27	TC21544	193.47
3/4	3/4	1	3	4	0.030	TC21524	245.56	TC21547	250.75

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004	+ .001, -.001
5/8" - 3/4"	+ .000, -.003	-.0001, -.0004	+ .001, -.001



All TITAN USA tools are 100% Made in the USA

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

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VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - REGULAR LENGTH - CORNER RADIUS



SERIES V42RR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/2	2	4	0.010	TC22617	35.02	-	-
1/8	1/8	1/2	2	4	0.020	TC22620	35.02	-	-
1/8	1/8	1/2	2	4	0.030	TC22623	35.02	-	-
3/16	3/16	9/16	2	4	0.010	TC22626	39.47	-	-
3/16	3/16	9/16	2	4	0.020	TC22629	39.47	-	-
3/16	3/16	9/16	2	4	0.030	TC22632	39.47	-	-
1/4	1/4	3/4	2-1/2	4	0.015	TC22635	49.02	-	-
1/4	1/4	3/4	2-1/2	4	0.030	TC22638	49.02	-	-
1/4	1/4	3/4	2-1/2	4	0.060	TC22641	49.02	-	-
5/16	5/16	13/16	2-1/2	4	0.015	TC22644	63.16	-	-
5/16	5/16	13/16	2-1/2	4	0.030	TC22647	63.16	-	-
5/16	5/16	13/16	2-1/2	4	0.060	TC22650	63.16	-	-
3/8	3/8	1	2-1/2	4	0.015	TC22653	73.75	-	-
3/8	3/8	1	2-1/2	4	0.030	TC22656	73.75	-	-
3/8	3/8	1	2-1/2	4	0.060	TC22659	73.75	-	-
7/16	7/16	1	2-3/4	4	0.015	TC22660	96.25	-	-
7/16	7/16	1	2-3/4	4	0.030	TC22661	96.25	-	-
7/16	7/16	1	2-3/4	4	0.060	TC22663	96.25	-	-
1/2	1/2	1	3	4	0.015	TC22662	117.82	TC22801	123.72
1/2	1/2	1	3	4	0.030	TC22665	117.82	TC22804	123.72
1/2	1/2	1	3	4	0.060	TC22668	117.82	TC22807	123.72
1/2	1/2	1	3	4	0.090	TC22671	117.82	TC22810	123.72
1/2	1/2	1	3	4	0.120	TC22674	117.82	TC22813	123.72
1/2	1/2	1-1/4	3	4	0.015	TC22677	117.82	TC22816	123.72
1/2	1/2	1-1/4	3	4	0.030	TC22680	117.82	TC22819	123.72
1/2	1/2	1-1/4	3	4	0.060	TC22683	117.82	TC22822	123.72
1/2	1/2	1-1/4	3	4	0.090	TC22686	117.82	TC22825	123.72
1/2	1/2	1-1/4	3	4	0.120	TC22689	117.82	TC22828	123.72
5/8	5/8	1-5/8	3-1/2	4	0.030	TC22692	198.50	TC22831	203.70
5/8	5/8	1-5/8	3-1/2	4	0.060	TC22695	198.50	TC22834	203.70
5/8	5/8	1-5/8	3-1/2	4	0.090	TC22698	198.50	TC22837	203.70
5/8	5/8	1-5/8	3-1/2	4	0.120	TC22701	198.50	TC22840	203.70
3/4	3/4	1-5/8	4	4	0.030	TC22704	275.27	TC22843	280.46
3/4	3/4	1-5/8	4	4	0.060	TC22707	275.27	TC22846	280.46
3/4	3/4	1-5/8	4	4	0.090	TC22710	275.27	TC22849	280.46
3/4	3/4	1-5/8	4	4	0.120	TC22713	275.27	TC22852	280.46
3/4	3/4	1-5/8	4	4	0.190	TC22714	275.27	TC22853	280.46
3/4	3/4	1-5/8	4	4	0.250	TC22715	275.27	TC22854	280.46
1	1	2	4	4	0.030	TC22716	502.59	TC22855	507.79
1	1	2	4	4	0.060	TC22719	502.59	TC22858	507.79
1	1	2	4	4	0.090	TC22722	502.59	TC22861	507.79
1	1	2	4	4	0.120	TC22725	502.59	TC22864	507.79
1	1	2	4	4	0.190	TC22728	502.60	TC22867	507.79
1	1	2	4	4	0.250	TC22731	502.60	TC22870	507.79

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



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VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - CORNER RADIUS



SERIES V42LR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	4	0.015	TC23820	55.28	-	-
1/4	1/4	1-1/8	3	4	0.030	TC23823	55.28	-	-
5/16	5/16	1-1/8	3	4	0.015	TC23826	75.31	-	-
5/16	5/16	1-1/8	3	4	0.030	TC23829	75.31	-	-
3/8	3/8	1-1/4	3	4	0.030	TC23832	99.67	-	-
3/8	3/8	1-1/4	3	4	0.060	TC23835	99.67	-	-
7/16	7/16	2	4	4	0.030	TC23836	128.01	-	-
7/16	7/16	2	4	4	0.060	TC23837	128.01	-	-
1/2	1/2	1-1/2	4	4	0.030	TC23838	140.28	TC23905	145.48
1/2	1/2	1-1/2	4	4	0.060	TC23841	140.28	TC23908	145.48
1/2	1/2	2	4	4	0.030	TC23844	154.62	TC23911	159.81
1/2	1/2	2	4	4	0.060	TC23847	154.62	TC23914	159.81
5/8	5/8	2-1/4	5	4	0.030	TC23850	280.15	TC23917	285.34
5/8	5/8	2-1/4	5	4	0.060	TC23853	280.15	TC23920	285.34
3/4	3/4	2-1/4	5	4	0.030	TC23856	352.78	TC23923	359.53
3/4	3/4	2-1/4	5	4	0.060	TC23859	352.78	TC23926	359.53
1	1	2-1/4	5	4	0.030	TC23862	550.12	TC23929	555.31
1	1	2-1/4	5	4	0.060	TC23865	550.12	TC23932	555.31

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -.002	-.0001, -.0004	+0.01, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004	+0.01, -.001



PVD coatings increase cutting tool performance

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

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VARIABLE INDEX GEOMETRY

4 FLUTE - EXTRA LONG LENGTH - CORNER RADIUS



CORNER RADIUS

SERIES V42XLR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/2	4	4	0.015	TC25217	67.28	-	-
1/4	1/4	1-1/2	4	4	0.030	TC25220	67.28	-	-
3/8	3/8	2	4	4	0.030	TC25223	113.95	-	-
3/8	3/8	2	4	4	0.060	TC25226	113.95	-	-
7/16	7/16	3	6	4	0.030	TC25227	180.48	-	-
7/16	7/16	3	6	4	0.060	TC25228	180.48	-	-
1/2	1/2	3	6	4	0.030	TC25229	212.37	TC25302	217.56
1/2	1/2	3	6	4	0.060	TC25232	212.37	TC25305	217.56
5/8	5/8	3	6	4	0.030	TC25235	299.26	TC25308	304.45
5/8	5/8	3	6	4	0.060	TC25238	299.26	TC25311	304.45
3/4	3/4	3	6	4	0.030	TC25241	395.14	TC25314	400.33
3/4	3/4	3	6	4	0.060	TC25244	395.14	TC25317	400.33
3/4	3/4	4	7	4	0.030	TC25247	643.34	TC25320	648.54
3/4	3/4	4	7	4	0.060	TC25250	643.34	TC25323	648.54
1	1	3	6	4	0.030	TC25253	646.77	TC25326	651.96
1	1	3	6	4	0.060	TC25256	646.77	TC25329	651.96
1	1	4-1/4	7	4	0.030	TC25259	939.14	TC25332	944.71
1	1	4-1/4	7	4	0.060	TC25262	939.14	TC25335	944.71

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -.002	-.0001, -.0004	+0.01, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004	+0.01, -.001



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VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - BALL NOSE



SERIES V42SB
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	4	TC25499	29.99	-	-
3/16	3/16	3/8	2	4	TC25501	42.85	-	-
1/4	1/4	3/8	2	4	TC25502	48.70	-	-
5/16	5/16	7/16	2	4	TC25504	63.53	-	-
3/8	3/8	1/2	2	4	TC25506	70.42	-	-
7/16	7/16	5/8	2-1/2	4	TC25507	94.80	-	-
1/2	1/2	5/8	2-1/2	4	TC25508	105.29	TC25514	111.28
5/8	5/8	3/4	3	4	TC25510	207.29	TC25516	213.28
3/4	3/4	1	3	4	TC25512	273.39	TC25518	279.38

4 FLUTE - REGULAR LENGTH - BALL NOSE



SERIES V42RB
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/2	2	4	TC25547	42.66	-	-
3/16	3/16	9/16	2	4	TC25549	47.15	-	-
1/4	1/4	3/4	2-1/2	4	TC25550	56.90	-	-
5/16	5/16	13/16	2-1/2	4	TC25552	68.86	-	-
3/8	3/8	1	2-1/2	4	TC25554	80.66	-	-
7/16	7/16	1	2-3/4	4	TC25555	110.33	-	-
1/2	1/2	1	3	4	TC25556	121.00	TC25566	126.99
1/2	1/2	1-1/4	3	4	TC25558	121.00	TC25568	126.99
5/8	5/8	1-5/8	3-1/2	4	TC25560	219.04	TC25570	225.03
3/4	3/4	1-5/8	4	4	TC25562	302.63	TC25572	308.62
1	1	2	4	4	TC25564	564.94	TC25574	570.93

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

Carbide Endmills

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VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - BALL NOSE



SERIES V42LB
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	4	TC25602	59.21	-	-
5/16	5/16	1-1/8	3	4	TC25604	81.92	-	-
3/8	3/8	1-1/4	3	4	TC25606	110.02	-	-
7/16	7/16	2	4	4	TC25607	137.11	-	-
1/2	1/2	1-1/2	4	4	TC25608	151.91	TC25618	157.90
1/2	1/2	2	4	4	TC25610	168.46	TC25620	174.45
5/8	5/8	2-1/4	5	4	TC25612	313.30	TC25622	319.29
3/4	3/4	2-1/4	5	4	TC25614	379.10	TC25624	385.09
1	1	2-1/4	5	4	TC25616	624.80	TC25626	630.79

4 FLUTE - EXTRA LONG LENGTH - BALL NOSE



SERIES V42XLB
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC25656	85.55	-	-
3/8	3/8	2	4	4	TC25658	123.99	-	-
7/16	7/16	3	6	4	TC25659	203.32	-	-
1/2	1/2	3	6	4	TC25660	237.55	TC25672	243.54
5/8	5/8	3	6	4	TC25662	337.87	TC25674	343.87
3/4	3/4	3	6	4	TC25664	445.98	TC25676	451.97
3/4	3/4	4	7	4	TC25666	732.37	TC25678	738.37
1	1	3	6	4	TC25668	727.10	TC25680	733.09
1	1	4-1/4	7	4	TC25670	1,073.34	TC25682	1,079.77

The VI-PRO performs very well in a wide range of materials including:
 HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
 CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217-219.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

+



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VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - STUB LENGTH - SQUARE END



SERIES V52S

ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	5	TC25807	28.59	-	-
3/16	3/16	3/8	2	5	TC25809	36.79	-	-
1/4	1/4	3/8	2	5	TC25796	41.63	-	-
5/16	5/16	7/16	2	5	TC25797	60.56	-	-
3/8	3/8	1/2	2	5	TC25798	67.13	-	-
1/2	1/2	5/8	2-1/2	5	TC25799	100.38	TC25802	106.09
5/8	5/8	3/4	3	5	TC25800	197.62	TC25803	203.33
3/4	3/4	1	3	5	TC25801	260.63	TC25804	266.34

5 FLUTE - REGULAR LENGTH - SQUARE END



SERIES V52R

ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/2	2	5	TC25829	34.17	-	-
3/16	3/16	9/16	2	5	TC25835	39.06	-	-
1/4	1/4	3/4	2-1/2	5	TC25836	49.58	-	-
5/16	5/16	13/16	2-1/2	5	TC25838	65.65	-	-
3/8	3/8	1	2-1/2	5	TC25840	76.90	-	-
1/2	1/2	1	3	5	TC25842	115.35	TC25852	121.06
1/2	1/2	1-1/4	3	5	TC25844	115.35	TC25854	121.06
5/8	5/8	1-5/8	3-1/2	5	TC25846	208.82	TC25856	214.53
3/4	3/4	1-5/8	4	5	TC25848	288.51	TC25858	294.22
1	1	2	4	5	TC25850	538.58	TC25860	544.29

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.002	-0.001, -0.0004
5/8" - 1"	+0.00, -0.003	-0.001, -0.0004

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

Carbide Endmills

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VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - LONG LENGTH - SQUARE END



SERIES V52L
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	5	TC25888	56.45	-	-
5/16	5/16	1-1/8	3	5	TC25890	78.09	-	-
3/8	3/8	1-1/4	3	5	TC25892	104.89	-	-
1/2	1/2	1-1/2	4	5	TC25894	144.83	TC25904	150.53
1/2	1/2	2	4	5	TC25896	160.60	TC25906	166.31
5/8	5/8	2-1/4	5	5	TC25898	298.68	TC25908	304.39
3/4	3/4	2-1/4	5	5	TC25900	361.41	TC25910	367.12
1	1	2-1/4	5	5	TC25902	595.65	TC25912	601.35

5 FLUTE - EXTRA LONG LENGTH - SQUARE END



SERIES V52XL
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/2	4	5	TC25942	67.43	-	-
3/8	3/8	2	4	5	TC25944	118.21	-	-
1/2	1/2	3	6	5	TC25946	226.46	TC25958	232.18
5/8	5/8	3	6	5	TC25948	322.09	TC25960	327.82
3/4	3/4	3	6	5	TC25950	425.18	TC25962	430.88
3/4	3/4	4	7	5	TC25952	698.18	TC25964	703.91
1	1	3	6	5	TC25954	693.16	TC25966	698.88
1	1	4-1/4	7	5	TC25956	1,023.25	TC25968	1,029.38

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

VI-PRO - 4 FLUTE
VI-PRO - 5 FLUTE
VI-PRO - 6 FLUTE
THREADMILLS



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VARIABLE INDEX GEOMETRY

5 FLUTE - STUB LENGTH - CORNER RADIUS



SERIES V52SR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	#FL	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	5	0.008	TC25995	32.95	-	-
3/16	3/16	3/8	2	5	0.008	TC25996	41.15	-	-
1/4	1/4	3/8	2	5	0.015	TC25986	48.52	-	-
5/16	5/16	7/16	2	5	0.015	TC25987	65.30	-	-
3/8	3/8	1/2	2	5	0.015	TC25988	71.87	-	-
1/2	1/2	5/8	2-1/2	5	0.030	TC25989	109.86	TC25992	115.57
5/8	5/8	3/4	3	5	0.030	TC25990	207.10	TC25993	212.81
3/4	3/4	1	3	5	0.030	TC25991	270.11	TC25994	275.82

The VI-PRO performs very well in a wide range of materials including:

HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004	+0.01, -0.01
5/8" - 3/4"	+0.00, -0.03	-0.001, -0.004	+0.01, -0.01



The VI-PRO 5 Flute Stub Length comes in 3 radius sizes; 0.008, 0.015, 0.030

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

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VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - REGULAR LENGTH - CORNER RADIUS



SERIES V52RR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	#FL	RAD	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	5	0.015	TC26416	53.93	-	-
1/4	1/4	3/4	2-1/2	5	0.030	TC26419	53.93	-	-
1/4	1/4	3/4	2-1/2	5	0.060	TC26422	53.93	-	-
5/16	5/16	13/16	2-1/2	5	0.015	TC26425	69.47	-	-
5/16	5/16	13/16	2-1/2	5	0.030	TC26428	69.47	-	-
5/16	5/16	13/16	2-1/2	5	0.060	TC26431	69.47	-	-
3/8	3/8	1	2-1/2	5	0.015	TC26434	81.13	-	-
3/8	3/8	1	2-1/2	5	0.030	TC26437	81.13	-	-
3/8	3/8	1	2-1/2	5	0.060	TC26440	81.13	-	-
1/2	1/2	1	3	5	0.015	TC26443	129.60	TC26625	136.09
1/2	1/2	1	3	5	0.030	TC26446	129.60	TC26628	136.09
1/2	1/2	1	3	5	0.060	TC26449	129.60	TC26631	136.09
1/2	1/2	1	3	5	0.090	TC26452	129.60	TC26634	136.09
1/2	1/2	1	3	5	0.120	TC26455	129.60	TC26637	136.09
1/2	1/2	1-1/4	3	5	0.015	TC26458	129.60	TC26640	136.09
1/2	1/2	1-1/4	3	5	0.030	TC26461	129.60	TC26643	136.09
1/2	1/2	1-1/4	3	5	0.060	TC26464	129.60	TC26646	136.09
1/2	1/2	1-1/4	3	5	0.090	TC26467	129.60	TC26649	136.09
1/2	1/2	1-1/4	3	5	0.120	TC26470	129.60	TC26652	136.09
5/8	5/8	1-5/8	3-1/2	5	0.030	TC26473	218.35	TC26655	224.07
5/8	5/8	1-5/8	3-1/2	5	0.060	TC26476	218.35	TC26658	224.07
5/8	5/8	1-5/8	3-1/2	5	0.090	TC26479	218.35	TC26661	224.07
5/8	5/8	1-5/8	3-1/2	5	0.120	TC26482	218.35	TC26664	224.07
3/4	3/4	1-5/8	4	5	0.030	TC26485	302.79	TC26667	308.51
3/4	3/4	1-5/8	4	5	0.060	TC26488	302.79	TC26670	308.51
3/4	3/4	1-5/8	4	5	0.090	TC26491	302.79	TC26673	308.51
3/4	3/4	1-5/8	4	5	0.120	TC26494	302.79	TC26676	308.51
3/4	3/4	1-5/8	4	5	0.190	TC26495	302.79	TC26677	308.51
3/4	3/4	1-5/8	4	5	0.250	TC26496	302.79	TC26678	308.51
1	1	2	4	5	0.030	TC26497	552.85	TC26679	558.57
1	1	2	4	5	0.060	TC26500	552.85	TC26682	558.57
1	1	2	4	5	0.090	TC26503	552.85	TC26685	558.57
1	1	2	4	5	0.120	TC26506	552.85	TC26688	558.57
1	1	2	4	5	0.190	TC26507	552.85	TC26689	558.57
1	1	2	4	5	0.250	TC26508	552.85	TC26690	558.57

The VI-PRO performs very well in a wide range of materials including:
 HIGH TEMP ALLOYS • STAINLESS STEELS • ALLOY STEELS • INCONEL
 CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004	+0.01, -0.01



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VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - LONG LENGTH - CORNER RADIUS



SERIES V52LR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	5	0.015	TC27109	60.81	-	-
1/4	1/4	1-1/8	3	5	0.030	TC27112	60.81	-	-
5/16	5/16	1-1/8	3	5	0.015	TC27115	82.84	-	-
5/16	5/16	1-1/8	3	5	0.030	TC27118	82.84	-	-
3/8	3/8	1-1/4	3	5	0.030	TC27121	109.63	-	-
3/8	3/8	1-1/4	3	5	0.060	TC27124	109.63	-	-
1/2	1/2	2	4	5	0.030	TC27127	170.08	TC27262	175.79
1/2	1/2	2	4	5	0.060	TC27130	170.08	TC27265	175.79
5/8	5/8	2-1/4	5	5	0.030	TC27133	308.16	TC27268	313.88
5/8	5/8	2-1/4	5	5	0.060	TC27136	308.16	TC27271	313.88
3/4	3/4	2-1/4	5	5	0.030	TC27139	388.06	TC27274	395.49
3/4	3/4	2-1/4	5	5	0.060	TC27142	388.06	TC27277	395.49
1	1	2-1/4	5	5	0.030	TC27145	605.13	TC27280	610.84
1	1	2-1/4	5	5	0.060	TC27148	605.13	TC27283	610.84

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -.002	-.0001, -.0004	+0.01, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004	+0.01, -.001



Preparing tools in our state-of-the-art, PVD coating center

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

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VARIABLE INDEX GEOMETRY

5 FLUTE - EXTRA LONG LENGTH - CORNER RADIUS



SERIES V52XLR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/2	4	5	0.015	TC27928	74.00	-	-
1/4	1/4	1-1/2	4	5	0.030	TC27931	74.00	-	-
3/8	3/8	2	4	5	0.030	TC27934	125.34	-	-
3/8	3/8	2	4	5	0.060	TC27937	125.34	-	-
1/2	1/2	3	6	5	0.030	TC27940	233.61	TC28002	239.32
1/2	1/2	3	6	5	0.060	TC27943	233.61	TC28005	239.32
5/8	5/8	3	6	5	0.030	TC27946	329.19	TC28008	334.90
5/8	5/8	3	6	5	0.060	TC27949	329.19	TC28011	334.90
3/4	3/4	3	6	5	0.030	TC27952	434.65	TC28014	440.36
3/4	3/4	3	6	5	0.060	TC27955	434.65	TC28017	440.36
3/4	3/4	4	7	5	0.030	TC27958	707.68	TC28020	713.39
3/4	3/4	4	7	5	0.060	TC27961	707.68	TC28023	713.39
1	1	3	6	5	0.030	TC27964	711.45	TC28026	717.16
1	1	3	6	5	0.060	TC27967	711.45	TC28029	717.16
1	1	4-1/4	7	5	0.030	TC27970	1,033.06	TC28032	1,039.18
1	1	4-1/4	7	5	0.060	TC27973	1,033.06	TC28035	1,039.18

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TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+ .000, -.002	-.0001, -.0004	+ .001, -.001
5/8" - 1"	+ .000, -.003	-.0001, -.0004	+ .001, -.001



TITAN USA has over 13,000 items in stock and ready to ship

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS



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VI-PRO VARIABLE INDEX GEOMETRY

6 FLUTE - REGULAR LENGTH - SQUARE END



SERIES V62R
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL		ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	6		TC64516	88.10	-	-
5/16	5/16	13/16	2-1/2	6		TC64520	104.63	-	-
3/8	3/8	1	2-1/2	6		TC64524	112.76	-	-
1/2	1/2	1-1/4	3	6		TC64532	150.76	TC64579	158.29
5/8	5/8	1-5/8	3-1/2	6		TC64540	251.24	TC64581	258.77
3/4	3/4	1-5/8	4	6		TC64548	315.37	TC64583	324.82
1	1	2	4	6		TC64564	483.02	TC64585	492.67

6 FLUTE - REGULAR LENGTH - CORNER RADIUS



SERIES V62RR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★						ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD		ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	6	0.015		TC67116	98.34	-	-
5/16	5/16	13/16	2-1/2	6	0.015		TC67120	116.84	-	-
3/8	3/8	1	2-1/2	6	0.015		TC67124	125.93	-	-
1/2	1/2	1-1/4	3	6	0.030		TC67132	168.33	TC67184	176.73
5/8	5/8	1-5/8	3-1/2	6	0.030		TC67140	268.31	TC67186	276.35
3/4	3/4	1-5/8	4	6	0.060		TC67148	336.80	TC67188	346.90
1	1	2	4	6	0.060		TC67164	515.83	TC67190	531.31

The VI-PRO performs very well in a wide range of materials including:

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- CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -0.02	-0.001, -0.004	+0.01, -0.01

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

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VARIABLE INDEX GEOMETRY

6 FLUTE - LONG LENGTH - SQUARE END



SERIES V62L
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL		ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	6		TC61316	97.12	-	-
5/16	5/16	1-1/8	3	6		TC61320	113.33	-	-
3/8	3/8	1-1/4	3	6		TC61324	128.79	-	-
1/2	1/2	2	4	6		TC61332	200.32	TC61384	210.33
5/8	5/8	2-1/4	5	6		TC61340	311.18	TC61386	320.53
3/4	3/4	2-1/4	5	6		TC61348	388.62	TC61388	400.28
1	1	3	6	6		TC61364	787.65	TC61390	803.40

6 FLUTE - LONG LENGTH - CORNER RADIUS



SERIES V62LR
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★						ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# FL	RAD		ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	6	0.015		TC61216	108.46	-	-
5/16	5/16	1-1/8	3	6	0.015		TC61220	126.53	-	-
3/8	3/8	1-1/4	3	6	0.015		TC61224	143.82	-	-
1/2	1/2	2	4	6	0.030		TC61232	223.65	TC61287	234.82
5/8	5/8	2-1/4	5	6	0.030		TC61240	332.33	TC61289	342.32
3/4	3/4	2-1/4	5	6	0.060		TC61248	415.03	TC61291	427.49
1	1	3	6	6	0.060		TC61264	841.15	TC61293	857.99

The VI-PRO performs very well in a wide range of materials including:

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- CAST IRON • HIGH TEMP NICKEL BASE ALLOYS • TITANIUM ALLOYS • EXOTICS

For coating information see page 6. For VI-PRO technical information, please see pages 217, 222-223.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -.002	-.0001, -.0004	+0.001, -.001



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INTERNAL/EXTERNAL - UN THREADS



SERIES 840
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# FL	ITEM#	LIST PRICE
2 - 56	1/8	0.065	0.125	2	3	TC83995	160.00
4 - 40	1/8	0.085	0.180	2	3	TC83998	160.00
6 - 32	1/8	0.100	0.218	2	3	TC84001	171.47
8 - 32	1/8	0.115	0.250	2	3	TC84003	171.47
8 - 36	1/8	0.115	0.250	2	3	TC84005	171.47
10 - 24	3/16	0.120	0.312	2	3	TC84007	171.47
10 - 32	3/16	0.120	0.312	2	3	TC84009	171.47
1/4 - 20	3/16	0.180	0.500	2-1/2	3	TC84011	193.94
1/4 - 28	3/16	0.180	0.500	2-1/2	3	TC84013	193.94
5/16 - 18	1/4	0.240	0.625	2-1/2	3	TC84015	228.22
5/16 - 24	1/4	0.240	0.625	2-1/2	3	TC84017	228.22
3/8 - 16	5/16	0.290	0.750	3	4	TC84019	271.94
3/8 - 24	5/16	0.290	0.750	3	4	TC84021	271.94
7/16 - 14	3/8	0.340	0.875	3	4	TC84023	293.26
7/16 - 20	3/8	0.340	0.875	3	4	TC84025	293.26
1/2 - 13	3/8	0.350	0.875	3-1/2	4	TC84027	293.26
1/2 - 20	3/8	0.350	0.875	3-1/2	4	TC84029	293.26
9/16 - 12	1/2	0.370	0.875	3-1/2	4	TC84031	293.26
9/16 - 18	1/2	0.370	0.875	3-1/2	4	TC84033	293.26
5/8 - 11	1/2	0.470	1.250	3-1/2	5	TC84035	366.56
5/8 - 18	1/2	0.470	1.250	3-1/2	5	TC84037	366.56
3/4 - 10	1/2	0.495	1.250	3-1/2	4	TC84039	366.56
3/4 - 16	1/2	0.495	1.250	3-1/2	4	TC84041	366.56
7/8 - 9	5/8	0.620	1.250	3-1/2	5	TC84043	458.80
7/8 - 14	5/8	0.620	1.250	3-1/2	5	TC84045	458.80
1 - 8	3/4	0.620	1.375	4	5	TC84047	458.80
1 - 12	3/4	0.620	1.375	4	5	TC84049	458.80

For coating information see page 6. For technical information please see page 227.

THREADMILL CUTTING DIAMETER TOLERANCE

+0.00, -0.02

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

Carbide Threadmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

INTERNAL/EXTERNAL - UN THREADS
COOLANT END FED



SERIES 848
ALTiN COATED

END VIEW

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# FL	ITEM#	LIST PRICE
10 - 32	3/16	0.120	0.312	2	3	TC84810	199.00
1/4 - 20	3/16	0.180	0.500	2-1/2	3	TC84812	210.00
1/4 - 28	3/16	0.180	0.500	2-1/2	3	TC84814	210.00
5/16 - 18	1/4	0.240	0.625	2-1/2	3	TC84816	260.00
5/16 - 24	1/4	0.240	0.625	2-1/2	3	TC84818	260.00
3/8 - 16	5/16	0.290	0.750	3	4	TC84820	322.00
3/8 - 24	5/16	0.290	0.750	3	4	TC84822	322.00
7/16 - 14	3/8	0.340	0.875	3	4	TC84824	375.00
7/16 - 20	3/8	0.340	0.875	3	4	TC84826	375.00
1/2 - 13	3/8	0.350	0.875	3-1/2	4	TC84828	389.00
1/2 - 20	3/8	0.350	0.875	3-1/2	4	TC84830	389.00
3/4 - 10	1/2	0.495	1.250	3-1/2	4	TC84840	499.00
3/4 - 16	1/2	0.495	1.250	3-1/2	4	TC84842	499.00

For coating information see page 6. For technical information please see page 227.

THREADMILL CUTTING DIAMETER TOLERANCE	+ .000, -.002
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VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS



Carbide Threadmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

INTERNAL/EXTERNAL - NPT PIPE THREADS



SERIES 842
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# FL	ITEM#	LIST PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	TC84200	228.22
1/8 - 27	5/16	0.310	0.437	2-1/2	4	TC84202	228.22
1/4 - 18	3/8	0.370	0.625	3	4	TC84204	260.13
3/8 - 18	3/8	0.370	0.625	3	4	TC84206	260.13
1/2 - 14	1/2	0.495	0.875	3-1/2	4	TC84208	366.56
3/4 - 14	1/2	0.495	0.875	3-1/2	4	TC84210	366.56
1 - 11-1/2	3/4	0.620	1.125	4	5	TC84212	458.80

INTERNAL/EXTERNAL - NPTF PIPE THREADS



SERIES 844
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# FL	ITEM#	LIST PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	TC84401	228.22
1/8 - 27	5/16	0.310	0.437	2-1/2	4	TC84403	228.22
1/4 - 18	3/8	0.370	0.625	3	4	TC84405	260.13
3/8 - 18	3/8	0.370	0.625	3	4	TC84407	260.13
1/2 - 14	1/2	0.495	0.875	3-1/2	4	TC84409	366.56
3/4 - 14	1/2	0.495	0.875	3-1/2	4	TC84411	366.56
1 - 11-1/2	3/4	0.620	1.125	4	5	TC84413	458.80

For coating information see page 6. For technical information please see page 227.

THREADMILL CUTTING DIAMETER TOLERANCE

+0.00, -0.02

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS

Carbide Threadmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

INTERNAL/EXTERNAL
METRIC THREADS



SERIES 846
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# FL	ITEM#	LIST PRICE
M4 x 0.70	1/8	0.115	0.250	2	3	TC84620	175.01
M4.5 x 0.75	1/8	0.120	0.250	2	3	TC84622	175.01
M5 x 0.80	3/16	0.120	0.312	2	3	TC84624	175.01
M6 x 1.00	3/16	0.170	0.500	2-1/2	3	TC84626	192.75
M8 x 0.75	1/4	0.235	0.625	2-1/2	3	TC84628	228.22
M8 x 1.00	1/4	0.235	0.625	2-1/2	3	TC84630	228.22
M8 x 1.25	1/4	0.235	0.625	2-1/2	3	TC84632	228.22
M10 x 1.25	5/16	0.300	0.750	3	4	TC84634	271.94
M10 x 1.50	5/16	0.300	0.750	3	4	TC84636	271.94
M12 x 1.00	3/8	0.360	0.875	3-1/2	4	TC84638	294.41
M12 x 1.25	3/8	0.360	0.875	3-1/2	4	TC84640	294.41
M12 x 1.75	3/8	0.360	0.875	3-1/2	4	TC84642	294.41
M14 x 1.50	3/8	0.360	0.875	3-1/2	4	TC84644	294.41
M16 x 2.00	1/2	0.470	1.250	3-1/2	5	TC84646	366.56
M18 x 2.50	1/2	0.470	1.250	3-1/2	5	TC84648	366.56
M20 x 3.00	5/8	0.470	1.250	3-1/2	5	TC84650	366.56

For coating information see page 6. For technical information please see page 227.

THREADMILL CUTTING DIAMETER TOLERANCE	+ .000, -.002
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VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREADMILLS



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

FINE PITCH ROUGHER - 4 FLUTE - STUB LENGTH - 30° HELIX



SERIES 203
UNCOATED



SERIES 293
ALTiN COATED

DIA	SHANK	LOC	OAL	#FL	ITEM#	LIST PRICE
1/4	1/4	3/8	2	4	TC20316	44.69
5/16	5/16	1/2	2	4	TC20320	61.55
3/8	3/8	9/16	2	4	TC20324	71.79
1/2	1/2	5/8	2-1/2	4	TC20332	91.47
5/8	5/8	3/4	3	4	TC20340	193.87
3/4	3/4	1	3	4	TC20348	237.12

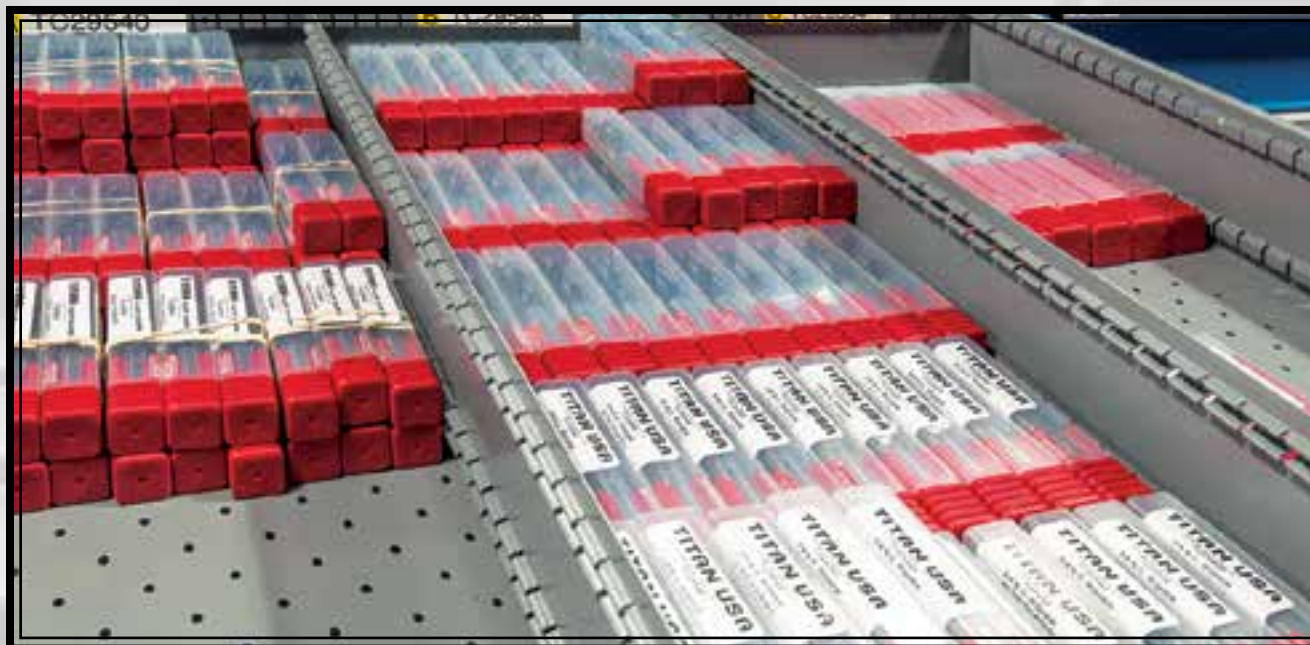
DIA	SHANK	LOC	OAL	#FL	ITEM#	LIST PRICE
1/4	1/4	3/8	2	4	TC29316	54.79
5/16	5/16	1/2	2	4	TC29320	76.94
3/8	3/8	9/16	2	4	TC29324	89.75
1/2	1/2	5/8	2-1/2	4	TC29332	112.17
5/8	5/8	3/4	3	4	TC29340	242.33
3/4	3/4	1	3	4	TC29348	290.83

Our fine pitch rougher is designed to remove maximum material with minimum vibration or chatter, while milling faster than conventional finishing end mills. Excellent for:

HARDENED STEELS • TITANIUM • INCONEL • SPACE AGE MATERIALS

For coating information see page 6. For technical information, please see page 226.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.002	-0.0001, -.0004
5/8" - 3/4"	+0.00, -0.003	-0.0001, -.0004



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ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

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TAKE 55% OFF LIST PRICES

FINE PITCH ROUGHER - 4 FLUTE - REGULAR LENGTH - 30° HELIX



SERIES 205
UNCOATED



SERIES 295
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	TC20516	49.66
5/16	5/16	13/16	2-1/2	4	TC20520	68.39
3/8	3/8	7/8	2-1/2	4	TC20524	79.77
1/2	1/2	1-1/4	3	4	TC20532	101.64
5/8	5/8	1-5/8	3-1/2	4	TC20540	215.41
3/4	3/4	1-5/8	4	4	TC20548	263.46
1	1	2	4	4	TC20564	489.26

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	TC29516	61.46
5/16	5/16	13/16	2-1/2	4	TC29520	85.49
3/8	3/8	7/8	2-1/2	4	TC29524	99.72
1/2	1/2	1-1/4	3	4	TC29532	125.83
5/8	5/8	1-5/8	3-1/2	4	TC29540	269.24
3/4	3/4	1-5/8	4	4	TC29548	326.22
1	1	2	4	4	TC29564	600.01

FINE PITCH ROUGHER - 4 FLUTE - LONG LENGTH - 30° HELIX



SERIES 206
UNCOATED



SERIES 296
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC20616	70.39
5/16	5/16	1-1/2	4	4	TC20620	90.27
3/8	3/8	1-3/4	4	4	TC20624	112.85
1/2	1/2	2	4	4	TC20632	130.33
5/8	5/8	2-1/2	5	4	TC20640	305.42
3/4	3/4	2-1/2	5	4	TC20648	367.54
1	1	2-1/2	5	4	TC20664	627.87

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC29616	88.01
5/16	5/16	1-1/2	4	4	TC29620	112.85
3/8	3/8	1-3/4	4	4	TC29624	141.08
1/2	1/2	2	4	4	TC29632	163.05
5/8	5/8	2-1/2	5	4	TC29640	383.58
3/4	3/4	2-1/2	5	4	TC29648	460.72
1	1	2-1/2	5	4	TC29664	786.16

Our fine pitch rougher is designed to remove maximum material with minimum vibration or chatter, while milling faster than conventional finishing end mills. Excellent for:

HARDENED STEELS • TITANIUM • INCONEL • SPACE AGE MATERIALS

For coating information see page 6. For technical information, please see page 226.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

FINE PITCH ROUGHER
4 FLUTE - REGULAR LENGTH - BALL NOSE - 30° HELIX



SERIES 207
UNCOATED

DIA	SHANK	LOC	OAL	#FL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	TC20716	64.35
5/16	5/16	7/8	2-1/2	4	TC20720	82.50
3/8	3/8	1	2-1/2	4	TC20724	105.60
1/2	1/2	1-1/4	3	4	TC20732	145.20
5/8	5/8	1-5/8	3-1/2	4	TC20740	253.00
3/4	3/4	1-5/8	4	4	TC20748	353.10
1	1	2	4	4	TC20764	577.50



SERIES 299
ALTiN COATED

DIA	SHANK	LOC	OAL	#FL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	TC29916	77.00
5/16	5/16	7/8	2-1/2	4	TC29920	99.00
3/8	3/8	1	2-1/2	4	TC29924	126.50
1/2	1/2	1-1/4	3	4	TC29932	173.80
5/8	5/8	1-5/8	3-1/2	4	TC29940	303.60
3/4	3/4	1-5/8	4	4	TC29948	423.50
1	1	2	4	4	TC29964	687.50

Our fine pitch rougher is designed to remove maximum material with minimum vibration or chatter, while milling faster than conventional finishing end mills. Excellent for:

HARDENED STEELS • TITANIUM • INCONEL • SPACE AGE MATERIALS

For coating information see page 6. For technical information, please see page 226.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

ROUGHER/FINISHER

4 FLUTE - REGULAR LENGTH - CORNER RADIUS - 40° HELIX



SERIES 297
UNCOATED

DIA	SHANK	LOC	OAL	#FL	RAD	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	0.020	TC29716	85.16
5/16	5/16	13/16	2-1/2	4	0.020	TC29720	92.24
3/8	3/8	7/8	2-1/2	4	0.020	TC29724	100.23
1/2	1/2	1-1/4	3	4	0.040	TC29732	115.84
5/8*	5/8	1-5/8	3-1/2	4	0.040	TC29740	230.69
3/4*	3/4	1-5/8	4	4	0.040	TC29748	308.19
1*	1	1-5/8	4	4	0.040	TC29764	502.96

* WITH WELDON FLATS



SERIES 298
ALTiN COATED

DIA	SHANK	LOC	OAL	#FL	RAD	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	4	0.020	TC29816	106.46
5/16	5/16	13/16	2-1/2	4	0.020	TC29820	115.29
3/8	3/8	7/8	2-1/2	4	0.020	TC29824	125.28
1/2	1/2	1-1/4	3	4	0.040	TC29832	144.83
5/8*	5/8	1-5/8	3-1/2	4	0.040	TC29840	288.35
3/4*	3/4	1-5/8	4	4	0.040	TC29848	385.26
1*	1	1-5/8	4	4	0.040	TC29864	628.72

* WITH WELDON FLATS

The radius chipbreakers in this high performance tool allow for higher feed rates than a finishing endmill yet does not appreciably degrade the finish that the tool produces.

Works well in hard to machine materials such as stainless steel and titanium.

For coating information see page 6. For technical information, please see page 226.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -0.02	-0.0001, -0.0004	+0.02, -0.02

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

FOR ALUMINUM
2 FLUTE - REGULAR LENGTH - SQUARE END - 45° HELIX



SERIES 626
UNCOATED



SERIES 627
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	2	TC62608	20.87
3/16	3/16	5/8	2	2	TC62612	29.09
1/4	1/4	3/4	2-1/2	2	TC62616	41.97
5/16	5/16	13/16	2-1/2	2	TC62620	49.55
3/8	3/8	1	2-1/2	2	TC62624	52.48
1/2	1/2	1-1/4	3	2	TC62632	86.86
5/8	5/8	1-5/8	3-1/2	2	TC62640	166.13
3/4	3/4	1-3/4	4	2	TC62648	238.12
1	1	1-3/4	4	2	TC62664	392.60

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	2	TC62708	26.09
3/16	3/16	5/8	2	2	TC62712	36.37
1/4	1/4	3/4	2-1/2	2	TC62716	50.75
5/16	5/16	13/16	2-1/2	2	TC62720	59.94
3/8	3/8	1	2-1/2	2	TC62724	63.43
1/2	1/2	1-1/4	3	2	TC62732	100.74
5/8	5/8	1-5/8	3-1/2	2	TC62740	201.34
3/4	3/4	1-3/4	4	2	TC62748	289.17
1	1	1-3/4	4	2	TC62764	476.00

FOR ALUMINUM
2 FLUTE - REGULAR LENGTH - CORNER RADIUS - 45° HELIX



SERIES 646
UNCOATED



SERIES 647
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	2	0.020	TC64608	24.93
3/16	3/16	5/8	2	2	0.020	TC64612	34.21
1/4	1/4	3/4	2-1/2	2	0.020	TC64616	46.86
5/16	5/16	13/16	2-1/2	2	0.020	TC64620	55.34
3/8	3/8	1	2-1/2	2	0.020	TC64624	58.61
1/2	1/2	1-1/4	3	2	0.040	TC64632	96.98
5/8	5/8	1-5/8	3-1/2	2	0.040	TC64640	177.41
3/4	3/4	1-3/4	4	2	0.040	TC64648	254.32
1	1	1-3/4	4	2	0.040	TC64664	419.29

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	2	0.020	TC64708	31.18
3/16	3/16	5/8	2	2	0.020	TC64712	42.76
1/4	1/4	3/4	2-1/2	2	0.020	TC64716	56.64
5/16	5/16	13/16	2-1/2	2	0.020	TC64720	66.93
3/8	3/8	1	2-1/2	2	0.020	TC64724	70.82
1/2	1/2	1-1/4	3	2	0.040	TC64732	112.45
5/8	5/8	1-5/8	3-1/2	2	0.040	TC64740	215.02
3/4	3/4	1-3/4	4	2	0.040	TC64748	308.84
1	1	1-3/4	4	2	0.040	TC64764	508.35

These 2 flute roughing tools are designed specifically for high speed machining in aluminum. This tool will plunge, slot and profile in all non-ferrous materials. Our ZRN coating allows for higher speed rates and prolonged tool life and does not have an affinity for aluminum.

Works well in all non-ferrous materials as well as brass and bronze applications

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.00, -0.003	-0.0001, -0.0004	+0.001, -0.001

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

FOR ALUMINUM
2 FLUTE - LONG LENGTH - SQUARE END - 45° HELIX



SERIES 632
UNCOATED



SERIES 633
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	2	TC63208	35.44
3/16	3/16	3/4	2-1/2	2	TC63212	40.87
1/4	1/4	1-1/4	3	2	TC63216	57.61
5/16	5/16	1-3/8	3	2	TC63220	74.58
3/8	3/8	1-1/2	4	2	TC63224	93.42
1/2	1/2	2	4	2	TC63232	130.89
5/8	5/8	2-3/8	5	2	TC63240	271.40
3/4	3/4	2-1/2	5	2	TC63248	298.22
1	1	2-1/4	5	2	TC63264	490.21

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	2	TC63308	44.30
3/16	3/16	3/4	2-1/2	2	TC63312	51.08
1/4	1/4	1-1/4	3	2	TC63316	69.62
5/16	5/16	1-3/8	3	2	TC63320	94.71
3/8	3/8	1-1/2	4	2	TC63324	112.98
1/2	1/2	2	4	2	TC63332	158.71
5/8	5/8	2-3/8	5	2	TC63340	345.41
3/4	3/4	2-1/2	5	2	TC63348	373.30
1	1	2-1/4	5	2	TC63364	587.82

FOR ALUMINUM
2 FLUTE - LONG LENGTH - CORNER RADIUS - 45° HELIX



SERIES 652
UNCOATED



SERIES 653
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	2	0.020	TC65208	42.50
3/16	3/16	3/4	2-1/2	2	0.020	TC65212	49.02
1/4	1/4	1-1/4	3	2	0.020	TC65216	64.33
5/16	5/16	1-3/8	3	2	0.020	TC65220	83.27
3/8	3/8	1-1/2	4	2	0.020	TC65224	104.30
1/2	1/2	2	4	2	0.040	TC65232	146.10
5/8	5/8	2-3/8	5	2	0.040	TC65240	289.83
3/4	3/4	2-1/2	5	2	0.040	TC65248	318.45
1	1	2-1/4	5	2	0.040	TC65264	523.56

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	2	0.020	TC65308	53.15
3/16	3/16	3/4	2-1/2	2	0.020	TC65312	61.30
1/4	1/4	1-1/4	3	2	0.020	TC65316	77.74
5/16	5/16	1-3/8	3	2	0.020	TC65320	105.73
3/8	3/8	1-1/2	4	2	0.020	TC65324	126.16
1/2	1/2	2	4	2	0.040	TC65332	177.21
5/8	5/8	2-3/8	5	2	0.040	TC65340	368.87
3/4	3/4	2-1/2	5	2	0.040	TC65348	398.66
1	1	2-1/4	5	2	0.040	TC65364	627.79

These 2 flute roughing tools are designed specifically for high speed machining in aluminum. This tool will plunge, slot and profile in all non-ferrous materials. Our ZRN coating allows for higher speed rates and prolonged tool life and does not have an affinity for aluminum.

Works well in all non-ferrous materials as well as brass and bronze applications

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.00, -0.003	-0.0001, -0.0004	+0.001, -0.001



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

FOR ALUMINUM

3 FLUTE - REGULAR LENGTH - SQUARE END - 45° HELIX



SERIES 628
UNCOATED



SERIES 629
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC62808	20.87
3/16	3/16	5/8	2	3	TC62812	29.09
1/4	1/4	3/4	2-1/2	3	TC62816	41.97
5/16	5/16	13/16	2-1/2	3	TC62820	49.55
3/8	3/8	1	2-1/2	3	TC62824	52.48
1/2	1/2	1-1/4	3	3	TC62832	86.86
5/8	5/8	1-5/8	3-1/2	3	TC62840	166.13
3/4	3/4	1-3/4	4	3	TC62848	238.12
1	1	1-3/4	4	3	TC62864	392.60

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC62908	26.09
3/16	3/16	5/8	2	3	TC62912	36.37
1/4	1/4	3/4	2-1/2	3	TC62916	50.75
5/16	5/16	13/16	2-1/2	3	TC62920	59.94
3/8	3/8	1	2-1/2	3	TC62924	63.43
1/2	1/2	1-1/4	3	3	TC62932	100.74
5/8	5/8	1-5/8	3-1/2	3	TC62940	201.34
3/4	3/4	1-3/4	4	3	TC62948	289.17
1	1	1-3/4	4	3	TC62964	476.00

FOR ALUMINUM

3 FLUTE - REGULAR LENGTH - CORNER RADIUS - 45° HELIX



SERIES 658
UNCOATED



SERIES 659
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.020	TC65808	24.93
3/16	3/16	5/8	2	3	0.020	TC65812	34.21
1/4	1/4	3/4	2-1/2	3	0.020	TC65816	46.86
5/16	5/16	13/16	2-1/2	3	0.020	TC65820	55.34
3/8	3/8	1	2-1/2	3	0.020	TC65824	58.61
1/2	1/2	1-1/4	3	3	0.040	TC65832	96.98
5/8	5/8	1-5/8	3-1/2	3	0.040	TC65840	177.41
3/4	3/4	1-3/4	4	3	0.040	TC65848	254.32
1	1	1-3/4	4	3	0.040	TC65864	419.29

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.020	TC65908	31.18
3/16	3/16	5/8	2	3	0.020	TC65912	42.76
1/4	1/4	3/4	2-1/2	3	0.020	TC65916	56.64
5/16	5/16	13/16	2-1/2	3	0.020	TC65920	66.93
3/8	3/8	1	2-1/2	3	0.020	TC65924	70.82
1/2	1/2	1-1/4	3	3	0.040	TC65932	112.45
5/8	5/8	1-5/8	3-1/2	3	0.040	TC65940	215.02
3/4	3/4	1-3/4	4	3	0.040	TC65948	308.84
1	1	1-3/4	4	3	0.040	TC65964	508.35

These 3 flute roughing tools are designed specifically for high speed machining in aluminum. This tool will plunge, slot and profile in all non-ferrous materials. Our ZRN coating allows for higher speed rates and prolonged tool life and does not have an affinity for aluminum.

Works well in all non-ferrous materials as well as brass and bronze applications

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.001, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.001, -0.003	-0.0001, -0.0004	+0.001, -0.001

ENDMILLS

DRILL MILLS

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DRILLS

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FOR ALUMINUM

3 FLUTE - LONG LENGTH - SQUARE END - 45° HELIX



SERIES 634
UNCOATED



SERIES 635
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	3	TC63408	35.44
3/16	3/16	3/4	2-1/2	3	TC63412	40.87
1/4	1/4	1-1/4	3	3	TC63416	57.61
5/16	5/16	1-3/8	3	3	TC63420	74.58
3/8	3/8	1-1/2	4	3	TC63424	93.42
1/2	1/2	2	4	3	TC63432	130.89
5/8	5/8	2-3/8	5	3	TC63440	271.40
3/4	3/4	2-1/2	5	3	TC63448	298.22
1	1	2-1/4	5	3	TC63464	490.21

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	3	TC63508	44.20
3/16	3/16	3/4	2-1/2	3	TC63512	51.08
1/4	1/4	1-1/4	3	3	TC63516	69.62
5/16	5/16	1-3/8	3	3	TC63520	94.71
3/8	3/8	1-1/2	4	3	TC63524	112.98
1/2	1/2	2	4	3	TC63532	158.71
5/8	5/8	2-3/8	5	3	TC63540	345.41
3/4	3/4	2-1/2	5	3	TC63548	373.30
1	1	2-1/4	5	3	TC63564	587.82

FOR ALUMINUM

3 FLUTE - LONG LENGTH - CORNER RADIUS - 45° HELIX



SERIES 664
UNCOATED



SERIES 665
ZRN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	3	0.020	TC66408	42.50
3/16	3/16	3/4	2-1/2	3	0.020	TC66412	49.02
1/4	1/4	1-1/4	3	3	0.020	TC66416	64.33
5/16	5/16	1-3/8	3	3	0.020	TC66420	83.27
3/8	3/8	1-1/2	4	3	0.020	TC66424	104.30
1/2	1/2	2	4	3	0.040	TC66432	146.10
5/8	5/8	2-3/8	5	3	0.040	TC66440	289.83
3/4	3/4	2-1/2	5	3	0.040	TC66448	318.45
1	1	2-1/4	5	3	0.040	TC66464	523.56

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	3	0.020	TC66508	53.15
3/16	3/16	3/4	2-1/2	3	0.020	TC66512	61.30
1/4	1/4	1-1/4	3	3	0.020	TC66516	77.74
5/16	5/16	1-3/8	3	3	0.020	TC66520	105.73
3/8	3/8	1-1/2	4	3	0.020	TC66524	126.16
1/2	1/2	2	4	3	0.040	TC66532	177.21
5/8	5/8	2-3/8	5	3	0.040	TC66540	368.87
3/4	3/4	2-1/2	5	3	0.040	TC66548	398.66
1	1	2-1/4	5	3	0.040	TC66564	627.79

These 3 flute roughing tools are designed specifically for high speed machining in aluminum. This tool will plunge, slot and profile in all non-ferrous materials. Our ZRN coating allows for higher speed rates and prolonged tool life and does not have an affinity for aluminum.

Works well in all non-ferrous materials as well as brass and bronze applications

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 1"	+0.00, -0.003	-0.0001, -0.0004	+0.001, -0.001



Carbide End Mills

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3 FLUTE - REGULAR LENGTH - SQUARE END - 45° HELIX



SERIES 405
UNCOATED



SERIES 495
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC40508	22.87
3/16	3/16	5/8	2	3	TC40512	27.38
1/4	1/4	3/4	2-1/2	3	TC40516	29.34
5/16	5/16	13/16	2-1/2	3	TC40520	35.50
3/8	3/8	1	2-1/2	3	TC40524	47.52
1/2	1/2	1-1/4	3	3	TC40532	81.05
5/8	5/8	1-5/8	3-1/2	3	TC40540	161.35
3/4	3/4	1-5/8	4	3	TC40548	226.44

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC49508	28.56
3/16	3/16	5/8	2	3	TC49512	34.21
1/4	1/4	3/4	2-1/2	3	TC49516	36.68
5/16	5/16	13/16	2-1/2	3	TC49520	44.37
3/8	3/8	1	2-1/2	3	TC49524	59.40
1/2	1/2	1-1/4	3	3	TC49532	101.34
5/8	5/8	1-5/8	3-1/2	3	TC49540	201.68
3/4	3/4	1-5/8	4	3	TC49548	283.02

3 FLUTE - REGULAR LENGTH - CORNER RADIUS - 45° HELIX



SERIES 407
UNCOATED



SERIES 497
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.010	TC40708	25.51
3/16	3/16	5/8	2	3	0.010	TC40712	30.56
1/4	1/4	3/4	2-1/2	3	0.020	TC40716	32.78
5/16	5/16	13/16	2-1/2	3	0.020	TC40720	39.61
3/8	3/8	1	2-1/2	3	0.020	TC40724	53.07
1/2	1/2	1-1/4	3	3	0.040	TC40732	90.50
5/8	5/8	1-5/8	3-1/2	3	0.040	TC40740	172.30
3/4	3/4	1-5/8	4	3	0.040	TC40748	241.80

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.010	TC49708	31.88
3/16	3/16	5/8	2	3	0.010	TC49712	38.18
1/4	1/4	3/4	2-1/2	3	0.020	TC49716	40.94
5/16	5/16	13/16	2-1/2	3	0.020	TC49720	49.53
3/8	3/8	1	2-1/2	3	0.020	TC49724	66.34
1/2	1/2	1-1/4	3	3	0.040	TC49732	113.12
5/8	5/8	1-5/8	3-1/2	3	0.040	TC49740	215.39
3/4	3/4	1-5/8	4	3	0.040	TC49748	302.27

These 3 flute 45° tools are designed to slot and profile at higher speeds and feeds while providing a shearing action that produces excellent finishes.

Works well in stainless steel and other similar alloys

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 3/4"	+0.00, -0.003	-0.0001, -0.0004	+0.001, -0.001

ENDMILLS

DRILL MILLS

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Carbide End Mills

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TAKE 55% OFF LIST PRICES

3 FLUTE - REGULAR LENGTH - SQUARE END - 60° HELIX



SERIES 305
UNCOATED



SERIES 395
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC30508	22.87
3/16	3/16	5/8	2	3	TC30512	27.38
1/4	1/4	3/4	2-1/2	3	TC30516	29.34
5/16	5/16	13/16	2-1/2	3	TC30520	35.50
3/8	3/8	1	2-1/2	3	TC30524	47.52
1/2	1/2	1-1/4	3	3	TC30532	81.05
5/8	5/8	1-5/8	3-1/2	3	TC30540	161.35
3/4	3/4	1-5/8	4	3	TC30548	226.44

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	TC39508	28.56
3/16	3/16	5/8	2	3	TC39512	34.21
1/4	1/4	3/4	2-1/2	3	TC39516	36.68
5/16	5/16	13/16	2-1/2	3	TC39520	44.37
3/8	3/8	1	2-1/2	3	TC39524	59.40
1/2	1/2	1-1/4	3	3	TC39532	101.34
5/8	5/8	1-5/8	3-1/2	3	TC39540	201.68
3/4	3/4	1-5/8	4	3	TC39548	283.02

3 FLUTE - REGULAR LENGTH - CORNER RADIUS - 60° HELIX



SERIES 306
UNCOATED



SERIES 396
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.010	TC30608	25.51
3/16	3/16	5/8	2	3	0.010	TC30612	30.56
1/4	1/4	3/4	2-1/2	3	0.020	TC30616	32.78
5/16	5/16	13/16	2-1/2	3	0.020	TC30620	39.61
3/8	3/8	1	2-1/2	3	0.020	TC30624	53.07
1/2	1/2	1-1/4	3	3	0.040	TC30632	90.50
5/8	5/8	1-5/8	3-1/2	3	0.040	TC30640	172.30
3/4	3/4	1-5/8	4	3	0.040	TC30648	241.80

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	3	0.010	TC39608	31.88
3/16	3/16	5/8	2	3	0.010	TC39612	38.18
1/4	1/4	3/4	2-1/2	3	0.020	TC39616	40.94
5/16	5/16	13/16	2-1/2	3	0.020	TC39620	49.53
3/8	3/8	1	2-1/2	3	0.020	TC39624	66.34
1/2	1/2	1-1/4	3	3	0.040	TC39632	113.12
5/8	5/8	1-5/8	3-1/2	3	0.040	TC39640	215.39
3/4	3/4	1-5/8	4	3	0.040	TC39648	302.27

These 60° tools are designed to machine all high temperature alloys. This 3 flute high shear design geometry will slot and profile while giving excellent surface finishes.

Works well in all high temperature alloys such as inconels, hastalloy, waspalloys and titanium.

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004	+0.001, -0.001



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

5 FLUTE - STUB LENGTH - SQUARE END - 45° HELIX



SERIES 614
UNCOATED



SERIES 615
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	5	TC61408	12.47
3/16	3/16	3/8	2	5	TC61412	19.61
1/4	1/4	1/2	2	5	TC61416	23.65
5/16	5/16	1/2	2	5	TC61420	28.41
3/8	3/8	5/8	2	5	TC61424	46.73
7/16	7/16	5/8	2-1/2	5	TC61428	53.43
1/2	1/2	5/8	2-1/2	5	TC61432	61.69
5/8	5/8	3/4	3	5	TC61440	109.57
3/4	3/4	1	3	5	TC61448	147.65

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	5	TC61508	15.63
3/16	3/16	3/8	2	5	TC61512	23.47
1/4	1/4	1/2	2	5	TC61516	28.09
5/16	5/16	1/2	2	5	TC61520	35.50
3/8	3/8	5/8	2	5	TC61524	55.61
7/16	7/16	5/8	2-1/2	5	TC61528	63.59
1/2	1/2	5/8	2-1/2	5	TC61532	73.50
5/8	5/8	3/4	3	5	TC61540	132.65
3/4	3/4	1	3	5	TC61548	182.25

5 FLUTE - STUB LENGTH - CORNER RADIUS - 45° HELIX



SERIES 616
UNCOATED



SERIES 617
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	5	0.010	TC61608	14.25
3/16	3/16	3/8	2	5	0.010	TC61612	21.90
1/4	1/4	1/2	2	5	0.020	TC61616	26.41
5/16	5/16	1/2	2	5	0.020	TC61620	31.71
3/8	3/8	5/8	2	5	0.020	TC61624	52.17
7/16	7/16	5/8	2-1/2	5	0.020	TC61628	59.65
1/2	1/2	5/8	2-1/2	5	0.040	TC61632	68.89
5/8	5/8	3/4	3	5	0.040	TC61640	117.02
3/4	3/4	1	3	5	0.040	TC61648	157.67

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	5	0.010	TC61708	17.34
3/16	3/16	3/8	2	5	0.010	TC61712	26.23
1/4	1/4	1/2	2	5	0.020	TC61716	31.38
5/16	5/16	1/2	2	5	0.020	TC61720	39.61
3/8	3/8	5/8	2	5	0.020	TC61724	62.09
7/16	7/16	5/8	2-1/2	5	0.020	TC61728	71.03
1/2	1/2	5/8	2-1/2	5	0.040	TC61732	82.05
5/8	5/8	3/4	3	5	0.040	TC61740	141.64
3/4	3/4	1	3	5	0.040	TC61748	194.63

Designed for profiling and finishing, the 5 flute 45° geometry of this tool allows it to be run 20 - 40% faster than conventional end mills while providing an excellent finish.

Works well in all exotic materials, stainless steel, carbon steels and other similar materials.

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004	+0.001, -0.001
5/8" - 3/4"	+0.00, -0.003	-0.0001, -0.0004	+0.001, -0.001

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

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TAKE 55% OFF LIST PRICES

5 FLUTE - REGULAR LENGTH - SQUARE END - 45° HELIX



SERIES 618
UNCOATED



SERIES 619
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	5	TC61808	23.83
3/16	3/16	3/4	2	5	TC61812	29.99
1/4	1/4	3/4	2-1/2	5	TC61816	32.28
5/16	5/16	7/8	2-1/2	5	TC61820	38.97
3/8	3/8	1	2-1/2	5	TC61824	52.14
1/2	1/2	1-1/4	3	5	TC61832	97.33
5/8	5/8	1-5/8	3-1/2	5	TC61840	184.54
3/4	3/4	1-5/8	4	5	TC61848	259.51

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	5	TC61908	29.81
3/16	3/16	3/4	2	5	TC61912	35.75
1/4	1/4	3/4	2-1/2	5	TC61916	38.47
5/16	5/16	7/8	2-1/2	5	TC61920	46.31
3/8	3/8	1	2-1/2	5	TC61924	62.12
1/2	1/2	1-1/4	3	5	TC61932	121.09
5/8	5/8	1-5/8	3-1/2	5	TC61940	234.14
3/4	3/4	1-5/8	4	5	TC61948	318.34

5 FLUTE - REGULAR LENGTH - CORNER RADIUS - 45° HELIX



SERIES 638
UNCOATED



SERIES 639
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	5	0.010	TC63808	26.62
3/16	3/16	3/4	2	5	0.010	TC63812	33.49
1/4	1/4	3/4	2-1/2	5	0.020	TC63816	36.07
5/16	5/16	7/8	2-1/2	5	0.020	TC63820	43.48
3/8	3/8	1	2-1/2	5	0.020	TC63824	58.22
1/2	1/2	1-1/4	3	5	0.040	TC63832	108.68
5/8	5/8	1-5/8	3-1/2	5	0.040	TC63840	197.10
3/4	3/4	1-5/8	4	5	0.040	TC63848	277.15

DIA	SHANK	LOC	OAL	# FL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	5	0.010	TC63908	33.28
3/16	3/16	3/4	2	5	0.010	TC63912	39.90
1/4	1/4	3/4	2-1/2	5	0.020	TC63916	42.91
5/16	5/16	7/8	2-1/2	5	0.020	TC63920	51.71
3/8	3/8	1	2-1/2	5	0.020	TC63924	69.35
1/2	1/2	1-1/4	3	5	0.040	TC63932	135.19
5/8	5/8	1-5/8	3-1/2	5	0.040	TC63940	250.06
3/4	3/4	1-5/8	4	5	0.040	TC63948	339.95

Designed for profiling and finishing, the 5 flute 45° geometry of this tool allows it to be run 20 - 40% faster than conventional end mills while providing an excellent finish.

Works well in all exotic materials, stainless steel, carbon steels and other similar materials.

For coating information see page 6. For technical information, please see pages 224-225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004	+0.01, -0.01
5/8" - 3/4"	+0.00, -0.03	-0.001, -0.004	+0.01, -0.01



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - STUB LENGTH - SQUARE END - 30° HELIX



SERIES 102
UNCOATED



SERIES 112
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10201	23.43
1/32	1/8	1/16	1-1/2	TC10202	14.43
3/64	1/8	3/32	1-1/2	TC10203	14.43
1/16	1/8	1/8	1-1/2	TC10204	10.80
5/64	1/8	1/8	1-1/2	TC10205	18.26
3/32	1/8	3/16	1-1/2	TC10206	10.80
1/8	1/8	1/4	1-1/2	TC10208	10.31
5/32	3/16	5/16	2	TC10210	17.17
3/16	3/16	3/8	2	TC10212	16.12
7/32	1/4	7/16	2	TC10214	21.67
1/4	1/4	1/2	2	TC10216	19.00
5/16	5/16	1/2	2	TC10220	25.68
3/8	3/8	5/8	2	TC10224	33.14
7/16	7/16	5/8	2-1/2	TC10228	41.35
1/2	1/2	5/8	2-1/2	TC10232	52.22
5/8	5/8	3/4	3	TC10240	110.54
3/4	3/4	1	3	TC10248	154.74

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11201	29.28
1/32	1/8	1/16	1-1/2	TC11202	18.71
3/64	1/8	3/32	1-1/2	TC11203	18.71
1/16	1/8	1/8	1-1/2	TC11204	14.09
5/64	1/8	1/8	1-1/2	TC11205	22.83
3/32	1/8	3/16	1-1/2	TC11206	14.09
1/8	1/8	1/4	1-1/2	TC11208	13.46
5/32	3/16	5/16	2	TC11210	21.22
3/16	3/16	3/8	2	TC11212	19.98
7/32	1/4	7/16	2	TC11214	26.88
1/4	1/4	1/2	2	TC11216	23.62
5/16	5/16	1/2	2	TC11220	33.40
3/8	3/8	5/8	2	TC11224	41.05
7/16	7/16	5/8	2-1/2	TC11228	51.32
1/2	1/2	5/8	2-1/2	TC11232	64.85
5/8	5/8	3/4	3	TC11240	130.60
3/4	3/4	1	3	TC11248	191.47

2 FLUTE - STUB LENGTH - BALL NOSE - 30° HELIX



SERIES 103
UNCOATED



SERIES 113
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10301	29.24
1/32	1/8	1/16	1-1/2	TC10302	18.78
3/64	1/8	3/32	1-1/2	TC10303	18.78
1/16	1/8	1/8	1-1/2	TC10304	14.13
5/64	1/8	1/8	1-1/2	TC10305	22.87
3/32	1/8	3/16	1-1/2	TC10306	14.13
1/8	1/8	1/4	1-1/2	TC10308	13.38
5/32	3/16	5/16	2	TC10310	22.30
3/16	3/16	3/8	2	TC10312	20.92
7/32	1/4	7/16	2	TC10314	28.11
1/4	1/4	1/2	2	TC10316	24.63
5/16	5/16	1/2	2	TC10320	33.32
3/8	3/8	5/8	2	TC10324	43.03
7/16	7/16	5/8	2-1/2	TC10328	53.83
1/2	1/2	5/8	2-1/2	TC10332	67.81
5/8	5/8	3/4	3	TC10340	129.51
3/4	3/4	1	3	TC10348	196.91

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11301	36.55
1/32	1/8	1/16	1-1/2	TC11302	24.03
3/64	1/8	3/32	1-1/2	TC11303	24.03
1/16	1/8	1/8	1-1/2	TC11304	18.07
5/64	1/8	1/8	1-1/2	TC11305	28.56
3/32	1/8	3/16	1-1/2	TC11306	18.07
1/8	1/8	1/4	1-1/2	TC11308	17.17
5/32	3/16	5/16	2	TC11310	28.56
3/16	3/16	3/8	2	TC11312	26.76
7/32	1/4	7/16	2	TC11314	35.99
1/4	1/4	1/2	2	TC11316	31.53
5/16	5/16	1/2	2	TC11320	42.66
3/8	3/8	5/8	2	TC11324	52.48
7/16	7/16	5/8	2-1/2	TC11328	65.64
1/2	1/2	5/8	2-1/2	TC11332	86.78
5/8	5/8	3/4	3	TC11340	158.56
3/4	3/4	1	3	TC11348	252.05

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

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TAKE 55% OFF LIST PRICES

4 FLUTE - STUB LENGTH - SQUARE END - 30° HELIX



SERIES 106
UNCOATED



SERIES 109
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10601	23.43
1/32	1/8	1/16	1-1/2	TC10602	14.43
3/64	1/8	3/32	1-1/2	TC10603	14.43
1/16	1/8	1/8	1-1/2	TC10604	10.80
5/64	1/8	1/8	1-1/2	TC10605	18.26
3/32	1/8	3/16	1-1/2	TC10606	10.80
1/8	1/8	1/4	1-1/2	TC10608	10.31
5/32	3/16	5/16	2	TC10610	17.17
3/16	3/16	3/8	2	TC10612	16.12
7/32	1/4	7/16	2	TC10614	21.67
1/4	1/4	1/2	2	TC10616	19.00
5/16	5/16	1/2	2	TC10620	25.68
3/8	3/8	5/8	2	TC10624	33.14
7/16	7/16	5/8	2-1/2	TC10628	41.35
1/2	1/2	5/8	2-1/2	TC10632	52.22
5/8	5/8	3/4	3	TC10640	110.54
3/4	3/4	1	3	TC10648	154.74
1	1	1-1/4	3-1/2	TC10664	255.00

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10901	29.28
1/32	1/8	1/16	1-1/2	TC10902	18.71
3/64	1/8	3/32	1-1/2	TC10903	18.71
1/16	1/8	1/8	1-1/2	TC10904	14.09
5/64	1/8	1/8	1-1/2	TC10905	22.83
3/32	1/8	3/16	1-1/2	TC10906	14.09
1/8	1/8	1/4	1-1/2	TC10908	13.46
5/32	3/16	5/16	2	TC10910	21.22
3/16	3/16	3/8	2	TC10912	19.98
7/32	1/4	7/16	2	TC10914	26.88
1/4	1/4	1/2	2	TC10916	23.62
5/16	5/16	1/2	2	TC10920	33.40
3/8	3/8	5/8	2	TC10924	41.05
7/16	7/16	5/8	2-1/2	TC10928	51.32
1/2	1/2	5/8	2-1/2	TC10932	65.04
5/8	5/8	3/4	3	TC10940	130.64
3/4	3/4	1	3	TC10948	191.47
1	1	1-1/4	3-1/2	TC10964	318.00

4 FLUTE - STUB LENGTH - BALL NOSE - 30° HELIX



SERIES 107
UNCOATED



SERIES 117
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10701	29.24
1/32	1/8	1/16	1-1/2	TC10702	18.78
3/64	1/8	3/32	1-1/2	TC10703	18.78
1/16	1/8	1/8	1-1/2	TC10704	14.13
5/64	1/8	1/8	1-1/2	TC10705	22.87
3/32	1/8	3/16	1-1/2	TC10706	14.13
1/8	1/8	1/4	1-1/2	TC10708	13.38
5/32	3/16	5/16	2	TC10710	22.30
3/16	3/16	3/8	2	TC10712	20.92
7/32	1/4	7/16	2	TC10714	28.11
1/4	1/4	1/2	2	TC10716	26.73
5/16	5/16	1/2	2	TC10720	33.32
3/8	3/8	5/8	2	TC10724	43.03
7/16	7/16	5/8	2-1/2	TC10728	53.83
1/2	1/2	5/8	2-1/2	TC10732	67.81
5/8	5/8	3/4	3	TC10740	129.51
3/4	3/4	1	3	TC10748	196.91
1	1	1-1/4	3-1/2	TC10764	305.00

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11701	36.55
1/32	1/8	1/16	1-1/2	TC11702	24.03
3/64	1/8	3/32	1-1/2	TC11703	24.03
1/16	1/8	1/8	1-1/2	TC11704	18.07
5/64	1/8	1/8	1-1/2	TC11705	28.56
3/32	1/8	3/16	1-1/2	TC11706	18.07
1/8	1/8	1/4	1-1/2	TC11708	17.17
5/32	3/16	5/16	2	TC11710	28.56
3/16	3/16	3/8	2	TC11712	26.76
7/32	1/4	7/16	2	TC11714	35.99
1/4	1/4	1/2	2	TC11716	34.68
5/16	5/16	1/2	2	TC11720	42.66
3/8	3/8	5/8	2	TC11724	52.48
7/16	7/16	5/8	2-1/2	TC11728	65.64
1/2	1/2	5/8	2-1/2	TC11732	86.78
5/8	5/8	3/4	3	TC11740	158.56
3/4	3/4	1	3	TC11748	252.05
1	1	1-1/4	3-1/2	TC11764	375.00

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR LENGTH - SQUARE END - 30° HELIX

SERIES 100
UNCOATED



SERIES 101
ALTiN COATED



SERIES 900
TiCN COATED



DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC10001	25.13	TC10101	33.67	TC90001	33.67
1/32	1/8	1/8	1-1/2	TC10002	16.83	TC10102	22.75	TC90002	22.75
3/64	1/8	1/8	1-1/2	TC10003	14.39	TC10103	19.39	TC90003	19.39
1/16	1/8	1/4	1-1/2	TC10004	14.35	TC10104	16.48	TC90004	16.48
5/64	1/8	1/4	1-1/2	TC10005	14.81	TC10105	19.99	TC90005	19.99
3/32	1/8	3/8	1-1/2	TC10006	13.04	TC10106	16.48	TC90006	16.48
7/64	1/8	3/8	1-1/2	TC10007	13.61	TC10107	18.36	TC90007	18.36
1/8	1/8	1/2	1-1/2	TC10008	12.51	TC10108	15.31	TC90008	15.31
9/64	3/16	9/16	2	TC10009	18.32	TC10109	24.74	TC90009	24.74
5/32	3/16	9/16	2	TC10010	18.43	TC10110	21.37	TC90010	21.37
11/64	3/16	5/8	2	TC10011	17.51	TC10111	23.67	TC90011	23.67
3/16	3/16	5/8	2	TC10012	17.05	TC10112	21.37	TC90012	21.37
13/64	1/4	5/8	2-1/2	TC10013	24.88	TC10113	32.61	TC90013	32.61
7/32	1/4	5/8	2-1/2	TC10014	25.41	TC10114	29.52	TC90014	29.52
15/64	1/4	3/4	2-1/2	TC10015	28.71	TC10115	37.00	TC90015	37.00
1/4	1/4	3/4	2-1/2	TC10016	21.05	TC10116	29.52	TC90016	29.52
17/64	5/16	3/4	2-1/2	TC10017	37.96	TC10117	48.77	TC90017	48.77
9/32	5/16	3/4	2-1/2	TC10018	37.96	TC10118	48.77	TC90018	48.77
19/64	5/16	13/16	2-1/2	TC10019	37.96	TC10119	48.77	TC90019	48.77
5/16	5/16	13/16	2-1/2	TC10020	27.40	TC10120	35.33	TC90020	35.33
21/64	3/8	1	2-1/2	TC10021	42.56	TC10121	54.72	TC90021	54.72
11/32	3/8	1	2-1/2	TC10022	42.56	TC10122	54.72	TC90022	54.72
23/64	3/8	1	2-1/2	TC10023	42.56	TC10123	54.72	TC90023	54.72
3/8	3/8	1	2-1/2	TC10024	32.68	TC10124	40.40	TC90024	40.40
25/64	7/16	1	2-3/4	TC10025	55.71	TC10125	71.91	TC90025	71.91
13/32	7/16	1	2-3/4	TC10026	55.71	TC10126	71.91	TC90026	71.91
27/64	7/16	1	2-3/4	TC10027	57.52	TC10127	74.28	TC90027	74.28
7/16	7/16	1	2-3/4	TC10028	50.15	TC10128	61.74	TC90028	61.74
29/64	1/2	1	3	TC10029	82.79	TC10129	105.97	TC90029	105.97
15/32	1/2	1	3	TC10030	82.79	TC10130	105.97	TC90030	105.97
31/64	1/2	1	3	TC10031	82.79	TC10131	105.97	TC90031	105.97
1/2	1/2	1	3	TC10032	60.21	TC10132	75.13	TC90032	75.13
9/16	9/16	1-1/4	3-1/2	TC10036	113.80	TC10136	150.27	TC90036	150.27
5/8	5/8	1-1/4	3-1/2	TC10040	115.11	TC10140	146.76	TC90040	146.76
3/4	3/4	1-1/2	4	TC10048	161.68	TC10148	208.25	TC90048	208.25
7/8	7/8	1-1/2	4	TC10056	295.72	TC10156	374.29	TC90056	374.29
1	1	1-1/2	4	TC10064	264.49	TC10164	338.31	TC90064	338.31

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-0.001, -0.004
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
9/16" - 1"	+0.00, -0.03	-0.001, -0.004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - LONG LENGTH - SQUARE END - 30° HELIX



SERIES 150
UNCOATED



SERIES 151
ALTIN COATED



SERIES 950
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	3/4	2-1/4	TC15008	20.20	TC15108	25.98	TC95008	25.98
3/16	3/16	3/4	2-1/2	TC15012	23.71	TC15112	30.48	TC95012	30.48
1/4	1/4	1-1/8	3	TC15016	33.95	TC15116	43.77	TC95016	43.77
1/4	1/4	1	4	TC15017	35.76	TC15117	46.11	TC95017	46.11
5/16	5/16	1-1/8	3	TC15020	38.31	TC15120	51.71	TC95020	51.71
3/8	3/8	1-1/8	3	TC15024	43.95	TC15124	59.33	TC95024	59.33
3/8	3/8	1	4	TC15025	51.32	TC15125	66.03	TC95025	66.03
7/16	7/16	2	4	TC15028	69.25	TC15128	90.05	TC95028	90.05
1/2	1/2	1	4	TC15032	74.99	TC15132	96.58	TC95032	96.58
1/2	1/2	2	4	TC15033	79.42	TC15133	101.93	TC95033	101.93
5/8	5/8	2-1/4	5	TC15040	177.52	TC15140	219.70	TC95040	219.70
3/4	3/4	2-1/4	5	TC15048	245.18	TC15148	316.34	TC95048	316.34
7/8	7/8	2-1/4	5	TC15056	464.70	TC15156	549.19	TC95056	549.19
1	1	2-1/4	5	TC15064	335.66	TC15164	433.22	TC95064	433.22

2 FLUTE - EXTRA LONG LENGTH - SQUARE END - 30° HELIX



SERIES 170
UNCOATED



SERIES 171
ALTIN COATED



SERIES 970
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	1	3	TC17008	22.58	TC17108	30.48	TC97008	30.48
3/16	3/16	1-1/8	3	TC17012	24.56	TC17112	31.54	TC97012	31.54
1/4	1/4	1-1/2	4	TC17016	36.78	TC17116	47.37	TC97016	47.37
1/4	1/4	1-1/2	6	TC17017	46.92	TC17117	60.36	TC97017	60.36
5/16	5/16	1-5/8	4	TC17020	47.35	TC17120	61.10	TC97020	61.10
3/8	3/8	1-3/4	4	TC17024	53.76	TC17124	68.86	TC97024	68.86
3/8	3/8	1-1/2	6	TC17025	81.41	TC17125	104.94	TC97025	104.94
7/16	7/16	3	6	TC17028	109.65	TC17128	140.59	TC97028	140.59
1/2	1/2	1-1/2	6	TC17032	123.90	TC17132	153.78	TC97032	153.78
1/2	1/2	3	6	TC17033	130.07	TC17133	159.94	TC97033	159.94
5/8	5/8	3	6	TC17040	191.56	TC17140	235.50	TC97040	235.50
3/4	3/4	3	6	TC17048	284.69	TC17148	349.73	TC97048	349.73
7/8	7/8	3	6	TC17056	506.94	TC17156	633.71	TC97056	633.71
1	1	3	6	TC17064	483.30	TC17164	593.91	TC97064	593.91

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR LENGTH - BALL NOSE - 30° HELIX

SERIES 110
UNCOATED



SERIES 111
ALTiN COATED



SERIES 910
TiCN COATED



DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC11001	28.14	TC11101	37.71	TC91001	37.71
1/32	1/8	1/8	1-1/2	TC11002	18.00	TC11102	23.39	TC91002	23.39
3/64	1/8	1/8	1-1/2	TC11003	18.00	TC11103	23.39	TC91003	23.39
1/16	1/8	1/4	1-1/2	TC11004	16.69	TC11104	22.54	TC91004	22.54
5/64	1/8	1/4	1-1/2	TC11005	16.69	TC11105	22.54	TC91005	22.54
3/32	1/8	3/8	1-1/2	TC11006	17.51	TC11106	23.67	TC91006	23.67
7/64	1/8	3/8	1-1/2	TC11007	17.51	TC11107	23.67	TC91007	23.67
1/8	1/8	1/2	1-1/2	TC11008	16.05	TC11108	21.69	TC91008	21.69
9/64	3/16	9/16	2	TC11009	23.53	TC11109	31.79	TC91009	31.79
5/32	3/16	9/16	2	TC11010	23.53	TC11110	31.79	TC91010	31.79
11/64	3/16	5/8	2	TC11011	23.53	TC11111	31.79	TC91011	31.79
3/16	3/16	5/8	2	TC11012	21.16	TC11112	28.57	TC91012	28.57
13/64	1/4	5/8	2-1/2	TC11013	30.80	TC11113	38.88	TC91013	38.88
7/32	1/4	5/8	2-1/2	TC11014	30.80	TC11114	38.88	TC91014	38.88
15/64	1/4	3/4	2-1/2	TC11015	30.80	TC11115	38.88	TC91015	38.88
1/4	1/4	3/4	2-1/2	TC11016	29.76	TC11116	37.04	TC91016	37.04
17/64	5/16	3/4	2-1/2	TC11017	38.88	TC11117	50.01	TC91017	50.01
9/32	5/16	3/4	2-1/2	TC11018	38.95	TC11118	50.08	TC91018	50.08
19/64	5/16	13/16	2-1/2	TC11019	42.32	TC11119	55.54	TC91019	55.54
5/16	5/16	13/16	2-1/2	TC11020	35.83	TC11120	46.07	TC91020	46.07
21/64	3/8	1	2-1/2	TC11021	49.23	TC11121	66.45	TC91021	66.45
11/32	3/8	1	2-1/2	TC11022	51.67	TC11122	66.45	TC91022	66.45
23/64	3/8	1	2-1/2	TC11023	49.23	TC11123	66.45	TC91023	66.45
3/8	3/8	1	2-1/2	TC11024	38.35	TC11124	54.19	TC91024	54.19
25/64	7/16	1	2-3/4	TC11025	66.66	TC11125	85.91	TC91025	85.91
13/32	7/16	1	2-3/4	TC11026	66.66	TC11126	85.91	TC91026	85.91
27/64	7/16	1	2-3/4	TC11027	66.66	TC11127	85.91	TC91027	85.91
7/16	7/16	1	2-3/4	TC11028	56.74	TC11128	73.15	TC91028	73.15
29/64	1/2	1	3	TC11029	87.89	TC11129	113.34	TC91029	113.34
15/32	1/2	1	3	TC11030	87.89	TC11130	113.34	TC91030	113.34
31/64	1/2	1	3	TC11031	87.89	TC11131	113.34	TC91031	113.34
1/2	1/2	1	3	TC11032	77.83	TC11132	100.30	TC91032	100.30
9/16	9/16	1-1/4	3-1/2	TC11036	118.62	TC11136	145.98	TC91036	145.98
5/8	5/8	1-1/4	3-1/2	TC11040	125.85	TC11140	162.21	TC91040	162.21
3/4	3/4	1-1/2	4	TC11048	185.42	TC11148	241.63	TC91048	241.63
7/8	7/8	1-1/2	4	TC11056	359.08	TC11156	456.26	TC91056	456.26
1	1	1-1/2	4	TC11064	331.19	TC11164	426.77	TC91064	426.77

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-0.001, -0.004
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
9/16" - 1"	+0.00, -0.03	-0.001, -0.004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

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2 FLUTE - LONG LENGTH - BALL NOSE - 30° HELIX



SERIES 160
UNCOATED



SERIES 161
ALTIN COATED



SERIES 960
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	3/4	2-1/4	TC16008	24.03	TC16108	30.90	TC96008	30.90
3/16	3/16	3/4	2-1/2	TC16012	27.64	TC16112	35.51	TC96012	35.51
1/4	1/4	1-1/8	3	TC16016	38.88	TC16116	50.04	TC96016	50.04
1/4	1/4	1	4	TC16017	42.92	TC16117	55.32	TC96017	55.32
5/16	5/16	1-1/8	3	TC16020	45.72	TC16120	61.70	TC96020	61.70
3/8	3/8	1-1/8	3	TC16024	52.77	TC16124	71.27	TC96024	71.27
3/8	3/8	1	4	TC16025	64.64	TC16125	83.99	TC96025	83.99
7/16	7/16	2	4	TC16028	88.39	TC16128	114.93	TC96028	114.93
1/2	1/2	1	4	TC16032	90.52	TC16132	115.11	TC96032	115.11
1/2	1/2	2	4	TC16033	91.40	TC16133	116.00	TC96033	116.00
5/8	5/8	2-1/4	5	TC16040	208.25	TC16140	264.49	TC96040	264.49
3/4	3/4	2-1/4	5	TC16048	289.97	TC16148	367.31	TC96048	367.31
7/8	7/8	2-1/4	5	TC16056	498.51	TC16156	612.59	TC96056	612.59
1	1	2-1/4	5	TC16064	573.78	TC16164	705.62	TC96064	705.62

2 FLUTE - EXTRA LONG LENGTH - BALL NOSE - 30° HELIX



SERIES 180
UNCOATED



SERIES 181
ALTIN COATED



SERIES 980
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	1	3	TC18008	26.90	TC18108	36.29	TC98008	36.29
3/16	3/16	1-1/8	3	TC18012	32.24	TC18112	37.89	TC98012	37.89
1/4	1/4	1-1/2	4	TC18016	47.27	TC18116	52.59	TC98016	52.59
1/4	1/4	1-1/2	6	TC18017	54.32	TC18117	61.77	TC98017	61.77
5/16	5/16	1-5/8	4	TC18020	57.13	TC18120	73.75	TC98020	73.75
3/8	3/8	1-3/4	4	TC18024	61.49	TC18124	78.61	TC98024	78.61
3/8	3/8	1-1/2	6	TC18025	86.65	TC18125	106.36	TC98025	106.36
7/16	7/16	3	6	TC18028	130.07	TC18128	166.96	TC98028	166.96
1/2	1/2	1-1/2	6	TC18032	137.97	TC18132	176.64	TC98032	176.64
1/2	1/2	3	6	TC18033	138.82	TC18133	177.52	TC98033	177.52
5/8	5/8	3	6	TC18040	218.81	TC18140	268.89	TC98040	268.89
3/4	3/4	3	6	TC18048	310.28	TC18148	418.87	TC98048	418.87
7/8	7/8	3	6	TC18056	549.19	TC18156	684.39	TC98056	684.39
1	1	3	6	TC18064	553.58	TC18164	712.71	TC98064	712.71

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS



Carbide End Mills

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TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR LENGTH - SQUARE END - 30° HELIX

SERIES 105
UNCOATED



SERIES 995
ALTiN COATED



SERIES 905
TiCN COATED



DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC10501	25.13	TC99501	33.67	TC90501	33.67
1/32	1/8	1/8	1-1/2	TC10502	16.83	TC99502	22.75	TC90502	22.75
3/64	1/8	1/8	1-1/2	TC10503	14.39	TC99503	19.39	TC90503	19.39
1/16	1/8	1/4	1-1/2	TC10504	14.35	TC99504	16.48	TC90504	16.48
5/64	1/8	1/4	1-1/2	TC10505	14.81	TC99505	19.99	TC90505	19.99
3/32	1/8	3/8	1-1/2	TC10506	13.04	TC99506	16.48	TC90506	16.48
7/64	1/8	3/8	1-1/2	TC10507	13.61	TC99507	18.36	TC90507	18.36
1/8	1/8	1/2	1-1/2	TC10508	12.51	TC99508	15.31	TC90508	15.31
9/64	3/16	9/16	2	TC10509	18.32	TC99509	24.74	TC90509	24.74
5/32	3/16	9/16	2	TC10510	18.43	TC99510	21.37	TC90510	21.37
11/64	3/16	5/8	2	TC10511	17.51	TC99511	23.67	TC90511	23.67
3/16	3/16	5/8	2	TC10512	17.05	TC99512	21.37	TC90512	21.37
13/64	1/4	5/8	2-1/2	TC10513	24.88	TC99513	32.61	TC90513	32.61
7/32	1/4	5/8	2-1/2	TC10514	25.41	TC99514	29.52	TC90514	29.52
15/64	1/4	3/4	2-1/2	TC10515	28.71	TC99515	37.00	TC90515	37.00
1/4	1/4	3/4	2-1/2	TC10516	21.05	TC99516	29.52	TC90516	29.52
17/64	5/16	3/4	2-1/2	TC10517	37.96	TC99517	48.77	TC90517	48.77
9/32	5/16	3/4	2-1/2	TC10518	37.96	TC99518	48.77	TC90518	48.77
19/64	5/16	13/16	2-1/2	TC10519	37.96	TC99519	48.77	TC90519	48.77
5/16	5/16	13/16	2-1/2	TC10520	27.40	TC99520	35.33	TC90520	35.33
21/64	3/8	1	2-1/2	TC10521	42.56	TC99521	54.72	TC90521	54.72
11/32	3/8	1	2-1/2	TC10522	42.56	TC99522	54.72	TC90522	54.72
23/64	3/8	1	2-1/2	TC10523	42.56	TC99523	54.72	TC90523	54.72
3/8	3/8	1	2-1/2	TC10524	32.68	TC99524	40.40	TC90524	40.40
25/64	7/16	1	2-3/4	TC10525	55.71	TC99525	71.91	TC90525	71.91
13/32	7/16	1	2-3/4	TC10526	55.71	TC99526	71.91	TC90526	71.91
27/64	7/16	1	2-3/4	TC10527	57.52	TC99527	74.28	TC90527	74.28
7/16	7/16	1	2-3/4	TC10528	50.15	TC99528	61.74	TC90528	61.74
29/64	1/2	1	3	TC10529	82.79	TC99529	105.97	TC90529	105.97
15/32	1/2	1	3	TC10530	82.79	TC99530	105.97	TC90530	105.97
31/64	1/2	1	3	TC10531	82.79	TC99531	105.97	TC90531	105.97
1/2	1/2	1	3	TC10532	60.21	TC99532	75.13	TC90532	75.13
1/2	1/2	1-1/4	3	TC10533	60.21	TC99533	75.13	TC90533	75.13
9/16	9/16	1-1/4	3-1/2	TC10536	113.80	TC99536	150.27	TC90536	150.27
5/8	5/8	1-1/4	3-1/2	TC10540	115.11	TC99540	146.76	TC90540	146.76
3/4	3/4	1-1/2	4	TC10548	161.68	TC99548	208.25	TC90548	208.25
7/8	7/8	1-1/2	4	TC10556	295.72	TC99556	374.29	TC90556	374.29
1	1	1-1/2	4	TC10564	272.20	TC99564	348.17	TC90564	348.17
1-1/4	1-1/4	2	4-1/2	TC10580	929.43	TC99580	1,056.16	TC90580	1,056.16

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-0.001, -0.004
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
9/16" - 1-1/4"	+0.00, -0.03	-0.001, -0.004

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - LONG LENGTH - SQUARE END - 30° HELIX



SERIES 155
UNCOATED



SERIES 156
ALTIN COATED



SERIES 955
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	3/4	2-1/4	TC15508	20.20	TC15608	25.98	TC95508	25.98
3/16	3/16	3/4	2-1/2	TC15512	25.35	TC15612	30.48	TC95512	30.48
1/4	1/4	1-1/8	3	TC15516	33.95	TC15616	43.77	TC95516	43.77
1/4	1/4	1	4	TC15517	35.76	TC15617	46.11	TC95517	46.11
5/16	5/16	1-1/8	3	TC15520	38.31	TC15620	51.71	TC95520	51.71
3/8	3/8	1-1/8	3	TC15524	43.95	TC15624	59.33	TC95524	59.33
3/8	3/8	1	4	TC15525	51.32	TC15625	66.03	TC95525	66.03
7/16	7/16	2	4	TC15528	69.25	TC15628	90.05	TC95528	90.05
1/2	1/2	1	4	TC15532	77.18	TC15632	99.39	TC95532	99.39
1/2	1/2	2	4	TC15533	81.74	TC15633	104.90	TC95533	104.90
5/8	5/8	2-1/4	5	TC15540	177.52	TC15640	219.70	TC95540	219.70
3/4	3/4	2-1/4	5	TC15548	245.18	TC15648	296.80	TC95548	296.80
7/8	7/8	2-1/4	5	TC15556	464.70	TC15656	549.19	TC95556	549.19
1	1	2-1/4	5	TC15564	335.66	TC15664	433.22	TC95564	433.22

4 FLUTE - EXTRA LONG LENGTH - SQUARE END - 30° HELIX



SERIES 175
UNCOATED



SERIES 176
ALTIN COATED



SERIES 975
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	1	3	TC17508	22.58	TC17608	30.48	TC97508	30.48
3/16	3/16	1-1/8	3	TC17512	24.56	TC17612	31.54	TC97512	31.54
1/4	1/4	1-1/2	4	TC17516	34.70	TC17616	44.69	TC97516	44.69
1/4	1/4	1-1/2	6	TC17517	46.92	TC17617	60.36	TC97517	60.36
5/16	5/16	1-5/8	4	TC17520	47.35	TC17620	61.10	TC97520	61.10
3/8	3/8	1-3/4	4	TC17524	53.76	TC17624	68.86	TC97524	68.86
3/8	3/8	1-1/2	6	TC17525	81.41	TC17625	104.94	TC97525	104.94
7/16	7/16	3	6	TC17528	109.65	TC17628	140.59	TC97528	140.59
1/2	1/2	1-1/2	6	TC17532	123.90	TC17632	153.78	TC97532	153.78
1/2	1/2	3	6	TC17533	130.07	TC17633	159.94	TC97533	159.94
5/8	5/8	3	6	TC17540	191.56	TC17640	235.50	TC97540	235.50
3/4	3/4	3	6	TC17548	284.69	TC17648	334.31	TC97548	334.31
3/4	3/4	4	7	TC17549	488.58	TC17649	553.87	TC97549	553.87
7/8	7/8	3	6	TC17556	506.94	TC17656	633.71	TC97556	633.71
1	1	3	6	TC17564	483.30	TC17664	539.53	TC97564	539.53
1	1	4	7	TC17565	633.57	TC17665	777.67	TC97565	777.67

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS



Carbide End Mills

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4 FLUTE - REGULAR LENGTH - BALL NOSE - 30° HELIX

SERIES 115
UNCOATED



SERIES 116
ALTiN COATED



SERIES 915
TiCN COATED



DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC11501	28.14	TC11601	37.71	TC91501	37.71
1/32	1/8	1/8	1-1/2	TC11502	18.00	TC11602	23.39	TC91502	23.39
3/64	1/8	1/8	1-1/2	TC11503	18.00	TC11603	23.39	TC91503	23.39
1/16	1/8	1/4	1-1/2	TC11504	16.69	TC11604	22.54	TC91504	22.54
5/64	1/8	1/4	1-1/2	TC11505	16.69	TC11605	22.54	TC91505	22.54
3/32	1/8	3/8	1-1/2	TC11506	17.51	TC11606	23.67	TC91506	23.67
7/64	1/8	3/8	1-1/2	TC11507	17.51	TC11607	23.67	TC91507	23.67
1/8	1/8	1/2	1-1/2	TC11508	16.05	TC11608	21.69	TC91508	21.69
9/64	3/16	9/16	2	TC11509	23.53	TC11609	31.79	TC91509	31.79
5/32	3/16	9/16	2	TC11510	23.53	TC11610	31.79	TC91510	31.79
11/64	3/16	5/8	2	TC11511	23.53	TC11611	31.79	TC91511	31.79
3/16	3/16	5/8	2	TC11512	21.16	TC11612	28.57	TC91512	28.57
13/64	1/4	5/8	2-1/2	TC11513	30.52	TC11613	38.88	TC91513	38.88
7/32	1/4	5/8	2-1/2	TC11514	30.52	TC11614	38.88	TC91514	38.88
15/64	1/4	3/4	2-1/2	TC11515	30.52	TC11615	38.88	TC91515	38.88
1/4	1/4	3/4	2-1/2	TC11516	28.74	TC11616	37.04	TC91516	37.04
17/64	5/16	3/4	2-1/2	TC11517	38.88	TC11617	50.01	TC91517	50.01
9/32	5/16	3/4	2-1/2	TC11518	38.95	TC11618	50.08	TC91518	50.08
19/64	5/16	13/16	2-1/2	TC11519	42.32	TC11619	55.54	TC91519	55.54
5/16	5/16	13/16	2-1/2	TC11520	35.83	TC11620	46.07	TC91520	46.07
21/64	3/8	1	2-1/2	TC11521	49.23	TC11621	66.45	TC91521	66.45
11/32	3/8	1	2-1/2	TC11522	51.67	TC11622	66.45	TC91522	66.45
23/64	3/8	1	2-1/2	TC11523	49.23	TC11623	66.45	TC91523	66.45
3/8	3/8	1	2-1/2	TC11524	38.35	TC11624	54.19	TC91524	54.19
25/64	7/16	1	2-3/4	TC11525	66.66	TC11625	85.91	TC91525	85.91
13/32	7/16	1	2-3/4	TC11526	66.66	TC11626	85.91	TC91526	85.91
27/64	7/16	1	2-3/4	TC11527	66.66	TC11627	85.91	TC91527	85.91
7/16	7/16	1	2-3/4	TC11528	56.74	TC11628	73.15	TC91528	73.15
29/64	1/2	1	3	TC11529	87.89	TC11629	113.34	TC91529	113.34
15/32	1/2	1	3	TC11530	87.89	TC11630	113.34	TC91530	113.34
31/64	1/2	1	3	TC11531	87.89	TC11631	113.34	TC91531	113.34
1/2	1/2	1	3	TC11532	77.83	TC11632	100.30	TC91532	100.30
9/16	9/16	1-1/4	3-1/2	TC11536	118.62	TC11636	145.98	TC91536	145.98
5/8	5/8	1-1/4	3-1/2	TC11540	125.85	TC11640	162.21	TC91540	162.21
3/4	3/4	1-1/2	4	TC11548	185.42	TC11648	241.63	TC91548	241.63
7/8	7/8	1-1/2	4	TC11556	359.08	TC11656	456.26	TC91556	456.26
1	1	1-1/2	4	TC11564	331.19	TC11664	426.77	TC91564	426.77

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-0.001, -0.004
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
9/16" - 1"	+0.00, -0.03	-0.001, -0.004

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TAKE 55% OFF LIST PRICES

4 FLUTE - LONG LENGTH - BALL NOSE - 30° HELIX



SERIES 165
UNCOATED



SERIES 166
ALTIN COATED



SERIES 965
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	3/4	2-1/4	TC16508	24.03	TC16608	30.90	TC96508	30.90
3/16	3/16	3/4	2-1/2	TC16512	27.64	TC16612	35.51	TC96512	35.51
1/4	1/4	1-1/8	3	TC16516	38.88	TC16616	50.04	TC96516	50.04
1/4	1/4	1	4	TC16517	42.92	TC16617	55.32	TC96517	55.32
5/16	5/16	1-1/8	3	TC16520	45.72	TC16620	61.70	TC96520	61.70
3/8	3/8	1-1/8	3	TC16524	52.77	TC16624	71.27	TC96524	71.27
3/8	3/8	1	4	TC16525	64.64	TC16625	83.99	TC96525	83.99
7/16	7/16	2	4	TC16528	88.39	TC16628	114.93	TC96528	114.93
1/2	1/2	1	4	TC16532	90.52	TC16632	115.11	TC96532	115.11
1/2	1/2	2	4	TC16533	91.40	TC16633	116.00	TC96533	116.00
5/8	5/8	2-1/4	5	TC16540	208.25	TC16640	264.49	TC96540	264.49
3/4	3/4	2-1/4	5	TC16548	289.97	TC16648	367.31	TC96548	367.31
7/8	7/8	2-1/4	5	TC16556	498.51	TC16656	612.59	TC96556	612.59
1	1	2-1/4	5	TC16564	573.78	TC16664	705.62	TC96564	705.62

4 FLUTE - EXTRA LONG LENGTH - BALL NOSE - 30° HELIX



SERIES 185
UNCOATED



SERIES 186
ALTIN COATED



SERIES 985
TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
1/8	1/8	1	3	TC18508	26.90	TC18608	36.29	TC98508	36.29
3/16	3/16	1-1/8	3	TC18512	32.40	TC18612	37.89	TC98512	37.89
1/4	1/4	1-1/2	4	TC18516	47.25	TC18616	52.59	TC98516	52.59
1/4	1/4	1-1/2	6	TC18517	55.56	TC18617	65.40	TC98517	65.40
5/16	5/16	1-5/8	4	TC18520	57.13	TC18620	73.75	TC98520	73.75
3/8	3/8	1-3/4	4	TC18524	61.49	TC18624	78.61	TC98524	78.61
3/8	3/8	1-1/2	6	TC18525	86.65	TC18625	108.09	TC98525	108.09
7/16	7/16	3	6	TC18528	130.07	TC18628	166.96	TC98528	166.96
1/2	1/2	1-1/2	6	TC18532	137.97	TC18632	176.64	TC98532	176.64
1/2	1/2	3	6	TC18533	138.82	TC18633	179.26	TC98533	179.26
5/8	5/8	3	6	TC18540	218.81	TC18640	268.89	TC98540	268.89
3/4	3/4	3	6	TC18548	310.28	TC18648	418.87	TC98548	418.87
3/4	3/4	4	7	TC18549	510.91	TC18649	646.15	TC98549	646.15
7/8	7/8	3	6	TC18556	549.19	TC18656	684.39	TC98556	684.39
1	1	3	6	TC18564	553.58	TC18664	712.71	TC98564	712.71
1	1	4	7	TC18565	669.58	TC18665	797.45	TC98565	797.45

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004
5/8" - 1"	+0.00, -0.03	-0.001, -0.004



Carbide End Mills

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TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR LENGTH -  CORNER RADIUS - 30° HELIX



SERIES 740
UNCOATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.015	TC74003	18.29
1/8	1/8	1/2	1-1/2	0.020	TC74005	18.29
1/8	1/8	1/2	1-1/2	0.030	TC74007	18.29
3/16	3/16	5/8	2	0.015	TC74009	19.96
3/16	3/16	5/8	2	0.020	TC74011	19.96
3/16	3/16	5/8	2	0.030	TC74013	19.96
1/4	1/4	3/4	2-1/2	0.015	TC74015	26.62
1/4	1/4	3/4	2-1/2	0.020	TC74017	26.62
1/4	1/4	3/4	2-1/2	0.030	TC74019	26.62
1/4	1/4	3/4	2-1/2	0.045	TC74021	26.62
1/4	1/4	3/4	2-1/2	0.060	TC74023	26.62
5/16	5/16	13/16	2-1/2	0.015	TC74025	42.33
5/16	5/16	13/16	2-1/2	0.020	TC74027	42.33
5/16	5/16	13/16	2-1/2	0.030	TC74029	42.33
5/16	5/16	13/16	2-1/2	0.045	TC74031	42.33
5/16	5/16	13/16	2-1/2	0.060	TC74033	42.33
3/8	3/8	1	2-1/2	0.015	TC74035	50.13
3/8	3/8	1	2-1/2	0.020	TC74037	50.13
3/8	3/8	1	2-1/2	0.030	TC74039	50.13
3/8	3/8	1	2-1/2	0.045	TC74041	50.13
3/8	3/8	1	2-1/2	0.060	TC74043	50.13
1/2	1/2	1	3	0.015	TC74045	85.78
1/2	1/2	1	3	0.020	TC74047	85.78
1/2	1/2	1	3	0.030	TC74049	85.78

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	3	0.045	TC74051	85.78
1/2	1/2	1	3	0.060	TC74053	85.78
1/2	1/2	1	3	0.090	TC74055	85.78
1/2	1/2	1	3	0.125	TC74057	85.78
5/8	5/8	1-1/4	3-1/2	0.015	TC74059	133.15
5/8	5/8	1-1/4	3-1/2	0.020	TC74061	133.15
5/8	5/8	1-1/4	3-1/2	0.030	TC74063	133.15
5/8	5/8	1-1/4	3-1/2	0.045	TC74065	133.15
5/8	5/8	1-1/4	3-1/2	0.060	TC74067	133.15
5/8	5/8	1-1/4	3-1/2	0.090	TC74069	133.15
3/4	3/4	1-1/2	4	0.015	TC74071	196.99
3/4	3/4	1-1/2	4	0.020	TC74073	196.99
3/4	3/4	1-1/2	4	0.030	TC74075	196.99
3/4	3/4	1-1/2	4	0.045	TC74077	196.99
3/4	3/4	1-1/2	4	0.060	TC74079	196.99
3/4	3/4	1-1/2	4	0.090	TC74081	196.99
3/4	3/4	1-1/2	4	0.125	TC74083	196.99
1	1	1-1/2	4	0.015	TC74085	372.73
1	1	1-1/2	4	0.020	TC74087	372.73
1	1	1-1/2	4	0.030	TC74089	372.73
1	1	1-1/2	4	0.045	TC74091	372.73
1	1	1-1/2	4	0.060	TC74093	372.73
1	1	1-1/2	4	0.090	TC74095	372.73
1	1	1-1/2	4	0.125	TC74097	372.73

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004	+0.02, -0.02
5/8" - 1"	+0.00, -0.03	-0.001, -0.004	+0.02, -0.02

ENDMILLS

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4 FLUTE - REGULAR LENGTH -  CORNER RADIUS - 30° HELIX



SERIES 741
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.015	TC74104	28.41
1/8	1/8	1/2	1-1/2	0.020	TC74106	28.41
1/8	1/8	1/2	1-1/2	0.030	TC74108	28.41
3/16	3/16	5/8	2	0.015	TC74110	28.41
3/16	3/16	5/8	2	0.020	TC74112	28.41
3/16	3/16	5/8	2	0.030	TC74114	28.41
1/4	1/4	3/4	2-1/2	0.015	TC74116	39.04
1/4	1/4	3/4	2-1/2	0.020	TC74118	39.04
1/4	1/4	3/4	2-1/2	0.030	TC74120	39.04
1/4	1/4	3/4	2-1/2	0.045	TC74122	39.04
1/4	1/4	3/4	2-1/2	0.060	TC74124	39.04
5/16	5/16	13/16	2-1/2	0.015	TC74126	52.36
5/16	5/16	13/16	2-1/2	0.020	TC74128	52.36
5/16	5/16	13/16	2-1/2	0.030	TC74130	52.36
5/16	5/16	13/16	2-1/2	0.045	TC74132	52.36
5/16	5/16	13/16	2-1/2	0.060	TC74134	52.36
3/8	3/8	1	2-1/2	0.015	TC74136	65.73
3/8	3/8	1	2-1/2	0.020	TC74138	65.73
3/8	3/8	1	2-1/2	0.030	TC74140	65.73
3/8	3/8	1	2-1/2	0.045	TC74142	65.73
3/8	3/8	1	2-1/2	0.060	TC74144	65.73
1/2	1/2	1	3	0.015	TC74146	99.15
1/2	1/2	1	3	0.020	TC74148	99.15
1/2	1/2	1	3	0.030	TC74150	99.15

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	3	0.045	TC74152	99.15
1/2	1/2	1	3	0.060	TC74154	99.15
1/2	1/2	1	3	0.090	TC74156	99.15
1/2	1/2	1	3	0.125	TC74158	99.15
5/8	5/8	1-1/4	3-1/2	0.015	TC74160	161.54
5/8	5/8	1-1/4	3-1/2	0.020	TC74162	161.54
5/8	5/8	1-1/4	3-1/2	0.030	TC74164	161.54
5/8	5/8	1-1/4	3-1/2	0.045	TC74166	161.54
5/8	5/8	1-1/4	3-1/2	0.060	TC74168	161.54
5/8	5/8	1-1/4	3-1/2	0.090	TC74170	161.54
3/4	3/4	1-1/2	4	0.015	TC74172	221.70
3/4	3/4	1-1/2	4	0.020	TC74174	221.70
3/4	3/4	1-1/2	4	0.030	TC74176	221.70
3/4	3/4	1-1/2	4	0.045	TC74178	221.70
3/4	3/4	1-1/2	4	0.060	TC74180	221.70
3/4	3/4	1-1/2	4	0.090	TC74182	221.70
3/4	3/4	1-1/2	4	0.125	TC74184	221.70
1	1	1-1/2	4	0.015	TC74186	429.67
1	1	1-1/2	4	0.020	TC74188	429.67
1	1	1-1/2	4	0.030	TC74190	429.67
1	1	1-1/2	4	0.045	TC74192	429.67
1	1	1-1/2	4	0.060	TC74194	429.67
1	1	1-1/2	4	0.090	TC74196	429.67
1	1	1-1/2	4	0.125	TC74198	429.67

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.0001, -0.0004	+0.002, -0.002
5/8" - 1"	+0.00, -0.03	-0.0001, -0.0004	+0.002, -0.002



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 CORNER RADIUS

SERIES 743
UNCOATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	0.015	TC74301	24.98
1/8	1/8	3/4	2-1/4	0.020	TC74302	24.98
1/8	1/8	3/4	2-1/4	0.030	TC74303	24.98
3/16	3/16	3/4	2-1/2	0.015	TC74304	29.03
3/16	3/16	3/4	2-1/2	0.020	TC74305	29.03
3/16	3/16	3/4	2-1/2	0.030	TC74306	29.03
1/4	1/4	1-1/8	3	0.015	TC74307	40.51
1/4	1/4	1-1/8	3	0.020	TC74308	40.51
1/4	1/4	1-1/8	3	0.030	TC74309	40.51
1/4	1/4	1-1/8	3	0.045	TC74310	40.51
1/4	1/4	1-1/8	3	0.060	TC74311	40.51
1/4	1/4	1	4	0.015	TC74312	42.54
1/4	1/4	1	4	0.020	TC74313	42.54
1/4	1/4	1	4	0.030	TC74314	42.54
1/4	1/4	1	4	0.045	TC74315	42.54
1/4	1/4	1	4	0.060	TC74316	42.54
5/16	5/16	1-1/8	3	0.015	TC74317	45.91
5/16	5/16	1-1/8	3	0.020	TC74318	45.91
5/16	5/16	1-1/8	3	0.030	TC74319	45.91
5/16	5/16	1-1/8	3	0.045	TC74320	45.91
5/16	5/16	1-1/8	3	0.060	TC74321	45.91
3/8	3/8	1-1/8	3	0.015	TC74322	59.04
3/8	3/8	1-1/8	3	0.020	TC74323	59.04
3/8	3/8	1-1/8	3	0.030	TC74324	59.04
3/8	3/8	1-1/8	3	0.045	TC74325	59.04
3/8	3/8	1-1/8	3	0.060	TC74326	59.04
3/8	3/8	1	4	0.015	TC74327	72.19
3/8	3/8	1	4	0.020	TC74328	72.19
3/8	3/8	1	4	0.030	TC74329	72.19
3/8	3/8	1	4	0.045	TC74330	72.19
3/8	3/8	1	4	0.060	TC74331	72.19
1/2	1/2	1	4	0.015	TC74332	101.38
1/2	1/2	1	4	0.020	TC74333	101.38

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	4	0.030	TC74334	101.38
1/2	1/2	1	4	0.045	TC74335	101.38
1/2	1/2	1	4	0.060	TC74336	101.38
1/2	1/2	1	4	0.090	TC74337	101.38
1/2	1/2	1	4	0.125	TC74338	101.38
1/2	1/2	2	4	0.015	TC74339	108.06
1/2	1/2	2	4	0.020	TC74340	108.06
1/2	1/2	2	4	0.030	TC74341	108.06
1/2	1/2	2	4	0.045	TC74342	108.06
1/2	1/2	2	4	0.060	TC74343	108.06
1/2	1/2	2	4	0.090	TC74344	108.06
1/2	1/2	2	4	0.125	TC74345	108.06
5/8	5/8	2-1/4	5	0.015	TC74346	191.75
5/8	5/8	2-1/4	5	0.020	TC74347	191.75
5/8	5/8	2-1/4	5	0.030	TC74348	191.75
5/8	5/8	2-1/4	5	0.045	TC74349	191.75
5/8	5/8	2-1/4	5	0.060	TC74350	191.75
5/8	5/8	2-1/4	5	0.090	TC74351	191.75
3/4	3/4	2-1/4	5	0.015	TC74352	267.37
3/4	3/4	2-1/4	5	0.020	TC74353	267.37
3/4	3/4	2-1/4	5	0.030	TC74354	267.37
3/4	3/4	2-1/4	5	0.045	TC74355	267.37
3/4	3/4	2-1/4	5	0.060	TC74356	267.37
3/4	3/4	2-1/4	5	0.090	TC74357	267.37
3/4	3/4	2-1/4	5	0.125	TC74358	267.37
1	1	2-1/4	5	0.015	TC74359	392.14
1	1	2-1/4	5	0.020	TC74360	392.14
1	1	2-1/4	5	0.030	TC74361	392.14
1	1	2-1/4	5	0.045	TC74362	392.14
1	1	2-1/4	5	0.060	TC74363	392.14
1	1	2-1/4	5	0.090	TC74364	392.14
1	1	2-1/4	5	0.125	TC74365	392.14
-	-	-	-	-	-	-

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004	+ .002, -.002
5/8" - 1"	+ .000, -.003	-.0001, -.0004	+ .002, -.002

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

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SERIES 744
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	0.015	TC74401	31.23
1/8	1/8	3/4	2-1/4	0.020	TC74402	31.23
1/8	1/8	3/4	2-1/4	0.030	TC74403	31.23
3/16	3/16	3/4	2-1/2	0.015	TC74404	36.29
3/16	3/16	3/4	2-1/2	0.020	TC74405	36.29
3/16	3/16	3/4	2-1/2	0.030	TC74406	36.29
1/4	1/4	1-1/8	3	0.015	TC74407	50.64
1/4	1/4	1-1/8	3	0.020	TC74408	50.64
1/4	1/4	1-1/8	3	0.030	TC74409	50.64
1/4	1/4	1-1/8	3	0.045	TC74410	50.64
1/4	1/4	1-1/8	3	0.060	TC74411	50.64
1/4	1/4	1	4	0.015	TC74412	53.17
1/4	1/4	1	4	0.020	TC74413	53.17
1/4	1/4	1	4	0.030	TC74414	53.17
1/4	1/4	1	4	0.045	TC74415	53.17
1/4	1/4	1	4	0.060	TC74416	53.17
5/16	5/16	1-1/8	3	0.015	TC74417	57.39
5/16	5/16	1-1/8	3	0.020	TC74418	57.39
5/16	5/16	1-1/8	3	0.030	TC74419	57.39
5/16	5/16	1-1/8	3	0.045	TC74420	57.39
5/16	5/16	1-1/8	3	0.060	TC74421	57.39
3/8	3/8	1-1/8	3	0.015	TC74422	72.41
3/8	3/8	1-1/8	3	0.020	TC74423	72.41
3/8	3/8	1-1/8	3	0.030	TC74424	72.41
3/8	3/8	1-1/8	3	0.045	TC74425	72.41
3/8	3/8	1-1/8	3	0.060	TC74426	72.41
3/8	3/8	1	4	0.015	TC74427	90.24
3/8	3/8	1	4	0.020	TC74428	90.24
3/8	3/8	1	4	0.030	TC74429	90.24
3/8	3/8	1	4	0.045	TC74430	90.24
3/8	3/8	1	4	0.060	TC74431	90.24
1/2	1/2	1	4	0.015	TC74432	124.77
1/2	1/2	1	4	0.020	TC74433	124.77

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	4	0.030	TC74434	124.77
1/2	1/2	1	4	0.045	TC74435	124.77
1/2	1/2	1	4	0.060	TC74436	124.77
1/2	1/2	1	4	0.090	TC74437	124.77
1/2	1/2	1	4	0.125	TC74438	124.77
1/2	1/2	2	4	0.015	TC74439	132.57
1/2	1/2	2	4	0.020	TC74440	132.57
1/2	1/2	2	4	0.030	TC74441	132.57
1/2	1/2	2	4	0.045	TC74442	132.57
1/2	1/2	2	4	0.060	TC74443	132.57
1/2	1/2	2	4	0.090	TC74444	132.57
1/2	1/2	2	4	0.125	TC74445	132.57
5/8	5/8	2-1/4	5	0.015	TC74446	239.69
5/8	5/8	2-1/4	5	0.020	TC74447	239.69
5/8	5/8	2-1/4	5	0.030	TC74448	239.69
5/8	5/8	2-1/4	5	0.045	TC74449	239.69
5/8	5/8	2-1/4	5	0.060	TC74450	239.69
5/8	5/8	2-1/4	5	0.090	TC74451	239.69
3/4	3/4	2-1/4	5	0.015	TC74452	311.93
3/4	3/4	2-1/4	5	0.020	TC74453	311.93
3/4	3/4	2-1/4	5	0.030	TC74454	311.93
3/4	3/4	2-1/4	5	0.045	TC74455	311.93
3/4	3/4	2-1/4	5	0.060	TC74456	311.93
3/4	3/4	2-1/4	5	0.090	TC74457	311.93
3/4	3/4	2-1/4	5	0.125	TC74458	311.93
1	1	2-1/4	5	0.015	TC74459	490.18
1	1	2-1/4	5	0.020	TC74460	490.18
1	1	2-1/4	5	0.030	TC74461	490.18
1	1	2-1/4	5	0.045	TC74462	490.18
1	1	2-1/4	5	0.060	TC74463	490.18
1	1	2-1/4	5	0.090	TC74464	490.18
1	1	2-1/4	5	0.125	TC74465	490.18
-	-	-	-	-	-	-

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004	+0.002, -0.002
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004	+0.002, -0.002



Carbide End Mills

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TAKE 55% OFF LIST PRICES

4 FLUTE - EXTRA LONG LENGTH - CORNER RADIUS - 30° HELIX



SERIES 745
UNCOATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1	3	0.015	TC74501	28.36
1/8	1/8	1	3	0.020	TC74502	28.36
1/8	1/8	1	3	0.030	TC74503	28.36
3/16	3/16	1-1/8	3	0.015	TC74504	31.06
3/16	3/16	1-1/8	3	0.020	TC74505	31.06
3/16	3/16	1-1/8	3	0.030	TC74506	31.06
1/4	1/4	1-1/2	4	0.015	TC74507	43.21
1/4	1/4	1-1/2	4	0.020	TC74508	43.21
1/4	1/4	1-1/2	4	0.030	TC74509	43.21
1/4	1/4	1-1/2	4	0.045	TC74510	43.21
1/4	1/4	1-1/2	4	0.060	TC74511	43.21
1/4	1/4	1-1/2	6	0.015	TC74512	58.07
1/4	1/4	1-1/2	6	0.020	TC74513	58.07
1/4	1/4	1-1/2	6	0.030	TC74514	58.07
1/4	1/4	1-1/2	6	0.045	TC74515	58.07
1/4	1/4	1-1/2	6	0.060	TC74516	58.07
5/16	5/16	1-5/8	4	0.015	TC74517	59.42
5/16	5/16	1-5/8	4	0.020	TC74518	59.42
5/16	5/16	1-5/8	4	0.030	TC74519	59.42
5/16	5/16	1-5/8	4	0.045	TC74520	59.42
5/16	5/16	1-5/8	4	0.060	TC74521	59.42
3/8	3/8	1-3/4	4	0.015	TC74522	64.82
3/8	3/8	1-3/4	4	0.020	TC74523	64.82
3/8	3/8	1-3/4	4	0.030	TC74524	64.82
3/8	3/8	1-3/4	4	0.045	TC74525	64.82
3/8	3/8	1-3/4	4	0.060	TC74526	64.82
3/8	3/8	1-1/2	6	0.015	TC74527	91.82
3/8	3/8	1-1/2	6	0.020	TC74528	91.82
3/8	3/8	1-1/2	6	0.030	TC74529	91.82
3/8	3/8	1-1/2	6	0.045	TC74530	91.82
3/8	3/8	1-1/2	6	0.060	TC74531	91.82
1/2	1/2	1-1/2	6	0.015	TC74532	139.09
1/2	1/2	1-1/2	6	0.020	TC74533	139.09
1/2	1/2	1-1/2	6	0.030	TC74534	139.09
1/2	1/2	1-1/2	6	0.045	TC74535	139.09
1/2	1/2	1-1/2	6	0.060	TC74536	139.09
1/2	1/2	1-1/2	6	0.090	TC74537	139.09
1/2	1/2	1-1/2	6	0.125	TC74538	139.09
1/2	1/2	3	6	0.015	TC74539	145.84
1/2	1/2	3	6	0.020	TC74540	145.84

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	3	6	0.030	TC74541	145.84
1/2	1/2	3	6	0.045	TC74542	145.84
1/2	1/2	3	6	0.060	TC74543	145.84
1/2	1/2	3	6	0.090	TC74544	145.84
1/2	1/2	3	6	0.125	TC74545	145.84
5/8	5/8	3	6	0.015	TC74546	205.25
5/8	5/8	3	6	0.020	TC74547	205.25
5/8	5/8	3	6	0.030	TC74548	205.25
5/8	5/8	3	6	0.045	TC74549	205.25
5/8	5/8	3	6	0.060	TC74550	205.25
5/8	5/8	3	6	0.090	TC74551	205.25
3/4	3/4	3	6	0.015	TC74552	286.31
3/4	3/4	3	6	0.020	TC74553	286.31
3/4	3/4	3	6	0.030	TC74554	286.31
3/4	3/4	3	6	0.045	TC74555	286.31
3/4	3/4	3	6	0.060	TC74556	286.31
3/4	3/4	3	6	0.090	TC74557	286.31
3/4	3/4	3	6	0.125	TC74558	286.31
3/4	3/4	4	7	0.015	TC74559	462.55
3/4	3/4	4	7	0.020	TC74560	462.55
3/4	3/4	4	7	0.030	TC74561	462.55
3/4	3/4	4	7	0.045	TC74562	462.55
3/4	3/4	4	7	0.060	TC74563	462.55
3/4	3/4	4	7	0.090	TC74564	462.55
3/4	3/4	4	7	0.125	TC74565	462.55
1	1	3	6	0.015	TC74566	483.43
1	1	3	6	0.020	TC74567	483.43
1	1	3	6	0.030	TC74568	483.43
1	1	3	6	0.045	TC74569	483.43
1	1	3	6	0.060	TC74570	483.43
1	1	3	6	0.090	TC74571	483.43
1	1	3	6	0.125	TC74572	483.43
1	1	4	7	0.015	TC74573	661.68
1	1	4	7	0.020	TC74574	661.68
1	1	4	7	0.030	TC74575	661.68
1	1	4	7	0.045	TC74576	661.68
1	1	4	7	0.060	TC74577	661.68
1	1	4	7	0.090	TC74578	661.68
1	1	4	7	0.125	TC74579	661.68
-	-	-	-	-	-	-

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004	+ .002, -.002
5/8" - 1"	+ .000, -.003	-.0001, -.0004	+ .002, -.002

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - EXTRA LONG LENGTH - CORNER RADIUS - 30° HELIX



SERIES 746
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1	3	0.015	TC74601	35.45
1/8	1/8	1	3	0.020	TC74602	35.45
1/8	1/8	1	3	0.030	TC74603	35.45
3/16	3/16	1-1/8	3	0.015	TC74604	38.82
3/16	3/16	1-1/8	3	0.020	TC74605	38.82
3/16	3/16	1-1/8	3	0.030	TC74606	38.82
1/4	1/4	1-1/2	4	0.015	TC74607	54.01
1/4	1/4	1-1/2	4	0.020	TC74608	54.01
1/4	1/4	1-1/2	4	0.030	TC74609	54.01
1/4	1/4	1-1/2	4	0.045	TC74610	54.01
1/4	1/4	1-1/2	4	0.060	TC74611	54.01
1/4	1/4	1-1/2	6	0.015	TC74612	72.58
1/4	1/4	1-1/2	6	0.020	TC74613	72.58
1/4	1/4	1-1/2	6	0.030	TC74614	72.58
1/4	1/4	1-1/2	6	0.045	TC74615	72.58
1/4	1/4	1-1/2	6	0.060	TC74616	72.58
5/16	5/16	1-5/8	4	0.015	TC74617	74.27
5/16	5/16	1-5/8	4	0.020	TC74618	74.27
5/16	5/16	1-5/8	4	0.030	TC74619	74.27
5/16	5/16	1-5/8	4	0.045	TC74620	74.27
5/16	5/16	1-5/8	4	0.060	TC74621	74.27
3/8	3/8	1-3/4	4	0.015	TC74622	81.02
3/8	3/8	1-3/4	4	0.020	TC74623	81.02
3/8	3/8	1-3/4	4	0.030	TC74624	81.02
3/8	3/8	1-3/4	4	0.045	TC74625	81.02
3/8	3/8	1-3/4	4	0.060	TC74626	81.02
3/8	3/8	1-1/2	6	0.015	TC74627	114.78
3/8	3/8	1-1/2	6	0.020	TC74628	114.78
3/8	3/8	1-1/2	6	0.030	TC74629	114.78
3/8	3/8	1-1/2	6	0.045	TC74630	114.78
3/8	3/8	1-1/2	6	0.060	TC74631	114.78
1/2	1/2	1-1/2	6	0.015	TC74632	173.86
1/2	1/2	1-1/2	6	0.020	TC74633	173.86
1/2	1/2	1-1/2	6	0.030	TC74634	173.86
1/2	1/2	1-1/2	6	0.045	TC74635	173.86
1/2	1/2	1-1/2	6	0.060	TC74636	173.86
1/2	1/2	1-1/2	6	0.090	TC74637	173.86
1/2	1/2	1-1/2	6	0.125	TC74638	173.86
1/2	1/2	3	6	0.015	TC74639	182.30
1/2	1/2	3	6	0.020	TC74640	182.30

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	3	6	0.030	TC74641	182.30
1/2	1/2	3	6	0.045	TC74642	182.30
1/2	1/2	3	6	0.060	TC74643	182.30
1/2	1/2	3	6	0.090	TC74644	182.30
1/2	1/2	3	6	0.125	TC74645	182.30
5/8	5/8	3	6	0.015	TC74646	256.57
5/8	5/8	3	6	0.020	TC74647	256.57
5/8	5/8	3	6	0.030	TC74648	256.57
5/8	5/8	3	6	0.045	TC74649	256.57
5/8	5/8	3	6	0.060	TC74650	256.57
5/8	5/8	3	6	0.090	TC74651	256.57
3/4	3/4	3	6	0.015	TC74652	352.04
3/4	3/4	3	6	0.020	TC74653	352.04
3/4	3/4	3	6	0.030	TC74654	352.04
3/4	3/4	3	6	0.045	TC74655	352.04
3/4	3/4	3	6	0.060	TC74656	352.04
3/4	3/4	3	6	0.090	TC74657	352.04
3/4	3/4	3	6	0.125	TC74658	352.04
3/4	3/4	4	7	0.015	TC74659	578.19
3/4	3/4	4	7	0.020	TC74660	578.19
3/4	3/4	4	7	0.030	TC74661	578.19
3/4	3/4	4	7	0.045	TC74662	578.19
3/4	3/4	4	7	0.060	TC74663	578.19
3/4	3/4	4	7	0.090	TC74664	578.19
3/4	3/4	4	7	0.125	TC74665	578.19
1	1	3	6	0.015	TC74666	573.73
1	1	3	6	0.020	TC74667	573.73
1	1	3	6	0.030	TC74668	573.73
1	1	3	6	0.045	TC74669	573.73
1	1	3	6	0.060	TC74670	573.73
1	1	3	6	0.090	TC74671	573.73
1	1	3	6	0.125	TC74672	573.73
1	1	4	7	0.015	TC74673	827.10
1	1	4	7	0.020	TC74674	827.10
1	1	4	7	0.030	TC74675	827.10
1	1	4	7	0.045	TC74676	827.10
1	1	4	7	0.060	TC74677	827.10
1	1	4	7	0.090	TC74678	827.10
1	1	4	7	0.125	TC74679	827.10
-	-	-	-	-	-	-

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004	+ .002, -.002
5/8" - 1"	+ .000, -.003	-.0001, -.0004	+ .002, -.002



Carbide End Mills

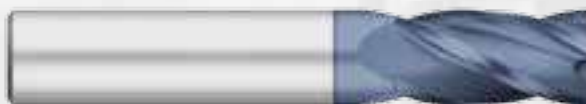
YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR LENGTH - SQUARE END - 30° HELIX



SERIES 118
UNCOATED
METRIC



SERIES 119
ALTIN COATED
METRIC

DIA (mm)	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC11859	20.74
1.5	3	4.2	38	TC11860	20.74
2.0	3	6	38	TC11861	20.74
2.5	3	8	38	TC11862	20.74
3.0	3	12	38	TC11863	20.74
3.5	4	12	50	TC11864	25.55
4.0	4	14	50	TC11865	25.55
4.5	6	16	50	TC11866	31.24
5.0	6	16	50	TC11867	31.24
5.5	6	16	50	TC11881	31.24
6.0	6	19	50	TC11868	32.65
6.5	8	19	63	TC11882	35.52
7.0	8	19	63	TC11869	35.52
7.5	8	19	63	TC11883	36.93
8.0	8	20	63	TC11870	36.93
9.0	10	22	75	TC11871	53.97
10.0	10	22	75	TC11872	68.17
11.0	12	25	75	TC11873	75.28
12.0	12	25	75	TC11874	78.10
14.0	14	32	89	TC11875	132.11
16.0	16	32	89	TC11876	150.55
18.0	18	38	100	TC11877	205.97
20.0	20	38	100	TC11878	326.70
25.0	25	38	100	TC11879	426.11

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

DIA (mm)	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC11959	25.89
1.5	3	4.2	38	TC11960	25.89
2.0	3	6	38	TC11961	25.89
2.5	3	8	38	TC11962	25.89
3.0	3	12	38	TC11963	25.89
3.5	4	12	50	TC11964	31.97
4.0	4	14	50	TC11965	31.97
4.5	6	16	50	TC11966	39.07
5.0	6	16	50	TC11967	39.07
5.5	6	16	50	TC11981	39.07
6.0	6	19	50	TC11968	40.83
6.5	8	19	63	TC11982	44.38
7.0	8	19	63	TC11969	44.38
7.5	8	19	63	TC11983	46.17
8.0	8	20	63	TC11970	46.17
9.0	10	22	75	TC11971	67.45
10.0	10	22	75	TC11972	85.21
11.0	12	25	75	TC11973	94.11
12.0	12	25	75	TC11974	97.66
14.0	14	32	89	TC11975	165.14
16.0	16	32	89	TC11976	188.21
18.0	18	38	100	TC11977	257.45
20.0	20	38	100	TC11978	408.35
25.0	25	38	100	TC11979	532.67

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.00mm, -0.05mm	-0.0025, -0.01mm

ENDMILLS
DRILL MILLS
CHAMFER MILLS
DRILLS
REAMERS
BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR LENGTH - BALL NOSE - 30° HELIX



SERIES 127
UNCOATED
METRIC



SERIES 128
ALTIN COATED
METRIC

DIA (mm)	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC12701	24.47
1.5	3	4.2	38	TC12703	24.47
2.0	3	6	38	TC12705	24.47
2.5	3	8	38	TC12707	24.47
3.0	3	12	38	TC12709	24.47
3.5	4	12	50	TC12711	30.15
4.0	4	14	50	TC12713	30.15
4.5	6	16	50	TC12715	36.86
5.0	6	16	50	TC12717	36.86
5.5	6	16	50	TC12719	36.86
6.0	6	19	50	TC12721	38.53
6.5	8	19	63	TC12723	41.91
7.0	8	19	63	TC12725	41.91
7.5	8	19	63	TC12727	43.58
8.0	8	20	63	TC12729	43.58
9.0	10	22	75	TC12731	63.68
10.0	10	22	75	TC12733	80.44
11.0	12	25	75	TC12735	88.83
12.0	12	25	75	TC12737	92.16
14.0	14	32	89	TC12739	155.89
16.0	16	32	89	TC12741	177.65
18.0	18	38	100	TC12743	243.05
20.0	20	38	100	TC12745	385.50
25.0	25	38	100	TC12747	502.81

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

DIA (mm)	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC12802	30.56
1.5	3	4.2	38	TC12804	30.56
2.0	3	6	38	TC12806	30.56
2.5	3	8	38	TC12808	30.56
3.0	3	12	38	TC12810	30.56
3.5	4	12	50	TC12812	37.72
4.0	4	14	50	TC12814	37.72
4.5	6	16	50	TC12816	46.10
5.0	6	16	50	TC12818	46.10
5.5	6	16	50	TC12820	46.10
6.0	6	19	50	TC12822	48.18
6.5	8	19	63	TC12824	52.37
7.0	8	19	63	TC12826	52.37
7.5	8	19	63	TC12828	54.48
8.0	8	20	63	TC12830	54.49
9.0	10	22	75	TC12832	79.59
10.0	10	22	75	TC12834	100.54
11.0	12	25	75	TC12836	111.05
12.0	12	25	75	TC12838	115.24
14.0	14	32	89	TC12840	194.87
16.0	16	32	89	TC12842	222.09
18.0	18	38	100	TC12844	303.80
20.0	20	38	100	TC12846	481.86
25.0	25	38	100	TC12848	628.55

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.00mm, -0.05mm	-0.0025, -0.01mm



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - DOUBLE END - STUB LENGTH - SQUARE END - 30° HELIX



SERIES 140
UNCOATED



SERIES 148
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14004	22.04
3/32	1/8	3/16	1-1/2	TC14006	22.70
1/8	1/8	1/4	1-1/2	TC14008	18.32
5/32	3/16	5/16	2	TC14010	25.76
3/16	3/16	3/8	2	TC14012	25.76
7/32	1/4	1/2	2-1/2	TC14014	35.34
1/4	1/4	1/2	2-1/2	TC14016	35.34
5/16	5/16	1/2	2-1/2	TC14020	45.69
3/8	3/8	9/16	2-1/2	TC14024	50.43
7/16	7/16	9/16	2-3/4	TC14028	71.23
1/2	1/2	5/8	3	TC14032	87.20

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14804	29.76
3/32	1/8	3/16	1-1/2	TC14806	30.66
1/8	1/8	1/4	1-1/2	TC14808	24.72
5/32	3/16	5/16	2	TC14810	33.26
3/16	3/16	3/8	2	TC14812	33.26
7/32	1/4	1/2	2-1/2	TC14814	45.64
1/4	1/4	1/2	2-1/2	TC14816	45.64
5/16	5/16	1/2	2-1/2	TC14820	56.09
3/8	3/8	9/16	2-1/2	TC14824	61.86
7/16	7/16	9/16	2-3/4	TC14828	87.45
1/2	1/2	5/8	3	TC14832	117.70

2 FLUTE - DOUBLE END - STUB LENGTH - BALL NOSE - 30° HELIX



SERIES 141
UNCOATED



SERIES 142
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14104	27.57
3/32	1/8	3/16	1-1/2	TC14106	28.35
1/8	1/8	1/4	1-1/2	TC14108	22.90
5/32	3/16	5/16	2	TC14110	32.19
3/16	3/16	3/8	2	TC14112	32.19
7/32	1/4	1/2	2-1/2	TC14114	42.26
1/4	1/4	1/2	2-1/2	TC14116	42.26
5/16	5/16	1/2	2-1/2	TC14120	57.12
3/8	3/8	9/16	2-1/2	TC14124	63.02
7/16	7/16	9/16	2-3/4	TC14128	89.06
1/2	1/2	5/8	3	TC14132	108.99

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14204	37.23
3/32	1/8	3/16	1-1/2	TC14206	38.30
1/8	1/8	1/4	1-1/2	TC14208	30.91
5/32	3/16	5/16	2	TC14210	41.56
3/16	3/16	3/8	2	TC14212	41.56
7/32	1/4	1/2	2-1/2	TC14214	57.04
1/4	1/4	1/2	2-1/2	TC14216	57.04
5/16	5/16	1/2	2-1/2	TC14220	70.08
3/8	3/8	9/16	2-1/2	TC14224	77.34
7/16	7/16	9/16	2-3/4	TC14228	109.32
1/2	1/2	5/8	3	TC14232	147.17

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .000, -.002	-.0001, -.0004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - DOUBLE END - STUB LENGTH - SQUARE END - 30° HELIX



SERIES 145
UNCOATED



SERIES 149
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14504	22.04
3/32	1/8	3/16	1-1/2	TC14506	22.70
1/8	1/8	1/4	1-1/2	TC14508	18.32
5/32	3/16	5/16	2	TC14510	25.76
3/16	3/16	3/8	2	TC14512	25.76
7/32	1/4	1/2	2-1/2	TC14514	35.34
1/4	1/4	1/2	2-1/2	TC14516	35.34
5/16	5/16	1/2	2-1/2	TC14520	45.69
3/8	3/8	9/16	2-1/2	TC14524	50.43
7/16	7/16	9/16	2-3/4	TC14528	71.23
1/2	1/2	5/8	3	TC14532	87.20

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14904	29.76
3/32	1/8	3/16	1-1/2	TC14906	30.66
1/8	1/8	1/4	1-1/2	TC14908	24.72
5/32	3/16	5/16	2	TC14910	33.26
3/16	3/16	3/8	2	TC14912	33.26
7/32	1/4	1/2	2-1/2	TC14914	45.64
1/4	1/4	1/2	2-1/2	TC14916	45.64
5/16	5/16	1/2	2-1/2	TC14920	56.09
3/8	3/8	9/16	2-1/2	TC14924	61.86
7/16	7/16	9/16	2-3/4	TC14928	87.45
1/2	1/2	5/8	3	TC14932	117.70

4 FLUTE - DOUBLE END - STUB LENGTH - BALL NOSE - 30° HELIX



SERIES 146
UNCOATED



SERIES 147
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14604	27.57
3/32	1/8	3/16	1-1/2	TC14606	28.35
1/8	1/8	1/4	1-1/2	TC14608	22.90
5/32	3/16	5/16	2	TC14610	32.19
3/16	3/16	3/8	2	TC14612	32.19
7/32	1/4	1/2	2-1/2	TC14614	42.26
1/4	1/4	1/2	2-1/2	TC14616	42.26
5/16	5/16	1/2	2-1/2	TC14620	57.12
3/8	3/8	9/16	2-1/2	TC14624	63.02
7/16	7/16	9/16	2-3/4	TC14628	89.06
1/2	1/2	5/8	3	TC14632	108.99

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14704	37.23
3/32	1/8	3/16	1-1/2	TC14706	38.30
1/8	1/8	1/4	1-1/2	TC14708	30.91
5/32	3/16	5/16	2	TC14710	41.56
3/16	3/16	3/8	2	TC14712	41.56
7/32	1/4	1/2	2-1/2	TC14714	57.04
1/4	1/4	1/2	2-1/2	TC14716	57.04
5/16	5/16	1/2	2-1/2	TC14720	70.08
3/8	3/8	9/16	2-1/2	TC14724	77.34
7/16	7/16	9/16	2-3/4	TC14728	109.32
1/2	1/2	5/8	3	TC14732	147.17

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .000, - .002	- .0001, - .0004



Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - DOUBLE END - REGULAR LENGTH - SQUARE END - 30° HELIX



SERIES 120
UNCOATED



SERIES 121
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12008	83.90
5/32	3/8	7/16	3-1/4	TC12010	83.90
3/16	3/8	1/2	3-1/4	TC12012	83.90
7/32	3/8	9/16	3-1/2	TC12014	83.90
1/4	3/8	5/8	3-1/2	TC12016	83.90
9/32	3/8	11/16	3-1/2	TC12018	88.20
5/16	3/8	3/4	3-1/2	TC12020	88.20
11/32	3/8	3/4	3-1/2	TC12022	88.20
3/8	3/8	3/4	3-1/2	TC12024	88.20
7/16	1/2	7/8	4	TC12028	131.21
1/2	1/2	1	4	TC12032	147.39

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12108	113.25
5/32	3/8	7/16	3-1/4	TC12110	113.25
3/16	3/8	1/2	3-1/4	TC12112	113.25
7/32	3/8	9/16	3-1/2	TC12114	113.25
1/4	3/8	5/8	3-1/2	TC12116	113.25
9/32	3/8	11/16	3-1/2	TC12118	119.08
5/16	3/8	3/4	3-1/2	TC12120	119.08
11/32	3/8	3/4	3-1/2	TC12122	119.08
3/8	3/8	3/4	3-1/2	TC12124	119.08
7/16	1/2	7/8	4	TC12128	177.19
1/2	1/2	1	4	TC12132	199.00

NOTE: ALL TOOLS WITH WELDON FLATS

2 FLUTE - DOUBLE END - REGULAR LENGTH - BALL NOSE - 30° HELIX



SERIES 130
UNCOATED



SERIES 131
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13008	93.41
5/32	3/8	7/16	3-1/4	TC13010	93.41
3/16	3/8	1/2	3-1/4	TC13012	93.41
7/32	3/8	9/16	3-1/2	TC13014	94.68
1/4	3/8	5/8	3-1/2	TC13016	94.68
9/32	3/8	11/16	3-1/2	TC13018	103.73
5/16	3/8	3/4	3-1/2	TC13020	103.73
11/32	3/8	3/4	3-1/2	TC13022	103.73
3/8	3/8	3/4	3-1/2	TC13024	103.73
7/16	1/2	7/8	4	TC13028	150.15
1/2	1/2	1	4	TC13032	153.50

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13108	121.96
5/32	3/8	7/16	3-1/4	TC13110	121.96
3/16	3/8	1/2	3-1/4	TC13112	121.96
7/32	3/8	9/16	3-1/2	TC13114	126.00
1/4	3/8	5/8	3-1/2	TC13116	126.00
9/32	3/8	11/16	3-1/2	TC13118	140.07
5/16	3/8	3/4	3-1/2	TC13120	140.07
11/32	3/8	3/4	3-1/2	TC13122	140.07
3/8	3/8	3/4	3-1/2	TC13124	140.07
7/16	1/2	7/8	4	TC13128	190.62
1/2	1/2	1	4	TC13132	207.20

NOTE: ALL TOOLS WITH WELDON FLATS

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .000, -.002	-.0001, -.0004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - DOUBLE END - REGULAR LENGTH - SQUARE END - 30° HELIX



SERIES 125
UNCOATED



SERIES 126
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12508	82.15
5/32	3/8	7/16	3-1/4	TC12510	82.15
3/16	3/8	1/2	3-1/4	TC12512	82.15
7/32	3/8	9/16	3-1/2	TC12514	83.46
1/4	3/8	5/8	3-1/2	TC12516	83.46
9/32	3/8	11/16	3-1/2	TC12518	85.58
5/16	3/8	3/4	3-1/2	TC12520	85.58
11/32	3/8	3/4	3-1/2	TC12522	85.58
3/8	3/8	3/4	3-1/2	TC12524	85.58
7/16	1/2	7/8	4	TC12528	124.06
1/2	1/2	1	4	TC12532	139.37

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12608	102.55
5/32	3/8	7/16	3-1/4	TC12610	102.55
3/16	3/8	1/2	3-1/4	TC12612	102.55
7/32	3/8	9/16	3-1/2	TC12614	104.91
1/4	3/8	5/8	3-1/2	TC12616	104.91
9/32	3/8	11/16	3-1/2	TC12618	112.58
5/16	3/8	3/4	3-1/2	TC12620	112.58
11/32	3/8	3/4	3-1/2	TC12622	112.58
3/8	3/8	3/4	3-1/2	TC12624	112.58
7/16	1/2	7/8	4	TC12628	167.50
1/2	1/2	1	4	TC12632	188.18

NOTE: ALL TOOLS WITH WELDON FLATS

4 FLUTE - DOUBLE END - REGULAR LENGTH - BALL NOSE - 30° HELIX



SERIES 135
UNCOATED



SERIES 136
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13508	93.41
5/32	3/8	7/16	3-1/4	TC13510	93.41
3/16	3/8	1/2	3-1/4	TC13512	93.41
7/32	3/8	9/16	3-1/2	TC13514	94.68
1/4	3/8	5/8	3-1/2	TC13516	94.68
9/32	3/8	11/16	3-1/2	TC13518	103.73
5/16	3/8	3/4	3-1/2	TC13520	103.73
11/32	3/8	3/4	3-1/2	TC13522	103.73
3/8	3/8	3/4	3-1/2	TC13524	103.73
7/16	1/2	7/8	4	TC13528	150.15
1/2	1/2	1	4	TC13532	153.50

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13608	121.96
5/32	3/8	7/16	3-1/4	TC13610	121.96
3/16	3/8	1/2	3-1/4	TC13612	121.96
7/32	3/8	9/16	3-1/2	TC13614	126.00
1/4	3/8	5/8	3-1/2	TC13616	126.00
9/32	3/8	11/16	3-1/2	TC13618	140.07
5/16	3/8	3/4	3-1/2	TC13620	140.07
11/32	3/8	3/4	3-1/2	TC13622	140.07
3/8	3/8	3/4	3-1/2	TC13624	140.07
7/16	1/2	7/8	4	TC13628	190.62
1/2	1/2	1	4	TC13632	207.20

NOTE: ALL TOOLS WITH WELDON FLATS

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .000, - .002	- .0001, - .0004



Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - 60° POINT - 30° HELIX



SERIES 316
UNCOATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	2	TC31602	23.31
1/16	1/8	3/16	1-1/2	2	TC31604	23.31
3/32	1/8	3/8	1-1/2	2	TC31606	23.31
1/8	1/8	1/2	1-1/2	2	TC31608	22.36
3/16	3/16	5/8	2	2	TC31612	31.48
1/4	1/4	3/4	2-1/2	2	TC31616	39.39
5/16	5/16	13/16	2-1/2	2	TC31620	48.91
3/8	3/8	1	2-1/2	2	TC31624	61.46
7/16	7/16	1	2-3/4	2	TC31628	83.08
1/2	1/2	1	3	2	TC31632	101.87
5/8	5/8	1-1/4	3-1/2	2	TC31640	194.51
3/4	3/4	1-1/2	4	2	TC31648	286.49



SERIES 318
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	2	TC31802	29.14
1/16	1/8	3/16	1-1/2	2	TC31804	29.14
3/32	1/8	3/8	1-1/2	2	TC31806	29.14
1/8	1/8	1/2	1-1/2	2	TC31808	27.97
3/16	3/16	5/8	2	2	TC31812	39.35
1/4	1/4	3/4	2-1/2	2	TC31816	49.24
5/16	5/16	13/16	2-1/2	2	TC31820	61.13
3/8	3/8	1	2-1/2	2	TC31824	76.85
7/16	7/16	1	2-3/4	2	TC31828	103.87
1/2	1/2	1	3	2	TC31832	127.36
5/8	5/8	1-1/4	3-1/2	2	TC31840	243.16
3/4	3/4	1-1/2	4	2	TC31848	358.13

Drill mills enjoy great popularity in job shop environments because of their versatility in performing a wide range of applications:

The following applications can be performed with drill mills:
Drilling • Chamfering • Countersinking • Spotting • Profile Milling

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



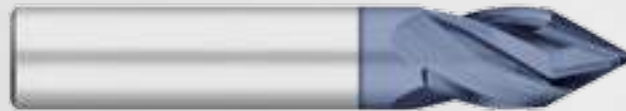
TAKE 55% OFF LIST PRICES

4 FLUTE - 60° POINT - 30° HELIX



SERIES 347
UNCOATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	4	TC34702	23.31
1/16	1/8	3/16	1-1/2	4	TC34704	23.31
3/32	1/8	3/8	1-1/2	4	TC34706	23.31
1/8	1/8	1/2	1-1/2	4	TC34708	22.36
3/16	3/16	5/8	2	4	TC34712	31.48
1/4	1/4	3/4	2-1/2	4	TC34716	39.39
5/16	5/16	13/16	2-1/2	4	TC34720	48.91
3/8	3/8	1	2-1/2	4	TC34724	61.46
7/16	7/16	1	2-3/4	4	TC34728	83.08
1/2	1/2	1	3	4	TC34732	101.87
5/8	5/8	1-1/4	3-1/2	4	TC34740	194.51
3/4	3/4	1-1/2	4	4	TC34748	286.49



SERIES 349
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	4	TC34902	29.14
1/16	1/8	3/16	1-1/2	4	TC34904	29.14
3/32	1/8	3/8	1-1/2	4	TC34906	29.14
1/8	1/8	1/2	1-1/2	4	TC34908	27.97
3/16	3/16	5/8	2	4	TC34912	39.35
1/4	1/4	3/4	2-1/2	4	TC34916	49.24
5/16	5/16	13/16	2-1/2	4	TC34920	61.13
3/8	3/8	1	2-1/2	4	TC34924	76.85
7/16	7/16	1	2-3/4	4	TC34928	103.87
1/2	1/2	1	3	4	TC34932	127.36
5/8	5/8	1-1/4	3-1/2	4	TC34940	243.16
3/4	3/4	1-1/2	4	4	TC34948	358.13

Drill mills enjoy great popularity in job shop environments because of their versatility in performing a wide range of applications:

The following applications can be performed with drill mills:
Drilling • Chamfering • Countersinking • Spotting • Profile Milling

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004



Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - 90° POINT - 30° HELIX



SERIES 320
UNCOATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	2	TC32002	23.31
1/16	1/8	3/16	1-1/2	2	TC32004	23.31
3/32	1/8	3/8	1-1/2	2	TC32006	23.31
1/8	1/8	1/2	1-1/2	2	TC32008	22.36
3/16	3/16	5/8	2	2	TC32012	31.48
1/4	1/4	3/4	2-1/2	2	TC32016	39.39
5/16	5/16	13/16	2-1/2	2	TC32020	48.91
3/8	3/8	1	2-1/2	2	TC32024	61.46
7/16	7/16	1	2-3/4	2	TC32028	83.08
1/2	1/2	1	3	2	TC32032	101.87
5/8	5/8	1-1/4	3-1/2	2	TC32040	194.51
3/4	3/4	1-1/2	4	2	TC32048	286.49



SERIES 322
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	2	TC32202	29.14
1/16	1/8	3/16	1-1/2	2	TC32204	29.14
3/32	1/8	3/8	1-1/2	2	TC32206	29.14
1/8	1/8	1/2	1-1/2	2	TC32208	27.97
3/16	3/16	5/8	2	2	TC32212	39.35
1/4	1/4	3/4	2-1/2	2	TC32216	49.24
5/16	5/16	13/16	2-1/2	2	TC32220	61.13
3/8	3/8	1	2-1/2	2	TC32224	76.85
7/16	7/16	1	2-3/4	2	TC32228	103.87
1/2	1/2	1	3	2	TC32232	127.36
5/8	5/8	1-1/4	3-1/2	2	TC32240	243.16
3/4	3/4	1-1/2	4	2	TC32248	358.13

Drill mills enjoy great popularity in job shop environments because of their versatility in performing a wide range of applications:

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For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - 90° POINT - 30° HELIX



SERIES 341
UNCOATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	4	TC34102	23.31
1/16	1/8	3/16	1-1/2	4	TC34104	23.31
3/32	1/8	3/8	1-1/2	4	TC34106	23.31
1/8	1/8	1/2	1-1/2	4	TC34108	22.36
3/16	3/16	5/8	2	4	TC34112	31.48
1/4	1/4	3/4	2-1/2	4	TC34116	39.39
5/16	5/16	13/16	2-1/2	4	TC34120	48.91
3/8	3/8	1	2-1/2	4	TC34124	61.46
7/16	7/16	1	2-3/4	4	TC34128	83.08
1/2	1/2	1	3	4	TC34132	101.87
5/8	5/8	1-1/4	3-1/2	4	TC34140	194.51
3/4	3/4	1-1/2	4	4	TC34148	286.49



SERIES 343
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	4	TC34302	29.14
1/16	1/8	3/16	1-1/2	4	TC34304	29.14
3/32	1/8	3/8	1-1/2	4	TC34306	29.14
1/8	1/8	1/2	1-1/2	4	TC34308	27.97
3/16	3/16	5/8	2	4	TC34312	39.35
1/4	1/4	3/4	2-1/2	4	TC34316	49.24
5/16	5/16	13/16	2-1/2	4	TC34320	61.13
3/8	3/8	1	2-1/2	4	TC34324	76.85
7/16	7/16	1	2-3/4	4	TC34328	103.87
1/2	1/2	1	3	4	TC34332	127.36
5/8	5/8	1-1/4	3-1/2	4	TC34340	243.16
3/4	3/4	1-1/2	4	4	TC34348	358.13

Drill mills enjoy great popularity in job shop environments because of their versatility in performing a wide range of applications:

The following applications can be performed with drill mills:
Drilling • Chamfering • Countersinking • Spotting • Profile Milling

For coating information see page 6. For technical information, please see pages 226, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -0.0004
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004



Carbide Chamfer Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



2 FLUTE - SINGLE END
60° • 82° • 90° • 100° • 120°

SERIES 850
UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	TC87600	TC87612	TC87624	TC87636	TC87648	19.96
1/4	1/4	2-1/2	1	TC87603	TC87615	TC87627	TC87639	TC87651	35.14
3/8	3/8	2-1/2	1	TC87606	TC87618	TC87630	TC87642	TC87654	54.82
1/2	1/2	3	1	TC87609	TC87621	TC87633	TC87645	TC87657	90.75



2 FLUTE - SINGLE END
60° • 82° • 90° • 100° • 120°

SERIES 852
ALTIN COATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	TC87660	TC87672	TC87684	TC87696	TC87708	24.97
1/4	1/4	2-1/2	1	TC87663	TC87675	TC87687	TC87699	TC87711	43.86
3/8	3/8	2-1/2	1	TC87666	TC87678	TC87690	TC87702	TC87714	68.54
1/2	1/2	3	1	TC87669	TC87681	TC87693	TC87705	TC87717	113.52



4 FLUTE - SINGLE END
60° • 82° • 90° • 100° • 120°

SERIES 854
UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	TC87720	TC87732	TC87744	TC87756	TC87768	19.96
1/4	1/4	2-1/2	1	TC87723	TC87735	TC87747	TC87759	TC87771	35.14
3/8	3/8	2-1/2	1	TC87726	TC87738	TC87750	TC87762	TC87774	54.82
1/2	1/2	3	1	TC87729	TC87741	TC87753	TC87765	TC87777	90.75



4 FLUTE - SINGLE END
60° • 82° • 90° • 100° • 120°

SERIES 856
ALTIN COATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	TC87780	TC87792	TC87804	TC87816	TC87828	24.97
1/4	1/4	2-1/2	1	TC87783	TC87795	TC87807	TC87819	TC87831	43.86
3/8	3/8	2-1/2	1	TC87786	TC87798	TC87810	TC87822	TC87834	68.54
1/2	1/2	3	1	TC87789	TC87801	TC87813	TC87825	TC87837	113.52

For coating information see page 6. For technical information, please see pages 226, 230.

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Chamfer Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



2 FLUTE - DOUBLE END
60° • 82° • 90° • 100° • 120°

SERIES 858
UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	2	1	TC87840	TC87858	TC87876	TC87894	TC87912	35.93
3/16	3/16	2-1/2	1	TC87843	TC87861	TC87879	TC87897	TC87915	49.48
1/4	1/4	2-1/2	1	TC87846	TC87864	TC87882	TC87900	TC87918	63.26
5/16	5/16	2-1/2	1	TC87849	TC87867	TC87885	TC87903	TC87921	80.97
3/8	3/8	2-1/2	1	TC87852	TC87870	TC87888	TC87906	TC87924	98.68
1/2	1/2	3	1	TC87855	TC87873	TC87891	TC87909	TC87927	163.35



2 FLUTE - DOUBLE END
60° • 82° • 90° • 100° • 120°

SERIES 860
ALTiN COATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	2	1	TC87930	TC87948	TC87966	TC87984	TC88002	44.94
3/16	3/16	2-1/2	1	TC87933	TC87951	TC87969	TC87987	TC88005	61.85
1/4	1/4	2-1/2	1	TC87936	TC87954	TC87972	TC87990	TC88008	78.94
5/16	5/16	2-1/2	1	TC87939	TC87957	TC87975	TC87993	TC88011	101.15
3/8	3/8	2-1/2	1	TC87942	TC87960	TC87978	TC87996	TC88014	123.48
1/2	1/2	3	1	TC87945	TC87963	TC87981	TC87999	TC88017	204.39



4 FLUTE - DOUBLE END
60° • 82° • 90° • 100° • 120°

SERIES 862
UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	2	1	TC88020	TC88038	TC88056	TC88074	TC88092	35.93
3/16	3/16	2-1/2	1	TC88023	TC88041	TC88059	TC88077	TC88095	49.48
1/4	1/4	2-1/2	1	TC88026	TC88044	TC88062	TC88080	TC88098	63.26
5/16	5/16	2-1/2	1	TC88029	TC88047	TC88065	TC88083	TC88101	80.97
3/8	3/8	2-1/2	1	TC88032	TC88050	TC88068	TC88086	TC88104	98.68
1/2	1/2	3	1	TC88035	TC88053	TC88071	TC88089	TC88107	163.35



4 FLUTE - DOUBLE END
60° • 82° • 90° • 100° • 120°

SERIES 864
ALTiN COATED

DIA	SHANK	OAL	PKG. QTY.	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	120° - ITEM#	LIST PRICE
1/8	1/8	2	1	TC88110	TC88128	TC88146	TC88164	TC88182	44.94
3/16	3/16	2-1/2	1	TC88113	TC88131	TC88149	TC88167	TC88185	61.85
1/4	1/4	2-1/2	1	TC88116	TC88134	TC88152	TC88170	TC88188	78.94
5/16	5/16	2-1/2	1	TC88119	TC88137	TC88155	TC88173	TC88191	101.15
3/8	3/8	2-1/2	1	TC88122	TC88140	TC88158	TC88176	TC88194	123.48
1/2	1/2	3	1	TC88125	TC88143	TC88161	TC88179	TC88197	204.39

For coating information see page 6. For technical information, please see pages 226, 230.



Carbide Drills

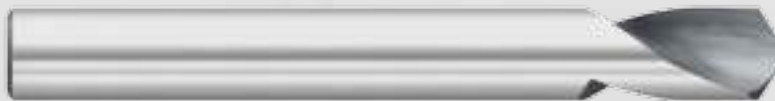
YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES
N/C SPOTTING DRILLS



SERIES 187 - 90° POINT
UNCOATED

DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC18708	27.96
3/16	3/16	3/8	2	TC18712	33.27
1/4	1/4	3/8	3	TC18716	40.41
3/8	3/8	1/2	4	TC18724	66.12
1/2	1/2	3/4	4	TC18732	107.36
5/8	5/8	1	4	TC18740	191.11
3/4	3/4	1	4	TC18748	256.61



SERIES 188 - 120° POINT
UNCOATED

DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC18808	27.96
3/16	3/16	3/8	2	TC18812	33.27
1/4	1/4	3/8	3	TC18816	40.41
3/8	3/8	1/2	4	TC18824	66.12
1/2	1/2	3/4	4	TC18832	107.36
5/8	5/8	1	4	TC18840	191.11
3/4	3/4	1	4	TC18848	256.61



SERIES 189 - 140° POINT
UNCOATED

N/C SPOTTING FOR HIGH PERFORMANCE DRILLING					
DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC18908	27.96
3/16	3/16	3/8	2	TC18912	33.27
1/4	1/4	3/8	3	TC18916	40.41
3/8	3/8	1/2	4	TC18924	66.12
1/2	1/2	3/4	4	TC18932	107.36
5/8	5/8	1	4	TC18940	191.11
3/4	3/4	1	4	TC18948	256.61

For technical information, please see page 231.

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES
N/C SPOTTING DRILLS



SERIES 287 - 90° POINT
ALTiN COATED

DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC28708	34.94
3/16	3/16	3/8	2	TC28712	41.60
1/4	1/4	3/8	3	TC28716	50.74
3/8	3/8	1/2	4	TC28724	80.30
1/2	1/2	3/4	4	TC28732	139.77
5/8	5/8	1	4	TC28740	244.35
3/4	3/4	1	4	TC28748	320.78



SERIES 288 - 120° POINT
ALTiN COATED

DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC28808	34.94
3/16	3/16	3/8	2	TC28812	41.60
1/4	1/4	3/8	3	TC28816	50.74
3/8	3/8	1/2	4	TC28824	80.30
1/2	1/2	3/4	4	TC28832	139.77
5/8	5/8	1	4	TC28840	244.35
3/4	3/4	1	4	TC28848	320.78



SERIES 289 - 140° POINT
ALTiN COATED

N/C SPOTTING FOR HIGH PERFORMANCE DRILLING					
DIA	SHANK	FL LENGTH	OAL	ITEM #	LIST PRICE
1/8	1/8	1/4	2	TC28908	34.94
3/16	3/16	3/8	2	TC28912	41.60
1/4	1/4	3/8	3	TC28916	50.74
3/8	3/8	1/2	4	TC28924	80.30
1/2	1/2	3/4	4	TC28932	139.77
5/8	5/8	1	4	TC28940	244.35
3/4	3/4	1	4	TC28948	320.78

For coating information see page 6. For technical information, please see page 231.



Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

STUB LENGTH - 135° SPLIT POINT - 15° HELIX

SERIES 200
UNCOATED



SERIES 201
ALTIM COATED



FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1/32	3/8	1-1/2	TC20002	16.75	TC29002	20.94
3/64	3/8	1-1/2	TC20003	16.75	TC29003	20.94
1/16	13/32	1-1/2	TC20004	15.82	TC29004	19.76
5/64	7/16	1-1/2	TC20005	16.75	TC29005	20.94
3/32	1/2	1-1/2	TC20006	18.46	TC29006	23.06
7/64	5/8	2	TC20007	20.94	TC29007	26.18
1/8	3/4	2	TC20008	22.36	TC29008	27.93
9/64	3/4	2	TC20009	24.77	TC29009	30.93
5/32	7/8	2	TC20010	27.74	TC29010	34.65
11/64	7/8	2	TC20011	32.75	TC29011	40.96
3/16	7/8	2	TC20012	33.68	TC29012	42.11
13/64	1-1/8	2-1/2	TC20013	38.92	TC29013	48.65
7/32	1-1/8	2-1/2	TC20014	43.19	TC29014	53.99
15/64	1-1/4	2-1/2	TC20015	48.87	TC29015	61.09
1/4	1-1/4	2-1/2	TC20016	51.36	TC29016	64.21
17/64	1-1/4	2-1/2	TC20017	57.89	TC29017	72.34

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
9/32	1-1/4	2-1/2	TC20018	60.31	TC29018	75.38
19/64	1-1/4	2-1/2	TC20019	67.73	TC29019	84.70
5/16	1-1/4	2-1/2	TC20020	71.34	TC29020	89.12
21/64	1-3/8	3	TC20021	77.80	TC29021	97.26
11/32	1-3/8	3	TC20022	85.08	TC29022	106.32
23/64	1-3/8	3	TC20023	95.10	TC29023	118.87
3/8	1-3/8	3	TC20024	100.86	TC29024	126.07
25/64	1-3/8	3	TC20025	118.13	TC29025	147.65
13/32	1-3/8	3	TC20026	129.38	TC29026	161.72
27/64	1-3/8	3	TC20027	140.74	TC29027	175.91
7/16	1-3/8	3	TC20028	147.20	TC29028	184.00
29/64	1-3/8	3	TC20029	170.78	TC29029	213.49
15/32	1-3/8	3	TC20030	177.95	TC29030	222.44
31/64	1-3/8	3	TC20031	182.96	TC29031	228.71
1/2	1-3/8	3	TC20032	183.37	TC29032	229.20
-	-	-	-	-	-	-

NOTE: SIZES 7/64" AND UNDER ARE NOT SPLIT.

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	1-1/4	2-1/2	TC20101	49.32	TC29101	61.64
B	1-1/4	2-1/2	TC20102	51.36	TC29102	64.21
C	1-1/4	2-1/2	TC20103	51.73	TC29103	64.69
D	1-1/4	2-1/2	TC20104	52.40	TC29104	65.47
E	1-1/4	2-1/2	TC20105	51.36	TC29105	64.21
F	1-1/4	2-1/2	TC20106	57.15	TC29106	71.41
G	1-1/4	2-1/2	TC20107	60.57	TC29107	75.72
H	1-1/4	2-1/2	TC20108	61.87	TC29108	77.35
I	1-1/4	2-1/2	TC20109	62.91	TC29109	78.65
J	1-1/4	2-1/2	TC20110	64.58	TC29110	80.73
K	1-1/4	2-1/2	TC20111	65.17	TC29111	81.44
L	1-1/4	2-1/2	TC20112	68.89	TC29112	86.08
M	1-1/4	2-1/2	TC20113	70.26	TC29113	87.86

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
N	1-1/4	2-1/2	TC20114	74.68	TC29114	93.32
O	1-3/8	3	TC20115	78.73	TC29115	98.41
P	1-3/8	3	TC20116	81.73	TC29116	102.16
Q	1-3/8	3	TC20117	84.70	TC29117	105.87
R	1-3/8	3	TC20118	88.42	TC29118	110.51
S	1-3/8	3	TC20119	94.17	TC29119	117.75
T	1-3/8	3	TC20120	97.55	TC29120	121.95
U	1-3/8	3	TC20121	102.38	TC29121	127.97
V	1-3/8	3	TC20122	113.37	TC29122	141.71
W	1-3/8	3	TC20123	122.10	TC29123	152.62
X	1-3/8	3	TC20124	133.28	TC29124	166.59
Y	1-3/8	3	TC20125	137.73	TC29125	172.16
Z	1-3/8	3	TC20126	149.28	TC29126	186.57

For coating information see page 6. For technical information, please see page 231.

DIAMETER TOLERANCE +.0000, -.0005

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drills

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TAKE 55% OFF LIST PRICES

STUB LENGTH - 135° SPLIT POINT - 15° HELIX



SERIES 200
UNCOATED

SERIES 201
ALTIN COATED

WIRE SIZES						WIRE SIZES							
SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1	1-1/4	2-1/2	TC20201	44.67	TC29201	55.85	31	3/4	2	TC20231	21.80	TC29231	27.22
2	1-1/4	2-1/2	TC20202	44.67	TC29202	55.85	32	3/4	2	TC20232	21.80	TC29232	27.22
3	1-1/8	2-1/2	TC20203	44.67	TC29203	55.85	33	3/4	2	TC20233	21.58	TC29233	27.00
4	1-1/8	2-1/2	TC20204	44.19	TC29204	55.26	34	3/4	2	TC20234	21.39	TC29234	26.74
5	1-1/8	2-1/2	TC20205	39.47	TC29205	49.32	35	3/4	2	TC20235	21.39	TC29235	26.74
6	1-1/8	2-1/2	TC20206	39.47	TC29206	49.32	36	5/8	2	TC20236	21.39	TC29236	26.74
7	1-1/8	2-1/2	TC20207	38.32	TC29207	47.90	37	5/8	2	TC20237	20.28	TC29237	25.36
8	1-1/8	2-1/2	TC20208	38.17	TC29208	47.72	38	5/8	2	TC20238	19.90	TC29238	24.88
9	1-1/8	2-1/2	TC20209	38.17	TC29209	47.72	39	5/8	2	TC20239	19.90	TC29239	24.88
10	1-1/8	2-1/2	TC20210	38.17	TC29210	47.72	40	5/8	2	TC20240	19.16	TC29240	23.99
11	1-1/8	2-1/2	TC20211	37.21	TC29211	46.53	41	5/8	2	TC20241	19.16	TC29241	23.99
12	1-1/8	2-1/2	TC20212	37.21	TC29212	46.53	42	1/2	1-1/2	TC20242	18.64	TC29242	23.28
13	7/8	2	TC20213	35.91	TC29213	44.90	43	1/2	1-1/2	TC20243	18.64	TC29243	23.28
14	7/8	2	TC20214	35.02	TC29214	43.78	44	1/2	1-1/2	TC20244	17.68	TC29244	22.10
15	7/8	2	TC20215	34.46	TC29215	43.04	45	1/2	1-1/2	TC20245	17.12	TC29245	21.39
16	7/8	2	TC20216	34.46	TC29216	43.04	46	1/2	1-1/2	TC20246	17.12	TC29246	21.39
17	7/8	2	TC20217	32.75	TC29217	40.96	47	1/2	1-1/2	TC20247	17.12	TC29247	21.39
18	7/8	2	TC20218	30.78	TC29218	38.51	48	7/16	1-1/2	TC20248	17.12	TC29248	21.39
19	7/8	2	TC20219	30.15	TC29219	37.69	49	7/16	1-1/2	TC20249	16.38	TC29249	20.46
20	7/8	2	TC20220	28.85	TC29220	36.10	50	7/16	1-1/2	TC20250	16.38	TC29250	20.46
21	7/8	2	TC20221	28.85	TC29221	36.10	51	7/16	1-1/2	TC20251	15.82	TC29251	19.76
22	7/8	2	TC20222	27.74	TC29222	34.65	52	7/16	1-1/2	TC20252	15.82	TC29252	19.76
23	7/8	2	TC20223	27.74	TC29223	34.65	53	13/32	1-1/2	TC20253	16.75	TC29253	20.94
24	7/8	2	TC20224	27.55	TC29224	34.46	54	13/32	1-1/2	TC20254	16.75	TC29254	20.94
25	7/8	2	TC20225	26.07	TC29225	32.57	55	13/32	1-1/2	TC20255	16.75	TC29255	20.94
26	7/8	2	TC20226	26.07	TC29226	32.57	56	3/8	1-1/2	TC20256	16.75	TC29256	20.94
27	7/8	2	TC20227	26.07	TC29227	32.57	57	3/8	1-1/2	TC20257	16.75	TC29257	20.94
28	3/4	2	TC20228	24.77	TC29228	30.93	58	3/8	1-1/2	TC20258	16.75	TC29258	20.94
29	3/4	2	TC20229	24.77	TC29229	30.93	59	3/8	1-1/2	TC20259	16.75	TC29259	20.94
30	3/4	2	TC20230	23.43	TC29230	29.30	60	3/8	1-1/2	TC20260	16.75	TC29260	20.94

NOTE: SIZES 31 AND UNDER ARE NOT SPLIT.

For coating information see page 6. For technical information, please see page 231.

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TAKE 55% OFF LIST PRICES

JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX

SERIES 190
UNCOATED



SERIES 191
ALTIN COATED



FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1/32	5/16	1-1/4	TC19002	15.75	TC79002	19.68
3/64	3/4	1-1/2	TC19003	15.75	TC79003	19.68
1/16	3/4	1-1/2	TC19004	14.89	TC79004	18.60
5/64	7/8	1-3/4	TC19005	15.75	TC79005	19.68
3/32	1	2	TC19006	17.34	TC79006	21.69
7/64	1-1/4	2-1/4	TC19007	19.72	TC79007	24.66
1/8	1-1/4	2-1/4	TC19008	21.02	TC79008	26.29
9/64	1-3/8	2-1/2	TC19009	23.28	TC79009	29.11
5/32	1-3/8	2-1/2	TC19010	26.11	TC79010	32.64
11/64	1-5/8	2-3/4	TC19011	30.82	TC79011	38.55
3/16	1-5/8	2-3/4	TC19012	31.71	TC79012	39.62
13/64	1-3/4	3	TC19013	36.62	TC79013	45.79
7/32	1-3/4	3	TC19014	40.63	TC79014	50.80
15/64	2	3-1/4	TC19015	46.01	TC79015	57.48
1/4	2	3-1/4	TC19016	48.35	TC79016	60.42
17/64	2-1/8	3-1/2	TC19017	54.44	TC79017	68.07

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
9/32	2-1/8	3-1/2	TC19018	56.78	TC79018	71.00
19/64	2-3/8	3-3/4	TC19019	63.80	TC79019	79.73
5/16	2-3/8	3-3/4	TC19020	67.10	TC79020	83.85
21/64	2-1/2	4	TC19021	73.23	TC79021	91.54
11/32	2-1/2	4	TC19022	80.06	TC79022	100.08
23/64	2-3/4	4-1/4	TC19023	89.53	TC79023	111.92
3/8	2-3/4	4-1/4	TC19024	94.95	TC79024	118.68
25/64	2-7/8	4-1/2	TC19025	111.18	TC79025	138.96
13/32	2-7/8	4-1/2	TC19026	121.77	TC79026	152.22
27/64	2-7/8	4-1/2	TC19027	132.42	TC79027	165.51
7/16	2-7/8	4-1/2	TC19028	138.55	TC79028	173.23
29/64	3	4-3/4	TC19029	160.76	TC79029	200.94
15/32	3	4-3/4	TC19030	167.48	TC79030	209.33
31/64	3	4-3/4	TC19031	172.19	TC79031	215.27
1/2	3	4-3/4	TC19032	172.57	TC79032	215.72
-	-	-	-	-	-	-

NOTE: SIZES 7/64" AND UNDER ARE NOT SPLIT.

METRIC SIZES

SIZE (mm)	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
0.7	12	31	TC19307	19.57	TC79307	24.47
0.8	12	31	TC19308	19.57	TC79308	24.47
0.9	16	38	TC19309	19.57	TC79309	24.47
1.0	16	38	TC19310	19.57	TC79310	24.47
1.1	19	38	TC19311	19.57	TC79311	24.47
1.2	19	38	TC19312	19.57	TC79312	24.47
1.3	19	38	TC19313	19.57	TC79313	24.47
1.4	19	38	TC19314	19.57	TC79314	24.47
1.5	19	38	TC19315	19.72	TC79315	24.66
1.6	19	38	TC19316	19.72	TC79316	24.66
1.7	19	38	TC19317	19.72	TC79317	24.66
1.8	22	38	TC19318	19.72	TC79318	24.66
1.9	22	38	TC19319	19.72	TC79319	24.66
2.0	22	44	TC19320	20.94	TC79320	26.18
2.1	22	44	TC19321	20.94	TC79321	26.18
2.2	25	50	TC19322	20.94	TC79322	26.18
2.3	25	50	TC19323	20.94	TC79323	26.18
2.4	25	50	TC19324	20.94	TC79324	26.18
2.5	25	50	TC19325	24.06	TC79325	30.08
2.6	32	57	TC19326	24.06	TC79326	30.08
2.7	32	57	TC19327	24.06	TC79327	30.08
2.8	32	57	TC19328	24.06	TC79328	30.08
2.9	32	57	TC19329	24.06	TC79329	30.08

METRIC SIZES

SIZE (mm)	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
3.0	32	57	TC19330	26.96	TC79330	33.68
3.1	32	57	TC19331	26.96	TC79331	33.68
3.2	32	57	TC19332	26.96	TC79332	33.68
3.3	32	57	TC19333	26.96	TC79333	33.68
3.4	35	63	TC19334	29.26	TC79334	36.62
3.5	35	63	TC19335	29.26	TC79335	36.62
4.0	35	63	TC19340	36.02	TC79340	45.01
4.5	41	70	TC19345	38.58	TC79345	48.24
5.0	44	75	TC19350	42.67	TC79350	53.36
5.5	44	75	TC19355	50.54	TC79355	63.17
6.0	50	82	TC19360	53.44	TC79360	66.77
6.5	50	82	TC19365	85.11	TC79365	106.39
7.0	54	89	TC19370	93.21	TC79370	116.53
7.5	60	95	TC19375	96.25	TC79375	120.32
8.0	60	95	TC19380	101.82	TC79380	127.26
8.5	63	100	TC19385	125.70	TC79385	157.12
9.0	70	100	TC19390	142.71	TC79390	178.40
9.5	70	108	TC19395	162.84	TC79395	203.57
10.0	73	114	TC19400	187.01	TC79400	233.76
10.5	73	114	TC19405	209.14	TC79405	261.43
11.0	73	114	TC19410	248.84	TC79410	311.08
11.5	76	120	TC19415	256.31	TC79415	320.40
12.0	76	120	TC19420	284.45	TC79420	355.60

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

NOTE: SIZES 3.1mm AND UNDER ARE NOT SPLIT.

For coating information see page 6. For technical information, please see page 231.

DIAMETER TOLERANCE +.0000, -.0005

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drills

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JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX



SERIES 190
UNCOATED



SERIES 191
ALTIN COATED

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
A	2	3-1/4	TC19101	46.42	TC79101	58.00
B	2	3-1/4	TC19102	48.35	TC79102	60.42
C	2	3-1/4	TC19103	48.72	TC79103	60.90
D	2	3-1/4	TC19104	49.32	TC79104	61.64
E	2	3-1/4	TC19105	48.35	TC79105	60.42
F	2	3-1/4	TC19106	57.40	TC79106	67.21
G	2-1/8	3-1/2	TC19107	62.08	TC79107	71.26
H	2-1/8	3-1/2	TC19108	63.72	TC79108	72.82
I	2-1/8	3-1/2	TC19109	64.95	TC79109	74.01
J	2-1/8	3-1/2	TC19110	69.04	TC79110	76.02
K	2-1/8	3-1/2	TC19111	69.20	TC79111	76.65
L	2-1/8	3-1/2	TC19112	69.50	TC79112	81.03
M	2-3/8	3-3/4	TC19113	69.91	TC79113	82.66

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
N	2-3/8	3-3/4	TC19114	76.72	TC79114	87.86
O	2-3/8	3-3/4	TC19115	81.14	TC79115	92.61
P	2-3/8	3-3/4	TC19116	83.85	TC79116	96.14
Q	2-1/2	4	TC19117	89.05	TC79117	99.63
R	2-1/2	4	TC19118	91.78	TC79118	104.01
S	2-1/2	4	TC19119	97.97	TC79119	110.81
T	2-3/4	4-1/4	TC19120	101.40	TC79120	114.75
U	2-3/4	4-1/4	TC19121	106.30	TC79121	120.43
V	2-3/4	4-1/4	TC19122	115.20	TC79122	133.39
W	2-7/8	4-1/2	TC19123	121.00	TC79123	143.68
X	2-7/8	4-1/2	TC19124	132.20	TC79124	156.78
Y	2-7/8	4-1/2	TC19125	136.50	TC79125	162.06
Z	2-7/8	4-1/2	TC19126	169.40	TC79126	175.61

WIRE SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1	1-3/4	3	TC19201	42.07	TC79201	52.58
2	1-3/4	3	TC19202	42.07	TC79202	52.58
3	1-3/4	3	TC19203	42.07	TC79203	52.58
4	1-3/4	3	TC19204	41.63	TC79204	52.03
5	1-3/4	3	TC19205	37.14	TC79205	46.46
6	1-3/4	3	TC19206	37.14	TC79206	46.46
7	1-3/4	3	TC19207	36.10	TC79207	45.12
8	1-3/4	3	TC19208	35.91	TC79208	44.90
9	1-3/4	3	TC19209	35.91	TC79209	44.90
10	1-5/8	2-3/4	TC19210	35.91	TC79210	44.90
11	1-5/8	2-3/4	TC19211	35.06	TC79211	43.78
12	1-5/8	2-3/4	TC19212	35.06	TC79212	43.78
13	1-5/8	2-3/4	TC19213	33.79	TC79213	42.26
14	1-5/8	2-3/4	TC19214	32.94	TC79214	41.18
15	1-5/8	2-3/4	TC19215	32.42	TC79215	40.51
16	1-5/8	2-3/4	TC19216	32.42	TC79216	40.51
17	1-5/8	2-3/4	TC19217	30.82	TC79217	38.55
18	1-5/8	2-3/4	TC19218	29.00	TC79218	36.24
19	1-5/8	2-3/4	TC19219	28.37	TC79219	35.46
20	1-3/8	2-1/2	TC19220	27.15	TC79220	33.94
21	1-3/8	2-1/2	TC19221	27.15	TC79221	33.94
22	1-3/8	2-1/2	TC19222	26.11	TC79222	32.64
23	1-3/8	2-1/2	TC19223	26.11	TC79223	32.64
24	1-3/8	2-1/2	TC19224	25.92	TC79224	32.42
25	1-3/8	2-1/2	TC19225	24.51	TC79225	30.67
26	1-3/8	2-1/2	TC19226	24.51	TC79226	30.67
27	1-3/8	2-1/2	TC19227	24.51	TC79227	30.67
28	1-3/8	2-1/2	TC19228	23.28	TC79228	29.11
29	1-3/8	2-1/2	TC19229	23.28	TC79229	29.11
30	1-1/4	2-1/4	TC19230	22.06	TC79230	27.59

WIRE SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
31	1-1/4	2-1/4	TC19231	20.50	TC79231	25.62
32	1-1/4	2-1/4	TC19232	20.50	TC79232	25.62
33	1-1/4	2-1/4	TC19233	20.31	TC79233	25.40
34	1-1/4	2-1/4	TC19234	20.16	TC79234	25.18
35	1-1/4	2-1/4	TC19235	20.16	TC79235	25.18
36	1-1/4	2-1/4	TC19236	20.16	TC79236	25.18
37	1-1/4	2-1/4	TC19237	19.09	TC79237	23.88
38	1-1/4	2-1/4	TC19238	18.75	TC79238	23.43
39	1-1/4	2-1/4	TC19239	18.75	TC79239	23.43
40	1	2	TC19240	18.05	TC79240	22.54
41	1	2	TC19241	18.05	TC79241	22.54
42	1	2	TC19242	17.53	TC79242	21.91
43	1	2	TC19243	17.53	TC79243	21.91
44	1	2	TC19244	16.64	TC79244	20.80
45	7/8	1-3/4	TC19245	16.15	TC79245	20.16
46	7/8	1-3/4	TC19246	16.15	TC79246	20.16
47	7/8	1-3/4	TC19247	16.15	TC79247	20.16
48	7/8	1-3/4	TC19248	16.15	TC79248	20.16
49	7/8	1-3/4	TC19249	15.41	TC79249	19.27
50	7/8	1-3/4	TC19250	15.41	TC79250	19.27
51	3/4	1-1/2	TC19251	14.89	TC79251	18.60
52	3/4	1-1/2	TC19252	14.89	TC79252	18.60
53	3/4	1-1/2	TC19253	15.75	TC79253	19.68
54	3/4	1-1/2	TC19254	15.75	TC79254	19.68
55	3/4	1-1/2	TC19255	15.75	TC79255	19.68
56	3/4	1-1/2	TC19256	15.75	TC79256	19.68
57	3/4	1-1/2	TC19257	15.75	TC79257	19.68
58	3/4	1-1/2	TC19258	15.75	TC79258	19.68
59	3/4	1-1/2	TC19259	15.75	TC79259	19.68
60	3/4	1-1/2	TC19260	15.75	TC79260	19.68

NOTE: SIZES 31 AND UNDER ARE NOT SPLIT.

For coating information see page 6. For technical information, please see page 231.

DIAMETER TOLERANCE +.0000, -.0005



Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

STRAIGHT FLUTE - 140° SPLIT POINT

SERIES 195
UNCOATED



SERIES 196
ALTIM COATED



FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1/8	3/4	2	TC19508	24.51	TC79508	30.64
9/64	3/4	2	TC19509	28.04	TC79509	35.02
5/32	7/8	2	TC19510	31.38	TC79510	39.25
11/64	7/8	2	TC19511	34.83	TC79511	43.52
3/16	7/8	2	TC19512	32.16	TC79512	40.18
13/64	1-1/8	2-1/2	TC19513	41.81	TC79513	52.32
7/32	1-1/8	2-1/2	TC19514	46.98	TC79514	58.75
15/64	1-1/4	2-1/2	TC19515	49.58	TC79515	61.98
1/4	1-1/4	2-1/2	TC19516	46.90	TC79516	58.64
17/64	1-1/4	2-1/2	TC19517	35.02	TC79517	65.21
9/32	1-1/4	2-1/2	TC19518	39.25	TC79518	67.77
19/64	1-1/4	2-1/2	TC19519	43.52	TC79519	71.74

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
5/16	1-1/4	2-1/2	TC19520	74.31	TC79520	92.87
21/64	1-3/8	3	TC19521	79.88	TC79521	99.82
11/32	1-3/8	3	TC19522	88.60	TC79522	110.74
23/64	1-3/8	3	TC19523	96.92	TC79523	121.17
3/8	1-3/8	3	TC19524	96.11	TC79524	120.13
25/64	1-3/8	3	TC19525	118.87	TC79525	148.58
13/32	1-3/8	3	TC19526	113.74	TC79526	142.19
27/64	1-3/8	3	TC19527	144.23	TC79527	180.25
7/16	1-3/8	3	TC19528	140.67	TC79528	175.83
15/32	1-3/8	3	TC19530	156.52	TC79530	195.66
1/2	1-3/8	3	TC19532	169.60	TC79532	212.00
-	-	-	-	-	-	-

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	1-1/4	2-1/2	TC19601	49.58	TC79601	61.98
B	1-1/4	2-1/2	TC19602	49.58	TC79602	61.98
C	1-1/4	2-1/2	TC19603	49.58	TC79603	61.98
D	1-1/4	2-1/2	TC19604	49.58	TC79604	61.98
E	1-1/4	2-1/2	TC19605	46.90	TC79605	58.64
F	1-1/4	2-1/2	TC19606	65.21	TC79606	81.47
G	1-1/4	2-1/2	TC19607	65.21	TC79607	81.47
H	1-1/4	2-1/2	TC19608	65.21	TC79608	81.47
I	1-1/4	2-1/2	TC19609	67.77	TC79609	84.74
J	1-1/4	2-1/2	TC19610	67.77	TC79610	84.74
K	1-1/4	2-1/2	TC19611	67.77	TC79611	84.74
L	1-1/4	2-1/2	TC19612	71.74	TC79612	89.68
M	1-1/4	2-1/2	TC19613	71.74	TC79613	89.68

LETTER SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
N	1-1/4	2-1/2	TC19614	74.31	TC79614	92.87
O	1-3/8	3	TC19615	74.31	TC79615	92.87
P	1-3/8	3	TC19616	79.88	TC79616	99.86
Q	1-3/8	3	TC19617	88.60	TC79617	110.74
R	1-3/8	3	TC19618	88.60	TC79618	110.74
S	1-3/8	3	TC19619	96.92	TC79619	121.17
T	1-3/8	3	TC19620	96.92	TC79620	121.17
U	1-3/8	3	TC19621	107.51	TC79621	134.35
V	1-3/8	3	TC19622	107.51	TC79622	134.35
W	1-3/8	3	TC19623	118.87	TC79623	148.58
X	1-3/8	3	TC19624	131.53	TC79624	164.43
Y	1-3/8	3	TC19625	137.88	TC79625	172.34
Z	1-3/8	3	TC19626	144.23	TC79626	180.25

For coating information see page 6. For technical information, please see page 231.

DIAMETER TOLERANCE +.0000, -.0005

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

STRAIGHT FLUTE - 140° SPLIT POINT



SERIES 195
UNCOATED



SERIES 196
ALTIN COATED

WIRE SIZES

SIZE	FLUTE LENGTH	OVERALL LENGTH	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1	1-1/4	2-1/2	TC19701	48.24	TC79701	60.31
2	1-1/4	2-1/2	TC19702	47.38	TC79702	59.23
3	1-1/8	2-1/2	TC19703	45.49	TC79703	56.85
4	1-1/8	2-1/2	TC19704	42.97	TC79704	53.70
5	1-1/8	2-1/2	TC19705	43.45	TC79705	54.29
6	1-1/8	2-1/2	TC19706	42.82	TC79706	53.51
7	1-1/8	2-1/2	TC19707	41.22	TC79707	51.54
8	1-1/8	2-1/2	TC19708	40.63	TC79708	50.76
9	1-1/8	2-1/2	TC19709	39.40	TC79709	49.24
10	1-1/8	2-1/2	TC19710	38.81	TC79710	48.54
11	1-1/8	2-1/2	TC19711	38.14	TC79711	47.64
12	1-1/8	2-1/2	TC19712	37.43	TC79712	46.79
13	7/8	2	TC19713	36.80	TC79713	45.97
14	7/8	2	TC19714	36.54	TC79714	45.71
15	7/8	2	TC19715	36.21	TC79715	45.23
16	7/8	2	TC19716	36.06	TC79716	45.08
17	7/8	2	TC19717	35.20	TC79717	44.00
18	7/8	2	TC19718	34.20	TC79718	42.74
19	7/8	2	TC19719	33.98	TC79719	42.48
20	7/8	2	TC19720	32.83	TC79720	41.03
21	7/8	2	TC19721	32.60	TC79721	40.77
22	7/8	2	TC19722	31.97	TC79722	39.99
23	7/8	2	TC19723	30.64	TC79723	38.29
24	7/8	2	TC19724	29.78	TC79724	37.25
25	7/8	2	TC19725	28.89	TC79725	36.13
26	7/8	2	TC19726	28.56	TC79726	35.69
27	7/8	2	TC19727	28.00	TC79727	35.02
28	3/4	2	TC19728	27.07	TC79728	33.79
29	3/4	2	TC19729	26.48	TC79729	33.09
30	3/4	2	TC19730	26.07	TC79730	32.60

For coating information see page 6. For technical information, please see page 231.

DIAMETER TOLERANCE +.0000, -.0005



Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.0400	N60	.0400	1/4	1-1/2	4	TC87046	41.00
.0410	N59	.0410	3/8	1-1/2	4	TC87047	41.00
.0420	N58	.0420	3/8	1-1/2	4	TC87048	41.00
.0430	N57	.0430	3/8	1-1/2	4	TC87049	41.00
.0440		.0440	3/8	1-1/2	4	TC87050	43.32
.0450		.0450	3/8	1-1/2	4	TC87051	43.32
.0460		.0460	3/8	1-1/2	4	TC87052	43.32
.0465	N56	.0465	3/8	1-1/2	4	TC87053	41.00
.0469	3/64	.0469	3/8	1-1/2	4	TC87054	38.96
.0470		.0470	3/8	1-1/2	4	TC87055	43.32
.0480		.0480	3/8	1-1/2	4	TC87056	43.32
.0490		.0490	3/8	1-1/2	4	TC87057	43.32
.0500		.0500	3/8	1-1/2	4	TC87058	43.32
.0510		.0510	3/8	1-1/2	4	TC87059	43.32
.0520	N55	.0520	3/8	1-1/2	4	TC87060	41.00
.0530		.0530	3/8	1-1/2	4	TC87061	43.32
.0540		.0540	3/8	1-1/2	4	TC87062	43.32
.0550	N54	.0550	3/8	1-1/2	4	TC87063	41.00
.0560		.0560	3/8	1-1/2	4	TC87064	43.32
.0570		.0570	3/8	1-1/2	4	TC87065	43.32
.0580		.0580	3/8	1-1/2	4	TC87066	43.32
.0590		.0590	3/8	1-1/2	4	TC87067	43.32
.0591	1.5mm	.0591	3/8	1-1/2	4	TC87068	43.32
.0595	N53	.0595	3/8	1-1/2	4	TC87069	41.00
.0600		.0600	3/8	1-1/2	4	TC87070	43.32
.0605		.0605	3/8	1-1/2	4	TC87071	57.61
.0610		.0610	3/8	1-1/2	4	TC87072	43.32
.0615		.0615	3/8	1-1/2	4	TC87073	47.92
.0620		.0620	3/8	1-1/2	4	TC87074	43.32
.0625	1/16	.0625	3/8	1-1/2	4	TC87075	38.96
.0630		.0630	3/8	1-1/2	4	TC87076	43.32
.0635	N52	.0635	3/8	1-1/2	4	TC87077	41.00
.0640		.0640	3/8	1-1/2	4	TC87078	43.32
.0645		.0645	3/8	1-1/2	4	TC87079	57.61
.0650		.0650	3/8	1-1/2	4	TC87080	43.32
.0660		.0660	1/2	1-3/4	4	TC87081	43.32
.0670	N51	.0670	1/2	1-3/4	4	TC87082	41.00
.0680		.0680	1/2	1-3/4	4	TC87083	43.32
.0690		.0690	1/2	1-3/4	4	TC87084	43.32
.0700	N50	.0700	1/2	1-3/4	4	TC87085	41.00

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.0710		.0710	1/2	1-3/4	4	TC87086	43.32
.0720		.0720	1/2	1-3/4	4	TC87087	43.32
.0730	N49	.0730	1/2	1-3/4	4	TC87088	41.00
.0740		.0740	1/2	1-3/4	4	TC87089	43.32
.0750		.0750	1/2	1-3/4	4	TC87090	43.32
.0760	N48	.0760	1/2	1-3/4	4	TC87091	41.00
.0770		.0770	1/2	1-3/4	4	TC87092	43.32
.0780		.0780	1/2	1-3/4	4	TC87093	43.32
.0781	5/64	.0781	1/2	1-3/4	4	TC87094	38.96
.0785	N47	.0785	1/2	1-3/4	4	TC87095	41.00
.0787	2mm	.0787	1/2	1-3/4	4	TC87096	43.32
.0790		.0790	1/2	1-3/4	4	TC87097	43.32
.0800		.0800	1/2	1-3/4	4	TC87098	43.32
.0810	N46	.0810	1/2	2	4	TC87099	41.00
.0820	N45	.0820	1/2	2	4	TC87100	41.00
.0830		.0830	1/2	2	4	TC87101	43.32
.0840		.0840	1/2	2	4	TC87102	43.32
.0850		.0850	1/2	2	4	TC87103	43.32
.0860	N44	.0860	1/2	2	4	TC87104	41.00
.0870		.0870	1/2	2	4	TC87105	43.32
.0880		.0880	1/2	2	4	TC87106	43.32
.0890	N43	.0890	1/2	2	4	TC87107	41.00
.0900		.0900	1/2	2	4	TC87108	43.32
.0910		.0910	1/2	2	4	TC87109	43.32
.0915		.0915	1/2	2	4	TC87110	57.14
.0920		.0920	1/2	2	4	TC87111	43.32
.0925		.0925	1/2	2	4	TC87112	47.92
.0930		.0930	1/2	2	4	TC87113	43.32
.0935	N42	.0935	1/2	2	4	TC87114	41.00
.0938	3/32	.0938	1/2	2	4	TC87115	38.96
.0940		.0940	1/2	2	4	TC87116	43.32
.0945		.0945	1/2	2	4	TC87117	47.92
.0950		.0950	1/2	2	4	TC87118	43.32
.0960	N41	.0960	5/8	2	4	TC87119	41.00
.0970		.0970	5/8	2	4	TC87120	43.32
.0980	N40	.0980	5/8	2	4	TC87121	41.00
.0984	2.5mm	.0984	5/8	2	4	TC87122	43.32
.0990		.0990	5/8	2-1/4	4	TC87123	43.32
.0995	N39	.0995	5/8	2-1/4	4	TC87124	41.00
.1000		.1000	5/8	2-1/4	4	TC87125	43.32

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .0003, -.0000	+ .0003, -.0002

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1010		.1010	5/8	2-1/4	4	TC87126	43.32
.1015	N38	.1015	5/8	2-1/4	4	TC87127	41.00
.1020		.1020	5/8	2-1/4	4	TC87128	43.32
.1030		.1030	5/8	2-1/4	4	TC87129	43.32
.1040	N37	.1040	5/8	2-1/4	4	TC87130	41.00
.1050		.1050	5/8	2-1/4	4	TC87131	43.32
.1060		.1060	5/8	2-1/4	4	TC87132	43.32
.1065	N36	.1065	5/8	2-1/4	4	TC87133	41.00
.1070		.1070	5/8	2-1/4	4	TC87134	43.32
.1080		.1080	5/8	2-1/4	4	TC87135	43.32
.1090		.1090	5/8	2-1/4	4	TC87136	45.14
.1094	7/64	.1094	5/8	2-1/4	4	TC87137	38.96
.1100	N35	.1100	5/8	2-1/4	4	TC87138	41.00
.1110	N34	.1110	5/8	2-1/4	4	TC87139	41.00
.1120		.1120	5/8	2-1/4	4	TC87140	43.32
.1130	N33	.1130	5/8	2-1/4	4	TC87141	41.00
.1140		.1140	5/8	2-1/4	4	TC87142	43.32
.1150		.1150	5/8	2-1/4	4	TC87143	43.32
.1160	N32	.1160	5/8	2-1/4	4	TC87144	43.13
.1170		.1170	5/8	2-1/4	4	TC87145	45.87
.1180		.1180	5/8	2-1/4	4	TC87146	45.87
.1181	3mm	.1181	5/8	2-1/4	4	TC87147	42.16
.1190		.1190	5/8	2-1/4	4	TC87148	45.87
.1200	N31	.1200	5/8	2-1/4	4	TC87149	43.13
.1210		.1210	5/8	2-1/4	4	TC87150	45.87
.1220		.1220	5/8	2-1/4	4	TC87151	45.87
.1230		.1230	5/8	2-1/4	4	TC87152	45.87
.1235		.1235	5/8	2-1/4	4	TC87153	61.08
.1240		.1240	5/8	2-1/4	4	TC87154	45.87
.1245		.1245	5/8	2-1/4	4	TC87155	50.70
.1250	1/8	.1250	5/8	2-1/4	4	TC87156	41.47
.1255		.1255	5/8	2-1/4	4	TC87157	50.70
.1260		.1260	5/8	2-1/4	4	TC87158	45.87
.1265		.1265	5/8	2-1/4	4	TC87159	61.08
.1270		.1270	5/8	2-1/4	4	TC87160	45.87
.1275		.1275	5/8	2-1/4	4	TC87161	61.08
.1280		.1280	5/8	2-1/4	4	TC87162	45.87
.1285	N30	.1285	5/8	2-1/4	4	TC87163	45.87
.1290		.1290	5/8	2-1/4	4	TC87164	45.87
.1300		.1300	5/8	2-1/2	4	TC87165	45.87

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1310		.1310	3/4	2-1/2	4	TC87166	52.51
.1320		.1320	3/4	2-1/2	4	TC87167	52.51
.1330		.1330	3/4	2-1/2	4	TC87168	52.51
.1340		.1340	3/4	2-1/2	4	TC87169	52.51
.1350		.1350	3/4	2-1/2	4	TC87170	52.51
.1360	N29	.1360	3/4	2-1/2	4	TC87171	49.11
.1370		.1370	3/4	2-1/2	4	TC87172	52.51
.1378	3.5mm	.1378	3/4	2-1/2	4	TC87173	52.51
.1380		.1380	3/4	2-1/2	4	TC87174	52.51
.1390		.1390	3/4	2-1/2	4	TC87175	52.51
.1400		.1400	3/4	2-1/2	4	TC87176	52.51
.1405	N28	.1405	3/4	2-1/2	4	TC87177	49.11
.1406	9/64	.1406	3/4	2-1/2	4	TC87178	47.26
.1410		.1410	3/4	2-1/2	4	TC87179	52.51
.1420		.1420	3/4	2-1/2	4	TC87180	52.51
.1430		.1430	3/4	2-1/2	4	TC87181	52.51
.1440	N27	.1440	3/4	2-1/2	4	TC87182	49.11
.1450		.1450	3/4	2-1/2	4	TC87183	52.51
.1460		.1460	3/4	2-1/2	4	TC87184	54.83
.1470	N26	.1470	3/4	2-1/2	4	TC87185	51.16
.1480		.1480	3/4	2-1/2	4	TC87186	54.83
.1490		.1490	3/4	2-1/2	4	TC87187	54.83
.1495	N25	.1495	3/4	2-1/2	4	TC87188	51.16
.1500		.1500	3/4	2-1/2	4	TC87189	54.83
.1510		.1510	3/4	2-1/2	4	TC87190	54.83
.1520	N24	.1520	3/4	2-1/2	4	TC87191	51.16
.1530		.1530	3/4	2-1/2	4	TC87192	54.83
.1540	N23	.1540	3/4	2-1/2	4	TC87193	51.16
.1545		.1545	3/4	2-1/2	4	TC87194	63.40
.1550		.1550	3/4	2-1/2	4	TC87195	54.83
.1555		.1555	3/4	2-1/2	4	TC87196	63.40
.1560		.1560	3/4	2-1/2	4	TC87197	54.83
.1562	5/32	.1562	3/4	2-1/2	4	TC87198	49.58
.1565		.1565	3/4	2-1/2	4	TC87199	63.40
.1570	N22	.1570	3/4	2-1/2	4	TC87200	51.16
.1575	4mm	.1575	3/4	2-1/2	4	TC87201	54.83
.1580		.1580	3/4	2-1/2	4	TC87202	54.83
.1590	N21	.1590	3/4	2-1/2	4	TC87203	51.16
.1600		.1600	3/4	2-1/2	4	TC87204	54.83
.1610	N20	.1610	7/8	2-1/2	4	TC87205	57.61

For technical information, please see page 240.

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TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .0003, -.0000	+ .0003, -.0002



Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1620		.1620	7/8	2-3/4	4	TC87206	61.74
.1630		.1630	7/8	2-3/4	4	TC87207	61.74
.1640		.1640	7/8	2-3/4	4	TC87208	61.74
.1650		.1650	7/8	2-3/4	4	TC87209	57.61
.1660	N19	.1660	7/8	2-3/4	4	TC87210	57.61
.1670		.1670	7/8	2-3/4	4	TC87211	61.74
.1680		.1680	7/8	2-3/4	4	TC87212	61.74
.1690		.1690	7/8	2-3/4	4	TC87213	61.74
.1695	N18	.1695	7/8	2-3/4	4	TC87214	57.61
.1700		.1700	7/8	2-3/4	4	TC87215	61.74
.1710		.1710	7/8	2-3/4	4	TC87216	61.74
.1719	11/64	.1719	7/8	2-3/4	4	TC87217	55.52
.1720		.1720	7/8	2-3/4	4	TC87218	61.74
.1730	N17	.1730	7/8	2-3/4	4	TC87219	57.61
.1740		.1740	7/8	2-3/4	4	TC87220	61.74
.1750		.1750	7/8	2-3/4	4	TC87221	61.74
.1760		.1760	7/8	2-3/4	4	TC87222	61.74
.1770	N16	.1770	7/8	2-3/4	4	TC87223	57.61
.1772	4.5mm	.1772	7/8	2-3/4	4	TC87224	64.29
.1780		.1780	7/8	2-3/4	4	TC87225	61.74
.1790		.1790	7/8	2-3/4	4	TC87226	61.74
.1800	N15	.1800	7/8	2-3/4	4	TC87227	57.61
.1810		.1810	7/8	2-3/4	4	TC87228	61.74
.1820	N14	.1820	7/8	2-3/4	4	TC87229	57.61
.1830		.1830	7/8	2-3/4	4	TC87230	61.74
.1840		.1840	7/8	2-3/4	4	TC87231	61.74
.1850	N13	.1850	7/8	2-3/4	4	TC87232	57.61
.1855		.1855	7/8	2-3/4	4	TC87233	74.21
.1860		.1860	7/8	2-3/4	4	TC87234	61.74
.1865		.1865	7/8	2-3/4	4	TC87235	66.37
.1870		.1870	7/8	2-3/4	4	TC87236	61.74
.1875	3/16	.1875	7/8	2-3/4	4	TC87237	55.52
.1880		.1880	7/8	2-3/4	4	TC87238	61.74
.1885		.1885	7/8	2-3/4	4	TC87239	66.37
.1890	N12	.1890	7/8	2-3/4	4	TC87240	57.61
.1900		.1900	7/8	2-3/4	4	TC87241	61.74
.1910	N11	.1910	7/8	2-3/4	4	TC87242	70.04
.1920		.1920	7/8	2-3/4	4	TC87243	74.91
.1930		.1930	7/8	2-3/4	4	TC87244	74.91
.1935	N10	.1935	7/8	2-3/4	4	TC87245	70.04

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1940		.1940	7/8	2-3/4	4	TC87246	74.91
.1950		.1950	7/8	2-3/4	4	TC87247	74.91
.1960	N9	.1960	1	3	4	TC87248	70.04
.1969	5mm	.1969	1	3	4	TC87249	74.91
.1970		.1970	1	3	4	TC87250	74.91
.1980		.1980	1	3	4	TC87251	74.91
.1990	N8	.1990	1	3	4	TC87252	70.04
.2000		.2000	1	3	4	TC87253	74.91
.2010	N7	.2010	1	3	4	TC87254	70.04
.2020		.2020	1	3	4	TC87255	74.91
.2030		.2030	1	3	4	TC87256	74.91
.2031	13/64	.2031	1	3	4	TC87257	67.26
.2040	N6	.2040	1	3	4	TC87258	70.04
.2050		.2050	1	3	4	TC87259	74.91
.2055	N5	.2055	1	3	4	TC87260	70.04
.2060		.2060	1	3	4	TC87261	74.91
.2070		.2070	1	3	4	TC87262	74.91
.2080		.2080	1	3	4	TC87263	74.91
.2090	N4	.2090	1	3	4	TC87264	70.04
.2100		.2100	1	3	4	TC87265	74.91
.2110		.2110	1	3	4	TC87266	74.91
.2120		.2120	1	3	4	TC87267	74.91
.2130	N3	.2130	1	3	4	TC87268	70.04
.2140		.2140	1	3	4	TC87269	74.91
.2150		.2150	1	3	4	TC87270	74.91
.2160		.2160	1	3	4	TC87271	74.91
.2165	5.5mm	.2165	1	3	4	TC87272	79.04
.2170		.2170	1	3	4	TC87273	74.91
.2180		.2180	1	3	4	TC87274	74.91
.2188	7/32	.2188	1	3	4	TC87275	67.26
.2190		.2190	1	3	4	TC87276	74.91
.2200		.2200	1	3	4	TC87277	74.91
.2210	N2	.2210	1	3	4	TC87278	70.04
.2220		.2220	1	3	4	TC87279	74.91
.2230		.2230	1	3	4	TC87280	74.91
.2240		.2240	1	3	4	TC87281	74.91
.2250		.2250	1	3	4	TC87282	74.91
.2260		.2260	1	3	4	TC87283	82.28
.2270		.2270	1	3	4	TC87284	82.28
.2280	N1	.2280	1	3	4	TC87285	76.76

For technical information, please see page 240.

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TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0003, -.0000	+.0003, -.0002

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Reamers

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TAKE 55% OFF LIST PRICES



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.2290		.2290	1	3	4	TC87286	76.76
.2300		.2300	1	3	4	TC87287	82.28
.2310		.2310	1	3	4	TC87288	82.28
.2320		.2320	1	3	4	TC87289	82.28
.2330		.2330	1	3	4	TC87290	82.28
.2340	A	.2340	1	3	4	TC87291	82.28
.2344	15/64	.2344	1	3	4	TC87292	73.98
.2350		.2350	1	3	4	TC87293	82.28
.2360		.2360	1	3	4	TC87294	82.28
.2362	6mm	.2362	1	3	4	TC87295	78.34
.2370		.2370	1	3	4	TC87296	82.28
.2380	B	.2380	1	3	4	TC87297	82.28
.2390		.2390	1	3	4	TC87298	82.28
.2400		.2400	1	3	4	TC87299	82.28
.2410		.2410	1	3	4	TC87300	82.28
.2420	C	.2420	1	3	4	TC87301	82.28
.2430		.2430	1	3	4	TC87302	82.28
.2440		.2440	1	3	4	TC87303	82.28
.2450		.2450	1	3	4	TC87304	82.28
.2460	D	.2460	1	3	4	TC87305	82.28
.2470		.2470	1	3	4	TC87306	82.28
.2480		.2480	1	3	4	TC87307	82.28
.2485		.2485	1	3	4	TC87308	91.93
.2490		.2490	1	3	4	TC87309	82.28
.2495		.2495	1	3	4	TC87310	87.34
.2500	1/4	.2500	1	3	4	TC87311	73.98
.2505		.2505	1	3	4	TC87312	87.34
.2510		.2510	1	3	4	TC87313	82.28
.2515		.2515	1	3	4	TC87314	102.32
.2520		.2520	1	3	4	TC87315	82.28
.2530		.2530	1	3	4	TC87316	82.28
.2540		.2540	1	3	4	TC87317	82.28
.2550		.2550	1	3	6	TC87318	82.28
.2559	6.5mm	.2559	1-1/8	3-1/4	6	TC87319	87.11
.2560		.2560	1-1/8	3-1/4	6	TC87320	99.54
.2570	F	.2570	1-1/8	3-1/4	6	TC87321	99.54
.2580		.2580	1-1/8	3-1/4	6	TC87322	99.54
.2590		.2590	1-1/8	3-1/4	6	TC87323	99.54
.2600		.2600	1-1/8	3-1/4	6	TC87324	99.54
.2610	G	.2610	1-1/8	3-1/4	6	TC87325	99.54

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.2620		.2620	1-1/8	3-1/4	6	TC87326	99.54
.2630		.2630	1-1/8	3-1/4	6	TC87327	99.54
.2640		.2640	1-1/8	3-1/4	6	TC87328	99.54
.2650		.2650	1-1/8	3-1/4	6	TC87329	99.54
.2656	17/64	.2656	1-1/8	3-1/4	6	TC87330	89.65
.2660	H	.2660	1-1/8	3-1/4	6	TC87331	99.54
.2670		.2670	1-1/8	3-1/4	6	TC87332	99.54
.2680		.2680	1-1/8	3-1/4	6	TC87333	99.54
.2690		.2690	1-1/8	3-1/4	6	TC87334	99.54
.2700		.2700	1-1/8	3-1/4	6	TC87335	99.54
.2710		.2710	1-1/8	3-1/4	6	TC87336	99.54
.2720	I	.2720	1-1/8	3-1/4	6	TC87337	99.54
.2730		.2730	1-1/8	3-1/4	6	TC87338	99.54
.2740		.2740	1-1/8	3-1/4	6	TC87339	99.54
.2750		.2750	1-1/8	3-1/4	6	TC87340	99.54
.2756	7mm	.2756	1-1/8	3-1/4	6	TC87341	108.73
.2760		.2760	1-1/8	3-1/4	6	TC87342	99.54
.2770	J	.2770	1-1/8	3-1/4	6	TC87343	99.54
.2780		.2780	1-1/8	3-1/4	6	TC87344	99.54
.2790		.2790	1-1/8	3-1/4	6	TC87345	99.54
.2800		.2800	1-1/8	3-1/4	6	TC87346	99.54
.2810	K	.2810	1-1/8	3-1/4	6	TC87347	99.54
.2812	9/32	.2812	1-1/8	3-1/4	6	TC87348	89.65
.2820		.2820	1-1/8	3-1/4	6	TC87349	99.54
.2830		.2830	1-1/8	3-1/4	6	TC87350	99.54
.2840		.2840	1-1/8	3-1/4	6	TC87351	99.54
.2850		.2850	1-1/8	3-1/4	6	TC87352	99.54
.2860		.2860	1-1/8	3-1/4	6	TC87353	99.54
.2870		.2870	1-1/8	3-1/4	6	TC87354	99.54
.2880		.2880	1-1/8	3-1/4	6	TC87355	99.54
.2890		.2890	1-1/8	3-1/4	6	TC87356	99.54
.2900	L	.2900	1-1/8	3-1/4	6	TC87357	99.54
.2910		.2910	1-1/8	3-1/4	6	TC87358	99.54
.2920		.2920	1-1/8	3-1/4	6	TC87359	99.54
.2930		.2930	1-1/8	3-1/4	6	TC87360	99.54
.2940		.2940	1-1/8	3-1/4	6	TC87361	99.54
.2950	M	.2950	1-1/8	3-1/4	6	TC87362	99.54
.2953	7.5mm	.2953	1-1/8	3-1/4	6	TC87363	108.73
.2960		.2960	1-1/8	3-1/4	6	TC87364	99.54
.2969	19/64	.2969	1-1/8	3-1/4	6	TC87365	99.54

For technical information, please see page 240.

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TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .0003, - .0000	+ .0003, - .0002



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TAKE 55% OFF LIST PRICES



SERIES 870

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.2970		.2970	1-1/8	3-1/4	6	TC87366	99.54
.2980		.2980	1-1/8	3-1/4	6	TC87367	99.54
.2990		.2990	1-1/8	3-1/4	6	TC87368	99.54
.3000		.3000	1-1/8	3-1/4	6	TC87369	99.54
.3010		.3010	1-1/8	3-1/4	6	TC87370	99.54
.3020	N	.3020	1-1/8	3-1/4	6	TC87371	99.54
.3030		.3030	1-1/8	3-1/4	6	TC87372	99.54
.3040		.3040	1-1/8	3-1/4	6	TC87373	99.54
.3050		.3050	1-1/8	3-1/4	6	TC87374	99.54
.3060		.3060	1-1/8	3-1/4	6	TC87375	99.54
.3070		.3070	1-1/8	3-1/4	6	TC87376	99.54
.3080		.3080	1-1/8	3-1/4	6	TC87377	99.54
.3090		.3090	1-1/8	3-1/4	6	TC87378	99.54
.3100		.3100	1-1/8	3-1/4	6	TC87379	99.54
.3110		.3110	1-1/8	3-1/4	6	TC87380	99.54
.3115		.3115	1-1/8	3-1/4	6	TC87381	114.29
.3120		.3120	1-1/8	3-1/4	6	TC87382	99.54
.3125	5/16	.3125	1-1/8	3-1/4	6	TC87383	99.54
.3130		.3130	1-1/8	3-1/4	6	TC87384	99.54
.3135		.3135	1-1/8	3-1/4	6	TC87385	114.29
.3140		.3140	1-1/8	3-1/4	6	TC87386	99.54
.3150	8mm	.3150	1-1/8	3-1/4	6	TC87387	99.54
.3160	O	.3160	1-1/8	3-1/4	6	TC87388	111.32
.3170		.3170	1-1/8	3-1/4	6	TC87389	111.32
.3180		.3180	1-1/8	3-1/4	6	TC87390	111.32
.3190		.3190	1-1/8	3-1/4	6	TC87391	111.32
.3200		.3200	1-1/8	3-1/4	6	TC87392	111.32
.3210		.3210	1-1/4	3-1/2	6	TC87393	111.32
.3220		.3220	1-1/4	3-1/2	6	TC87394	111.32
.3230	P	.3230	1-1/4	3-1/2	6	TC87395	111.32
.3240		.3240	1-1/4	3-1/2	6	TC87396	111.32
.3250		.3250	1-1/4	3-1/2	6	TC87397	111.32
.3260		.3260	1-1/4	3-1/2	6	TC87398	111.32
.3270		.3270	1-1/4	3-1/2	6	TC87399	111.32
.3280		.3280	1-1/4	3-1/2	6	TC87400	111.32
.3281	21/64	.3281	1-1/4	3-1/2	6	TC87401	112.44
.3290		.3290	1-1/4	3-1/2	6	TC87402	111.32
.3300		.3300	1-1/4	3-1/2	6	TC87403	111.32
.3310		.3310	1-1/4	3-1/2	6	TC87404	111.32
.3320	Q	.3320	1-1/4	3-1/2	6	TC87405	111.32

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.3330		.3330	1-1/4	3-1/2	6	TC87406	111.32
.3340		.3340	1-1/4	3-1/2	6	TC87407	111.32
.3346	8.5mm	.3346	1-1/4	3-1/2	6	TC87408	111.32
.3350		.3350	1-1/4	3-1/2	6	TC87409	111.32
.3360		.3360	1-1/4	3-1/2	6	TC87410	111.32
.3370		.3370	1-1/4	3-1/2	6	TC87411	111.32
.3380		.3380	1-1/4	3-1/2	6	TC87412	111.32
.3390	R	.3390	1-1/4	3-1/2	6	TC87413	112.05
.3400		.3400	1-1/4	3-1/2	6	TC87414	111.32
.3410		.3410	1-1/4	3-1/2	6	TC87415	111.32
.3420		.3420	1-1/4	3-1/2	6	TC87416	111.32
.3430		.3430	1-1/4	3-1/2	6	TC87417	111.32
.3438	11/32	.3438	1-1/4	3-1/2	6	TC87418	112.44
.3440		.3440	1-1/4	3-1/2	6	TC87419	111.32
.3450		.3450	1-1/4	3-1/2	6	TC87420	111.32
.3460		.3460	1-1/4	3-1/2	6	TC87421	111.32
.3470		.3470	1-1/4	3-1/2	6	TC87422	111.32
.3480	S	.3480	1-1/4	3-1/2	6	TC87423	111.32
.3490		.3490	1-1/4	3-1/2	6	TC87424	111.32
.3500		.3500	1-1/4	3-1/2	6	TC87425	111.32
.3510		.3510	1-1/4	3-1/2	6	TC87426	121.43
.3520		.3520	1-1/4	3-1/2	6	TC87427	121.43
.3530		.3530	1-1/4	3-1/2	6	TC87428	121.43
.3540		.3540	1-1/4	3-1/2	6	TC87429	121.43
.3543	9mm	.3543	1-1/4	3-1/2	6	TC87430	126.72
.3550		.3550	1-1/4	3-1/2	6	TC87431	121.43
.3560		.3560	1-1/4	3-1/2	6	TC87432	121.43
.3570		.3570	1-1/4	3-1/2	6	TC87433	121.43
.3580	T	.3580	1-1/4	3-1/2	6	TC87434	121.43
.3590		.3590	1-1/4	3-1/2	6	TC87435	123.52
.3594	23/64	.3594	1-1/4	3-1/2	6	TC87436	119.81
.3600		.3600	1-1/4	3-1/2	6	TC87437	121.43
.3610		.3610	1-1/4	3-1/2	6	TC87438	121.43
.3620		.3620	1-1/4	3-1/2	6	TC87439	121.43
.3630		.3630	1-1/4	3-1/2	6	TC87440	121.43
.3640		.3640	1-1/4	3-1/2	6	TC87441	121.43
.3650		.3650	1-1/4	3-1/2	6	TC87442	121.43
.3660		.3660	1-1/4	3-1/2	6	TC87443	121.43
.3670		.3670	1-1/4	3-1/2	6	TC87444	121.43
.3680	U	.3680	1-1/4	3-1/2	6	TC87445	121.43

For technical information, please see page 240.

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TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .0003, -.0000	+ .0003, -.0002

Carbide Reamers

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TAKE 55% OFF LIST PRICES



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.3690		.3690	1-1/4	3-1/2	6	TC87446	121.43
.3700		.3700	1-1/4	3-1/2	6	TC87447	121.43
.3710		.3710	1-1/4	3-1/2	6	TC87448	121.43
.3720		.3720	1-1/4	3-1/2	6	TC87449	121.43
.3730		.3730	1-1/4	3-1/2	6	TC87450	121.43
.3740	9.5mm	.3740	1-1/4	3-1/2	6	TC87451	121.43
.3745		.3745	1-1/4	3-1/2	6	TC87452	147.46
.3750	3/8	.3750	1-1/4	3-1/2	6	TC87453	119.81
.3755		.3755	1-1/4	3-1/2	6	TC87454	147.46
.3760		.3760	1-1/4	3-1/2	6	TC87455	152.51
.3765		.3765	1-1/4	3-1/2	6	TC87456	160.00
.3770	V	.3770	1-1/4	3-1/2	6	TC87457	152.51
.3780		.3780	1-1/4	3-1/2	6	TC87458	152.51
.3790		.3790	1-1/4	3-1/2	6	TC87459	152.51
.3800		.3800	1-1/4	3-1/2	6	TC87460	152.51
.3810		.3810	1-1/4	3-1/2	6	TC87461	152.51
.3820		.3820	1-1/4	3-1/2	6	TC87462	152.51
.3830		.3830	1-1/4	3-1/2	6	TC87463	152.51
.3840		.3840	1-1/4	3-1/2	6	TC87464	152.51
.3850		.3850	1-1/4	3-1/2	6	TC87465	152.51
.3860	W	.3860	1-1/4	3-1/2	6	TC87466	152.51
.3870		.3870	1-1/4	3-1/2	6	TC87467	189.19
.3880		.3880	1-1/4	3-1/2	6	TC87468	189.19
.3890		.3890	1-1/4	3-1/2	6	TC87469	189.19
.3900		.3900	1-1/4	3-1/2	6	TC87470	189.19
.3906	25/64	.3906	1-1/4	3-1/2	6	TC87471	189.19
.3910		.3910	1-1/4	3-1/2	6	TC87472	189.19
.3920		.3920	1-1/4	3-1/2	6	TC87473	189.19
.3930		.3930	1-1/4	3-1/2	6	TC87474	189.19
.3937	10mm	.3937	1-1/4	3-1/2	6	TC87475	143.32
.3940		.3940	1-1/4	3-1/2	6	TC87476	189.19
.3950		.3950	1-1/4	3-1/2	6	TC87477	189.19
.3960		.3960	1-1/4	3-1/2	6	TC87478	189.19
.3970	X	.3970	1-1/4	3-1/2	6	TC87479	189.19
.3980		.3980	1-1/4	3-1/2	6	TC87480	189.19
.3990		.3990	1-1/4	3-1/2	6	TC87481	189.19
.4000		.4000	1-1/4	3-1/2	6	TC87482	189.19
.4010		.4010	1-1/4	3-1/2	6	TC87483	189.19
.4020		.4020	1-1/4	3-1/2	6	TC87484	189.19
.4030		.4030	1-1/4	3-1/2	6	TC87485	189.19

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.4040	Y	.4040	1-1/4	3-1/2	6	TC87486	189.19
.4050		.4050	1-1/4	3-1/2	6	TC87487	189.19
.4060		.4060	1-1/4	3-1/2	6	TC87488	189.19
.4062	13/32	.4062	1-1/4	3-1/2	6	TC87489	137.34
.4070		.4070	1-1/4	3-1/2	6	TC87490	189.19
.4080		.4080	1-1/4	3-1/2	6	TC87491	189.19
.4090		.4090	1-1/4	3-1/2	6	TC87492	189.19
.4100		.4100	1-1/4	3-1/2	6	TC87493	189.19
.4110		.4110	1-1/4	3-1/2	6	TC87494	189.19
.4120		.4120	1-1/4	3-1/2	6	TC87495	189.19
.4130	Z	.4130	1-1/4	3-1/2	6	TC87496	189.19
.4134	10.5mm	.4134	1-1/4	3-1/2	6	TC87497	172.32
.4140		.4140	1-1/4	3-1/2	6	TC87498	189.19
.4150		.4150	1-1/4	3-1/2	6	TC87499	189.19
.4160		.4160	1-3/8	4	6	TC87500	189.19
.4170		.4170	1-3/8	4	6	TC87501	189.19
.4180		.4180	1-3/8	4	6	TC87502	189.19
.4190		.4190	1-3/8	4	6	TC87503	189.19
.4200		.4200	1-3/8	4	6	TC87504	189.19
.4210		.4210	1-3/8	4	6	TC87505	189.19
.4219	27/64	.4219	1-3/8	4	6	TC87506	155.72
.4220		.4220	1-3/8	4	6	TC87507	189.19
.4230		.4230	1-3/8	4	6	TC87508	189.19
.4240		.4240	1-3/8	4	6	TC87509	189.19
.4250		.4250	1-3/8	4	6	TC87510	189.19
.4260		.4260	1-3/8	4	6	TC87511	189.19
.4270		.4270	1-3/8	4	6	TC87512	189.19
.4280		.4280	1-3/8	4	6	TC87513	189.19
.4290		.4290	1-3/8	4	6	TC87514	189.19
.4300		.4300	1-3/8	4	6	TC87515	189.19
.4310		.4310	1-3/8	4	6	TC87516	189.19
.4320		.4320	1-3/8	4	6	TC87517	189.19
.4330		.4330	1-3/8	4	6	TC87518	189.19
.4331	11mm	.4331	1-3/8	4	6	TC87519	172.32
.4340		.4340	1-3/8	4	6	TC87520	189.19
.4350		.4350	1-3/8	4	6	TC87521	189.19
.4360		.4360	1-3/8	4	6	TC87522	189.19
.4365		.4365	1-3/8	4	6	TC87523	189.19
.4370		.4370	1-3/8	4	6	TC87524	189.19
.4375	7/16	.4375	1-3/8	4	6	TC87525	155.72

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .0003, - .0000	+ .0003, - .0002



Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 870

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.4380		.4380	1-3/8	4	6	TC87526	189.19
.4385		.4385	1-3/8	4	6	TC87527	226.07
.4390		.4390	1-3/8	4	6	TC87528	189.19
.4400		.4400	1-3/8	4	6	TC87529	189.19
.4410		.4410	1-3/8	4	6	TC87530	214.68
.4420		.4420	1-3/8	4	6	TC87531	214.68
.4430		.4430	1-3/8	4	6	TC87532	214.68
.4440		.4440	1-3/8	4	6	TC87533	214.68
.4450		.4450	1-3/8	4	6	TC87534	214.68
.4460		.4460	1-3/8	4	6	TC87535	214.68
.4470		.4470	1-3/8	4	6	TC87536	214.68
.4480		.4480	1-3/8	4	6	TC87537	214.68
.4490		.4490	1-3/8	4	6	TC87538	214.68
.4500		.4500	1-3/8	4	6	TC87539	214.68
.4510		.4510	1-3/8	4	6	TC87540	214.68
.4520		.4520	1-3/8	4	6	TC87541	214.68
.4528	11.5mm	.4528	1-3/8	4	6	TC87542	214.68
.4530		.4530	1-3/8	4	6	TC87543	196.76
.4531	29/64	.4531	1-3/8	4	6	TC87544	171.66
.4540		.4540	1-3/8	4	6	TC87545	214.68
.4550		.4550	1-3/8	4	6	TC87546	214.68
.4560		.4560	1-3/8	4	6	TC87547	214.68
.4570		.4570	1-3/8	4	6	TC87548	214.68
.4580		.4580	1-3/8	4	6	TC87549	214.68
.4590		.4590	1-3/8	4	6	TC87550	214.68
.4600		.4600	1-3/8	4	6	TC87551	214.68
.4610		.4610	1-3/8	4	6	TC87552	214.68
.4620		.4620	1-3/8	4	6	TC87553	214.68
.4630		.4630	1-3/8	4	6	TC87554	214.68
.4640		.4640	1-3/8	4	6	TC87555	214.68
.4650		.4650	1-3/8	4	6	TC87556	214.68
.4660		.4660	1-3/8	4	6	TC87557	214.68
.4670		.4670	1-3/8	4	6	TC87558	214.68
.4680		.4680	1-3/8	4	6	TC87559	214.68
.4688	15/32	.4688	1-3/8	4	6	TC87560	171.66
.4690		.4690	1-3/8	4	6	TC87561	226.22
.4700		.4700	1-3/8	4	6	TC87562	226.22

DEC. EQUIV.	SIZE	SHANK DIA.	FLUTE LENGTH	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.4710		.4710	1-3/8	4	6	TC87563	226.22
.4720		.4720	1-3/8	4	6	TC87564	226.22
.4724	12mm	.4724	1-3/8	4	6	TC87565	217.96
.4730		.4730	1-3/8	4	6	TC87566	226.22
.4740		.4740	1-3/8	4	6	TC87567	226.22
.4750		.4750	1-3/8	4	6	TC87568	226.22
.4760		.4760	1-1/2	4	6	TC87569	226.22
.4770		.4770	1-1/2	4	6	TC87570	226.22
.4780		.4780	1-1/2	4	6	TC87571	226.22
.4790		.4790	1-1/2	4	6	TC87572	226.22
.4800		.4800	1-1/2	4	6	TC87573	226.22
.4810		.4810	1-1/2	4	6	TC87574	226.22
.4820		.4820	1-1/2	4	6	TC87575	226.22
.4830		.4830	1-1/2	4	6	TC87576	226.22
.4840		.4840	1-1/2	4	6	TC87577	226.22
.4844	31/64	.4844	1-1/2	4	6	TC87578	194.48
.4850		.4850	1-1/2	4	6	TC87579	226.22
.4860		.4860	1-1/2	4	6	TC87580	226.22
.4870		.4870	1-1/2	4	6	TC87581	272.79
.4880		.4880	1-1/2	4	6	TC87582	272.79
.4890		.4890	1-1/2	4	6	TC87583	272.79
.4900		.4900	1-1/2	4	6	TC87584	272.79
.4910		.4910	1-1/2	4	6	TC87585	272.79
.4920		.4920	1-1/2	4	6	TC87586	272.79
.4921	12.5mm	.4921	1-1/2	4	6	TC87587	272.79
.4930		.4930	1-1/2	4	6	TC87588	272.79
.4940		.4940	1-1/2	4	6	TC87589	272.79
.4950		.4950	1-1/2	4	6	TC87590	272.79
.4960		.4960	1-1/2	4	6	TC87591	272.79
.4970		.4970	1-1/2	4	6	TC87592	272.79
.4980		.4980	1-1/2	4	6	TC87593	272.79
.4990		.4990	1-1/2	4	6	TC87594	272.79
.4995		.4995	1-1/2	4	6	TC87595	272.79
.5000	1/2	.5000	1-1/2	4	6	TC87596	194.48
.5005		.5005	1-1/2	4	6	TC87597	272.79
.5010		.5010	1-1/2	4	6	TC87598	272.79
.5020		.5020	1-1/2	4	6	TC87599	272.79

For technical information, please see page 240.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0003, -.0000	+.0003, -.0002

Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SPECIAL SIZES
PRICES INCLUDE THE FOLLOWING STYLES:

STRAIGHT FLUTE - RIGHT HAND CUT • RIGHT HAND SPIRAL - RIGHT HAND CUT LEFT HAND SPIRAL - RIGHT HAND CUT

SIZE RANGE	SHANK	FL LGTH	OAL	1 pc	2 pcs	3-5 pcs	6-11 pcs	12-17 pcs	18-23 pcs	24-35 pcs	36-49 pcs	50-74 pcs
.0401 - .0450	0.037	3/8	1-1/2	262.35	173.57	151.36	96.87	76.69	68.62	64.58	60.53	56.51
.0451 - .0500	0.042	3/8	1-1/2	262.35	173.57	151.36	96.87	76.69	68.62	64.58	60.53	56.51
.0501 - .0570	0.046	3/8	1-1/2	264.36	175.56	153.37	98.88	78.71	70.63	66.59	62.56	58.54
.0571 - .0650	0.053	3/8	1-1/2	262.35	173.57	151.36	96.87	76.69	68.62	64.58	60.53	56.51
.0651 - .0800	0.060	1/2	1-3/4	264.36	175.56	153.37	98.88	78.71	70.63	66.59	62.56	58.54
.0801 - .0950	0.075	1/2	2	266.40	177.59	155.39	100.91	80.72	72.66	68.62	64.58	60.53
.0951 - .1150	0.090	5/8	2-1/4	270.42	181.62	159.42	104.94	84.75	76.69	72.66	68.62	64.58
.1151 - .1300	0.110	5/8	2-1/4	272.44	183.63	161.44	106.96	86.78	78.71	74.66	70.63	66.59
.1301 - .1450	0.125	3/4	2-1/2	278.48	189.69	167.51	113.01	92.85	84.75	80.72	76.69	72.66
.1451 - .1600	0.140	3/4	2-1/2	284.56	195.75	173.57	119.07	98.88	90.81	86.78	82.74	78.71
.1601 - .1750	0.155	7/8	2-3/4	290.60	201.81	179.59	125.11	104.94	96.87	92.85	88.80	84.75
.1751 - .1950	0.170	7/8	2-3/4	298.68	209.87	187.69	133.19	113.01	104.94	100.91	96.87	92.85
.1951 - .2100	0.188	1	3	314.81	226.02	203.84	149.34	129.16	121.09	117.05	113.01	108.97
.2101 - .2250	0.205	1	3	320.88	232.08	209.87	155.39	135.22	127.13	123.11	119.07	115.01
.2251 - .2400	0.220	1	3	330.96	242.18	219.98	165.48	145.31	137.22	133.19	129.16	125.11
.2401 - .2550	0.235	1	3	339.03	250.23	228.04	173.57	153.37	145.31	141.25	137.22	133.19
.2551 - .2750	0.250	1	3-1/4	359.23	270.42	248.21	193.74	173.57	165.48	161.44	157.42	153.37
.2751 - .2950	0.270	1-1/8	3-1/4	361.22	272.44	250.23	195.75	175.56	167.51	163.46	159.42	155.39
.2951 - .3150	0.290	1-1/8	3-1/4	381.40	292.60	270.42	215.93	195.75	187.69	183.63	179.59	175.56
.3151 - .3350	0.313	1-1/4	3-1/2	409.66	320.88	298.68	244.19	224.01	215.93	211.90	207.86	203.84
.3351 - .3550	0.330	1-1/4	3-1/2	413.69	328.94	302.72	248.21	228.04	219.98	215.93	211.90	207.86
.3551 - .3800	0.350	1-1/4	3-1/2	421.77	337.02	310.78	256.31	236.11	228.04	224.01	219.98	215.93
.3801 - .4100	0.375	1-1/4	4	452.04	363.26	341.05	286.57	266.40	258.30	254.28	250.23	246.20
.4101 - .4400	0.405	1-3/8	4	468.18	379.41	357.20	302.72	282.53	274.46	270.42	266.40	262.35
.4401 - .4700	0.438	1-3/8	4	492.40	403.62	381.40	326.93	306.74	298.68	294.64	290.60	286.57
.4701 - .5050	0.465	1-1/2	4	532.77	443.98	421.77	367.28	347.10	339.03	335.01	330.96	326.93
.5051 - .5400	0.500	1-1/2	4-1/2	585.24	496.45	474.25	419.77	399.58	391.50	387.47	383.44	379.41
.5401 - .5800	0.535	1-1/2	4-1/2	665.96	577.15	554.98	500.48	480.30	472.24	468.18	464.15	460.12
.5801 - .6260	0.575	1-3/4	4-1/2	730.55	641.75	619.54	565.06	544.88	536.81	532.77	528.73	524.70
.6261 - .6600	0.615	1-3/4	4-1/2	827.41	738.61	716.42	661.93	641.75	633.66	629.63	625.61	621.57
.6601 - .7050	0.655	2	5	948.50	859.71	837.50	783.01	762.84	754.75	750.72	746.70	742.65
.7051 - .7550	0.700	2	5	1,029.20	940.43	918.21	863.73	843.55	835.46	831.44	827.41	823.38
.7551 - .7950	0.750	2	5	1,109.92	1,021.15	998.93	944.45	924.27	916.21	912.16	908.13	904.09
.7951 - .8450	0.750	2-1/4	5	1,190.66	1,101.87	1,079.67	1,025.18	1,005.01	996.92	992.88	988.86	984.82
.8451 - .9000	0.750	2-1/4	5	1,352.11	1,263.33	1,241.12	1,186.63	1,166.46	1,158.36	1,154.33	1,150.31	1,146.27
.9001 - .9600	0.875	2-1/4	5	1,553.92	1,465.12	1,442.93	1,388.43	1,368.24	1,360.17	1,356.14	1,352.11	1,348.07
.9601 - 1.025	0.875	2-1/4	5	1,715.35	1,626.57	1,604.37	1,549.88	1,529.69	1,521.63	1,517.59	1,513.54	1,509.51

FOR .0001" TOLERANCE, ALL SIZES ADD 20% TO ABOVE PRICING
 FOR .0002" TOLERANCE FROM .5001" - 1.025", ADD 10% TO ABOVE PRICING

For technical information, please see page 240.

DIAMETER TOLERANCE +.0003, -.0000



Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

SA - CYLINDRICAL



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SA-61	1/16	3/32	1/4	1-1/2	TB19280	10.13	TB19264	10.13
*SA-41	1/16	1/8	1/4	1-1/2	TB19316	9.60	TB19301	9.60
*SA-41L2	1/16	1/8	1/4	2	TB19281	14.38	TB19265	14.38
*SA-41L3	1/16	1/8	1/4	3	TB19282	15.92	TB19266	15.92
*SA-63	3/32	3/32	3/8	1-1/2	TB19283	10.13	TB19267	10.13
*SA-42	3/32	1/8	7/16	1-1/2	TB19317	9.60	TB19302	9.60
*SA-42L2	3/32	1/8	7/16	2	TB19284	14.38	TB19268	14.38
*SA-42L3	3/32	1/8	7/16	3	TB19285	15.92	TB19269	15.92
*SA-43	1/8	1/8	9/16	1-1/2	TB19318	9.60	TB19303	9.60
*SA-43L2	1/8	1/8	9/16	2	TB19286	14.38	TB19270	14.38
*SA-43L3	1/8	1/8	9/16	3	TB19287	15.92	TB19271	15.92
*SA-11	1/8	1/4	1/2	2	TB19322	19.06	TB19307	19.06
*SA-12	1/8	1/4	5/8	2	TB19288	19.15	TB19272	19.15
SA-52	5/32	1/8	1/2	2	TB19319	21.12	TB19304	21.12
*SA-13	5/32	1/4	5/8	2	TB19652	26.41	TB19630	26.41
SA-53	3/16	1/8	1/2	2	TB19320	21.12	TB19305	21.12
*SA-81	3/16	3/16	1/2	2	TB19289	23.19	TB19273	23.19
*SA-14	3/16	1/4	5/8	2	TB19323	22.80	TB19308	22.80
SA-51	1/4	1/8	1/2	2	TB19321	14.24	TB19306	14.24
*SA-1	1/4	1/4	5/8	2	TB19324	16.15	TB19309	16.15
SA-1L6	1/4	1/4	1/2	6-1/2	TB19565	32.73	TB19562	32.73
*SA-1L	1/4	1/4	1	2	TB19290	24.94	TB19274	24.94
SA-2	5/16	1/4	3/4	2-1/2	TB19325	29.82	TB19310	29.82
SA-3	3/8	1/4	3/4	2-1/2	TB19326	19.99	TB19311	19.99
SA-3L6	3/8	1/4	3/4	6-3/4	TB19566	46.11	TB19563	46.11
SA-3L	3/8	1/4	1	2-3/4	TB19291	30.78	TB19275	30.78
SA-3X	3/8	1/4	1-1/2	3-1/4	TB19292	43.78	TB19276	43.78
SA-4	7/16	1/4	1	2-3/4	TB19327	46.34	TB19312	46.34
SA-5	1/2	1/4	1	2-3/4	TB19328	31.90	TB19313	31.90
SA-5L6	1/2	1/4	1	7	TB19567	72.05	TB19564	72.05
SA-6	5/8	1/4	1	2-3/4	TB19329	45.99	TB19314	45.99
SA-15	3/4	1/4	1/2	2-1/4	TB19293	70.04	TB19277	70.04
SA-16	3/4	1/4	3/4	2-1/2	TB19294	70.04	TB19278	70.04
SA-7	3/4	1/4	1	2-3/4	TB19330	71.71	TB19315	71.71
SA-9	1	1/4	1	2-3/4	TB19654	113.23	TB19632	113.23

* Solid Carbide

SA - CYLINDRICAL - FOR ALUMINUM



TOOL #	SIZE	SH DIA	LOC	OAL	-	-	ALUMA CUT	LIST PRICE
*SA-1NF	1/4	1/4	5/8	2	-	-	TB19592	23.37
SA-3NF	3/8	1/4	3/4	2-1/2	-	-	TB19593	32.67
SA-5NF	1/2	1/4	1	2-3/4	-	-	TB19594	54.56
SA-6NF	5/8	1/4	1	2-3/4	-	-	TB19595	81.09
SA-7NF	3/4	1/4	1	2-3/4	-	-	TB19596	106.54

* Solid Carbide

For technical information, please see page 227.

ENDMILLS

DRILL MILLS

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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

SB - CYLINDRICAL END CUT



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SB-41	1/16	1/8	1/4	1-1/2	TB19660	12.94	TB19331	12.94
*SB-41L2	1/16	1/8	1/4	2	TB19834	15.81	TB19815	15.81
*SB-41L3	1/16	1/8	1/4	3	TB19835	17.51	TB19816	17.51
*SB-42	3/32	1/8	7/16	1-1/2	TB19658	10.23	TB19332	10.23
*SB-42L2	3/32	1/8	7/16	2	TB19836	15.81	TB19817	15.81
*SB-42L3	3/32	1/8	7/16	3	TB19837	17.51	TB19818	17.51
**SB-ECO	1/8	1/8	-	1-1/2	-	-	TB19819	7.43
*SB-43	1/8	1/8	9/16	1-1/2	TB19656	9.36	TB19333	9.36
*SB-43L2	1/8	1/8	9/16	2	TB19839	15.81	TB19820	15.81
*SB-43L3	1/8	1/8	9/16	3	TB19840	17.51	TB19821	17.51
*SB-11	1/8	1/4	1/2	2	TB19344	24.67	TB19336	24.67
*SB-12	1/8	1/4	5/8	2	TB19841	21.01	TB19822	21.01
*SB-13	5/32	1/4	5/8	2	TB19662	29.79	TB19634	29.79
*SB-14	3/16	1/4	5/8	2	TB19345	24.67	TB19337	24.67
SB-51	1/4	1/8	3/16	1-11/16	TB19342	14.28	TB19334	14.28
SB-51	1/4	1/8	1/2	2	TB19343	15.55	TB19335	15.55
*SB-1	1/4	1/4	5/8	2	TB19346	19.16	TB19338	19.16
*SB-1L	1/4	1/4	1	2	TB19842	27.43	TB19823	27.43
SB-2	5/16	1/4	3/4	2-1/2	TB19347	32.80	TB19339	32.80
SB-3	3/8	1/4	3/4	2-1/2	TB19348	22.87	TB19340	22.87
SB-3L	3/8	1/4	1	2-3/4	TB19843	33.80	TB19824	33.80
SB-3X	3/8	1/4	1-1/2	3-1/4	TB19844	44.68	TB19825	44.68
SB-4	7/16	1/4	1	2-3/4	TB19349	52.66	TB19636	52.66
SB-5	1/2	1/4	1	2-3/4	TB19350	35.11	TB19341	35.11
SB-6	5/8	1/4	1	2-3/4	TB19351	51.45	TB19692	51.45
SB-15	3/4	1/4	1/2	2-1/4	TB19845	76.74	TB19826	76.74
SB-16	3/4	1/4	3/4	2-1/2	TB19846	76.74	TB19827	76.74
SB-7	3/4	1/4	1	2-3/4	TB19352	79.01	TB19638	79.01
SB-9	1	1/4	1	2-3/4	TB19664	123.58	TB19640	123.58

* Solid Carbide **SB-ECO = End Cut Only

SB - CYLINDRICAL END CUT - FOR ALUMINUM



TOOL #	SIZE	SH DIA	LOC	OAL	-	-	ALUMA CUT	LIST PRICE
SB-3NF	3/8	1/4	3/4	2-1/2	-	-	TB19852	36.93
SB-5NF	1/2	1/4	1	2-3/4	-	-	TB19853	56.65
SB-6NF	5/8	1/4	1	2-3/4	-	-	TB19854	78.28
SB-7NF	3/4	1/4	1	2-3/4	-	-	TB19855	114.61

* Solid Carbide

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SC - CYLINDRICAL BALL NOSE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SC-61	3/32	3/32	3/8	1-1/2	TB19772	10.13	TB19761	10.13
*SC-41	3/32	1/8	7/16	1-1/2	TB19367	9.60	TB19353	9.60
*SC-42	1/8	1/8	9/16	1-1/2	TB19368	9.60	TB19354	9.60
*SC-42L2	1/8	1/8	9/16	2	TB19773	14.38	TB19762	14.38
*SC-42L3	1/8	1/8	9/16	3	TB19774	15.92	TB19763	15.92
*SC-11	1/8	1/4	1/2	2	TB19372	26.51	TB19358	26.51
*SC-12	1/8	1/4	5/8	2	TB19775	20.32	TB19764	20.32
SC-52	5/32	1/8	1/2	2	TB19369	21.12	TB19355	21.12
*SC-13	5/32	1/4	5/8	2	TB19666	30.33	TB19642	30.33
SC-53	3/16	1/8	1/2	2	TB19370	21.12	TB19356	21.12
*SC-81	3/16	3/16	1/2	2	TB19777	23.19	TB19766	23.19
*SC-14	3/16	1/4	5/8	2	TB19373	26.51	TB19359	26.51
SC-51	1/4	1/8	1/2	2	TB19371	14.28	TB19357	14.28
*SC-1	1/4	1/4	5/8	2	TB19374	19.19	TB19360	19.19
*SC-1L	1/4	1/4	1	2	TB19778	24.94	TB19767	24.94
SC-1L6	1/4	1/4	1/2	6-1/2	TB19571	38.12	TB19568	38.12
SC-2	5/16	1/4	3/4	2-1/2	TB19375	32.23	TB19361	32.23
SC-3	3/8	1/4	3/4	2-1/2	TB19376	23.20	TB19362	23.20
SC-3L	3/8	1/4	1	2-3/4	TB19779	33.69	TB19768	33.69
SC-3L6	3/8	1/4	3/4	6-3/4	TB19572	51.36	TB19569	51.36
SC-3X	3/8	1/4	1-1/2	3-1/4	TB19788	39.58	TB19769	39.58
SC-4	7/16	1/4	1	2-3/4	TB19377	50.92	TB19363	50.92
SC-5	1/2	1/4	1	2-3/4	TB19378	35.98	TB19364	35.98
SC-5L6	1/2	1/4	1	7	TB19573	80.81	TB19570	80.81
SC-6	5/8	1/4	1	2-3/4	TB19379	53.60	TB19365	53.60
SC-15	3/4	1/4	1/2	2-1/4	TB19789	75.19	TB19770	75.19
SC-16	3/4	1/4	3/4	2-1/2	TB19792	75.19	TB19771	75.19
SC-7	3/4	1/4	1	2-3/4	TB19380	77.25	TB19366	77.25
SC-9	1	1/4	1	2-3/4	TB19782	116.81	TB19780	116.81

* Solid Carbide

SC - CYLINDRICAL BALL NOSE FOR ALUMINUM



TOOL #	SIZE	SH DIA	LOC	OAL	—	—	ALUMA CUT	LIST PRICE
*SC-1NF	1/4	1/4	5/8	2	—	—	TB19597	23.00
SC-3NF	3/8	1/4	3/4	2-1/2	—	—	TB19598	30.66
SC-5NF	1/2	1/4	1	2-3/4	—	—	TB19599	43.46
SC-7NF	3/4	1/4	1	2-3/4	—	—	TB19600	105.35

* Solid Carbide

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SD - BALL SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SD-40	1/16	1/8	1/16	1-1/2	TB19136	10.14	TB19492	10.14
*SD-61	3/32	3/32	3/32	1-1/2	TB19137	10.13	TB19130	10.13
*SD-41	3/32	1/8	3/32	1-1/2	TB19506	9.60	TB19493	9.60
*SD-42	1/8	1/8	1/8	1-1/2	TB19507	9.60	TB19644	9.60
*SD-42L2	1/8	1/8	1/8	2	TB19138	14.38	TB19131	14.38
*SD-42L3	1/8	1/8	1/8	3	TB19139	15.92	TB19132	15.92
*SD-11	1/8	1/4	1/8	2	TB19510	24.34	TB19497	24.34
SD-52	5/32	1/8	5/32	1-21/32	TB19140	19.57	TB19133	19.57
SD-53	3/16	1/8	3/16	1-11/16	TB19508	21.12	TB19134	21.12
*SD-81	3/16	3/16	5/32	2	TB19141	23.19	TB19135	23.19
*SD-14	3/16	1/4	3/16	2	TB19511	24.34	TB19498	24.34
SD-51	1/4	1/8	1/4	1-3/4	TB19509	14.24	TB19496	14.24
*SD-1	1/4	1/4	1/4	2	TB19512	18.66	TB19499	18.66
SD-1L6	1/4	1/4	1/4	6-1/4	TB19577	35.14	TB19574	35.14
SD-2	5/16	1/4	5/16	2-1/16	TB19513	26.21	TB19500	26.21
SD-3	3/8	1/4	3/8	2-1/8	TB19514	19.99	TB19501	19.99
SD-3L6	3/8	1/4	3/8	6-3/8	TB19578	42.26	TB19575	42.26
SD-4	7/16	1/4	7/16	2-3/16	TB19515	33.84	TB19502	33.84
SD-5	1/2	1/4	1/2	2-1/2	TB19516	27.12	TB19503	27.12
SD-5L6	1/2	1/4	1/2	6-1/2	TB19579	56.94	TB19576	56.94
SD-6	5/8	1/4	5/8	2-3/8	TB19517	42.22	TB19504	42.22
SD-7	3/4	1/4	3/4	2-1/2	TB19518	58.25	TB19505	58.25
SD-9	1	1/4	1	2-3/4	TB19668	123.58	TB19646	123.58

* Solid Carbide

SD - BALL SHAPE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	—	—	ALUMA CUT	LIST PRICE
*SD-1NF	1/4	1/4	1/4	2	—	—	TB19613	22.67
SD-3NF	3/8	1/4	3/8	2-1/8	—	—	TB19614	28.65
SD-5NF	1/2	1/4	1/2	2-13/64	—	—	TB19615	47.01
SD-6NF	5/8	1/4	5/8	2-5/16	—	—	TB19616	70.79

* Solid Carbide

For technical information, please see page 227.



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SE - EGG SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SE-61	3/32	3/32	1/8	1-1/2	TB19153	10.13	TB19145	10.13
*SE-41	1/8	1/8	7/32	1-1/2	TB19464	9.60	TB19456	9.60
*SE-41L2	1/8	1/8	7/32	2	TB19154	14.38	TB19146	14.38
*SE-41L3	1/8	1/8	7/32	3	TB19155	15.92	TB19147	15.92
SE-53	3/16	1/8	9/32	1-25/32	TB19465	21.12	TB19457	21.12
*SE-81	3/16	3/16	9/32	2	TB19156	23.19	TB19148	23.19
*SE-11	3/16	1/4	5/16	2	TB19157	20.85	TB19149	20.85
SE-51	1/4	1/8	3/8	1-7/8	TB19466	14.24	TB19458	14.24
*SE-1	1/4	1/4	3/8	2	TB19467	22.80	TB19459	22.80
SE-1L6	1/4	1/4	3/8	6-3/8	TB19158	30.78	TB19150	30.78
SE-3	3/8	1/4	5/8	2-3/8	TB19468	24.01	TB19460	24.01
SE-3L6	3/8	1/4	5/8	6-5/8	TB19159	34.49	TB19151	34.49
SE-5	1/2	1/4	7/8	2-5/8	TB19469	33.57	TB19461	33.57
SE-5L6	1/2	1/4	7/8	6-7/8	TB19160	51.73	TB19152	51.73
SE-6	5/8	1/4	1	2-3/4	TB19470	53.02	TB19462	53.02
SE-7	3/4	1/4	1	2-3/4	TB19471	74.17	TB19463	74.17

* Solid Carbide

SE - EGG SHAPE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	—	—	ALUMA CUT	LIST PRICE
SE-3NF	3/8	1/4	5/8	2-3/8	—	—	TB19606	31.83
SE-5NF	1/2	1/4	7/8	2-5/8	—	—	TB19607	55.40
SE-6NF	5/8	1/4	1	2-3/4	—	—	TB19608	78.48
SE-7NF	3/4	1/4	1	2-3/4	—	—	TB19609	112.31



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SF - ROUND NOSE TREE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SF-61	3/32	3/32	1/4	1-1/2	TB19165	10.13	TB19161	10.13
*SF-41	1/8	1/8	1/4	1-1/2	TB19395	9.60	TB19381	9.60
*SF-42	1/8	1/8	1/2	1-1/2	TB19396	9.60	TB19382	9.60
*SF-42L2	1/8	1/8	1/2	2	TB19166	14.38	TB19162	14.38
*SF-42L3	1/8	1/8	1/2	3	TB19167	15.92	TB19163	15.92
SF-53	3/16	1/8	1/2	2	TB19397	21.12	TB19383	21.12
*SF-81	3/16	3/16	1/2	2	TB19168	23.19	TB19164	23.19
SF-51	1/4	1/8	1/2	2	TB19398	14.24	TB19384	14.24
*SF-1	1/4	1/4	3/4	2	TB19399	20.80	TB19385	20.80
SF-1L6	1/4	1/4	1/2	6-1/2	TB19583	39.75	TB19580	39.75
SF-3	3/8	1/4	3/4	2-1/2	TB19400	23.20	TB19386	23.20
SF-3L6	3/8	1/4	3/4	6-3/4	TB19584	50.35	TB19581	50.35
SF-4	7/16	1/4	1	2-3/4	TB19401	48.51	TB19387	48.51
SF-13	1/2	1/4	3/4	2-1/2	TB19402	51.66	TB19389	51.66
SF-5	1/2	1/4	1	2-3/4	TB19403	34.84	TB19390	34.84
SF-5L6	1/2	1/4	1	7	TB19585	74.26	TB19582	74.26
SF-6	5/8	1/4	1	2-3/4	TB19404	53.33	TB19391	53.33
SF-7	3/4	1/4	1	2-3/4	TB19405	74.52	TB19392	74.52
SF-14	3/4	1/4	1-1/4	3	TB19406	135.69	TB19393	135.69
SF-15	3/4	1/4	1-1/2	3-1/4	TB19407	159.34	TB19394	159.34

* Solid Carbide

SF - ROUND NOSE TREE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	—	—	ALUMA CUT	LIST PRICE
*SF-1NF	1/4	1/4	3/4	2	—	—	TB19601	23.44
SF-3NF	3/8	1/4	3/4	2-1/2	—	—	TB19602	30.99
SF-5NF	1/2	1/4	1	2-3/4	—	—	TB19603	54.83
SF-6NF	5/8	1/4	1	2-3/4	—	—	TB19604	83.67
SF-14NF	3/4	1/4	1-1/4	3	—	—	TB19605	101.78

* Solid Carbide

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Carbide Burs

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SG - POINTED TREE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SG-61	3/32	3/32	1/4	1-1/2	TB19938	10.13	TB19930	10.13
*SG-41	1/8	1/8	1/4	1-1/2	TB19421	9.56	TB19408	9.56
*SG-42	1/8	1/8	5/16	1-1/2	TB19422	9.56	TB19409	9.56
*SG-43	1/8	1/8	3/8	1-1/2	TB19423	9.56	TB19410	9.56
*SG-44	1/8	1/8	1/2	1-1/2	TB19424	13.31	TB19411	13.31
*SG-44L2	1/8	1/8	1/2	2	TB19939	14.38	TB19931	14.38
*SG-44L3	1/8	1/8	1/2	3	TB19940	15.92	TB19932	15.92
SG-53	3/16	1/8	1/2	2	TB19425	21.12	TB19412	21.12
*SG-81	3/16	3/16	1/2	2	TB19941	23.19	TB19933	23.19
SG-51	1/4	1/8	1/2	2	TB19426	14.24	TB19413	14.24
*SG-1	1/4	1/4	5/8	2	TB19427	21.20	TB19414	21.20
SG-1L6	1/4	1/4	1/2	6-1/2	TB19942	29.08	TB19934	29.08
SG-2	5/16	1/4	3/4	2-1/2	TB19428	33.60	TB19415	33.60
SG-3	3/8	1/4	3/4	2-1/2	TB19429	23.91	TB19416	23.91
SG-3L6	3/8	1/4	3/4	6-3/4	TB19943	36.61	TB19935	36.61
SG-13	1/2	1/4	3/4	2-1/2	TB19430	50.69	TB19417	50.69
SG-5	1/2	1/4	1	2-3/4	TB19431	35.11	TB19418	35.11
SG-5L6	1/2	1/4	1	7	TB19944	47.75	TB19936	47.75
SG-6	5/8	1/4	1	2-3/4	TB19432	54.44	TB19419	54.44
SG-7	3/4	1/4	1	2-3/4	TB19433	72.86	TB19420	72.86
SG-15	3/4	1/4	1-1/2	3-1/4	TB19945	87.55	TB19937	87.55

* Solid Carbide

SH - FLAME SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SH-41	1/8	1/8	1/4	1-1/2	TB19525	9.60	TB19519	9.60
*SH41L2	1/8	1/8	1/4	2	TB19954	14.38	TB19950	14.38
*SH41L3	1/8	1/8	1/4	3	TB19955	15.92	TB19951	15.92
SH-53	3/16	1/8	3/8	1-7/8	TB19526	21.12	TB19520	21.12
*SH-1	1/4	1/4	5/8	2	TB19812	22.53	TB19810	22.53
SH-2	5/16	1/4	3/4	2-1/2	TB19527	25.98	TB19521	25.98
SH-2L6	5/16	1/4	3/4	6-3/4	TB19956	34.48	TB19952	34.49
SH-5	1/2	1/4	1-1/4	3	TB19528	50.35	TB19522	50.35
SH-5L6	1/2	1/4	1-1/4	7-1/4	TB19957	55.71	TB19953	55.71
SH-6	5/8	1/4	1-7/16	3-3/16	TB19529	118.69	TB19523	118.69
SH-7	3/4	1/4	1-5/8	3-3/8	TB19530	150.80	TB19524	150.80

* Solid Carbide

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SJ - 60° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SJ-42	1/8	1/8	3/32	1-1/2	TB19558	9.60	TB19554	9.60
*SJ-1	1/4	1/4	3/16	2	TB19559	18.66	TB19555	18.66
SJ-3	3/8	1/4	5/16	2-3/16	TB19560	22.87	TB19556	22.87
SJ-5	1/2	1/4	7/16	2-19/64	TB19561	31.36	TB19557	31.36
SJ-6	5/8	1/4	9/16	2-5/16	TB19963	37.83	TB19960	37.83
SJ-7	3/4	1/4	11/16	2-7/16	TB19964	49.61	TB19961	49.61
SJ-9	1	1/4	15/16	2-11/16	TB19965	99.81	TB19962	99.81

* Solid Carbide

SK - 90° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SK-42	1/8	1/8	1/16	1-1/2	TB19550	9.60	TB19546	9.60
*SK-1	1/4	1/4	1/8	2	TB19551	18.66	TB19547	18.66
SK-3	3/8	1/4	3/16	2-1/16	TB19552	19.29	TB19548	19.29
SK-5	1/2	1/4	1/4	2-1/8	TB19553	30.22	TB19549	30.22
SK-6	5/8	1/4	5/16	2-3/16	TB19972	37.83	TB19970	37.83
SK-7	3/4	1/4	3/8	2-1/4	TB19695	61.56	TB19694	61.56
SK-9	1	1/4	1/2	2-1/4	TB19973	93.76	TB19971	93.76

* Solid Carbide



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For technical information, please see page 227.



Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

SL - INCLUDED ANGLE WITH RADIUS END



TOOL #	SIZE	SHANK	LOC	OAL	INCL ANGLE	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SL-41	1/8	1/8	3/8	1-1/2	8°	TB19482	9.56	TB19472	9.56
*SL-42	1/8	1/8	1/2	1-1/2	8°	TB19483	9.56	TB19473	9.56
*SL-42L2	1/8	1/8	1/2	2	8°	TB19992	14.38	TB19980	14.38
*SL-42L3	1/8	1/8	1/2	3	8°	TB19993	15.92	TB19981	15.92
SL-53	3/16	1/8	1/2	2	14°	TB19484	21.12	TB19474	21.12
*SL-81	3/16	3/16	7/16	2	14°	TB19994	23.19	TB19982	23.19
*SL-1	1/4	1/4	5/8	2	14°	TB19485	19.43	TB19475	19.43
SL-1L6	1/4	1/4	5/8	6-1/2	14°	TB19589	40.72	TB19586	40.72
SL-2	5/16	1/4	7/8	2-3/4	14°	TB19486	37.15	TB19476	37.15
SL-3	3/8	1/4	1-1/16	2-15/16	14°	TB19487	26.88	TB19477	26.88
SL-3L6	3/8	1/4	1-1/16	7-1/16	14°	TB19590	64.16	TB19587	64.16
SL-4	1/2	1/4	1-1/8	3	14°	TB19488	54.46	TB19478	54.46
SL-4L6	1/2	1/4	1-1/8	7-1/8	14°	TB19591	78.60	TB19588	78.60
SL-6	5/8	1/4	1-5/16	3-3/16	14°	TB19490	87.36	TB19480	87.36
SL-7	3/4	1/4	1-1/2	3-3/8	14°	TB19491	119.54	TB19481	119.54

* Solid Carbide

SL - INCLUDED ANGLE WITH RADIUS END - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	INCL ANGLE	-	-	ALUMA CUT	LIST PRICE
SL-3NF	3/8	1/4	1-1/16	2-15/16	14°	-	-	TB19617	48.00
SL-4NF	1/2	1/4	1-1/8	3	14°	-	-	TB19610	54.97
SL-5NF	5/8	1/4	1-3/16	3-5/16	14°	-	-	TB19618	100.00
SL-6NF	5/8	1/4	1-5/16	3-3/16	14°	-	-	TB19611	110.70
SL-7NF	3/4	1/4	1-1/2	3-3/8	14°	-	-	TB19612	137.50

SM - POINTED CONE



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SM-61	3/32	3/32	1/4	1-1/2	TB19064	10.13	TB19061	10.13
*SM-41	1/8	1/8	11/32	1-1/2	TB19445	9.60	TB19434	9.60
*SM-42	1/8	1/8	7/16	1-1/2	TB19446	9.60	TB19435	9.60
*SM-42L2	1/8	1/8	7/16	2	TB19065	14.38	TB19062	14.38
*SM-42L3	1/8	1/8	7/16	3	TB19066	15.92	TB19063	15.92
*SM-43	1/8	1/8	5/8	1-1/2	TB19447	9.60	TB19436	9.60
SM-53	3/16	1/8	1/2	2	TB19448	21.12	TB19437	21.12
SM-51	1/4	1/8	1/2	2-1/8	TB19449	14.24	TB19438	14.24
*SM-1	1/4	1/4	1/2	2	TB19450	18.26	TB19439	18.26
*SM-2	1/4	1/4	3/4	2	TB19451	28.29	TB19440	28.29
*SM-3	1/4	1/4	1	2	TB19452	20.40	TB19441	20.40
SM-4	3/8	1/4	5/8	2-1/2	TB19453	27.18	TB19442	27.18
SM-5	1/2	1/4	7/8	2-3/4	TB19454	38.05	TB19443	38.05
SM-6	5/8	1/4	1	2-7/8	TB19455	85.93	TB19444	85.93

* Solid Carbide

For technical information, please see page 227.

ENDMILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

SN - INVERTED TAPER



TOOL #	SIZE	SHANK	LOC	OAL	DOUBLE CUT	LIST PRICE	SINGLE CUT	LIST PRICE
*SN-61	3/32	3/32	1/8	1-1/2	TB19075	10.13	TB19069	10.13
*SN-41	3/32	1/8	1/8	1-1/2	TB19076	9.60	TB19531	9.60
*SN-42	1/8	1/8	3/16	1-1/2	TB19537	9.60	TB19532	9.60
SN-53	3/16	1/8	1/4	1-3/4	TB19538	21.12	TB19533	21.12
*SN-81	3/16	3/16	1/4	2	TB19077	23.19	TB19070	23.19
SN-51	1/4	1/8	1/4	1-3/4	TB19539	14.24	TB19534	14.24
*SN-1	1/4	1/4	5/16	2	TB19540	18.56	TB19535	18.56
SN-2	3/8	1/4	3/8	2-1/8	TB19078	26.11	TB19071	26.11
SN-4	1/2	1/4	1/2	2-1/4	TB19541	54.16	TB19536	54.16
SN-6	5/8	1/4	3/4	2-1/2	TB19079	47.91	TB19072	47.91
SN-7	3/4	1/4	5/8	2-3/8	TB19080	57.84	TB19073	57.84

* Solid Carbide

CARBIDE BUR SETS



ITEM# TB19542



ITEM# TB19850

SET SIZES	# OF PCS. IN SET	DIA.	SHANK DIAMETER	CASE TYPE	TYPE	ITEM#	LIST PRICE
SA-42, SA-43, SC-41, SC-42, SD-42, SE-41, SF-42, SG-42, SM-43	9 PCS.	1/8	1/8	WOOD	DOUBLE CUT	TB19542	141.36
SA-51, SB-51, SC-51, SD-51, SE-51, SF-51, SG-51, SM-51, SN-51	9 PCS.	1/4	1/8	WOOD	DOUBLE CUT	TB19543	151.99
SA-1, SC-1, SD-1, SE-1, SF-1, SG-1, SL-1, SM-2	8 PCS.	1/4	1/4	WOOD	DOUBLE CUT	TB19544	231.57
SA-5, SC-5, SD-5, SE-5, SF-5, SG-5, SL-4, SM-5	8 PCS.	1/2	1/4	WOOD	DOUBLE CUT	TB19545	415.52
SC-3, SD-3, SF-3, SG-3, SA-5, SC-5, SF-5, SL-4	8 PCS.	-	1/4	WOOD	DOUBLE CUT	TB19800	267.58
SA-1, SC-1, SD-3, SH-1, SF-3, SA-3, SC-3, SC-5, SF-5, SA-5	10 PCS.	-	1/4	METAL	DOUBLE CUT	TB19850	266.17

For technical information, please see page 227.



Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

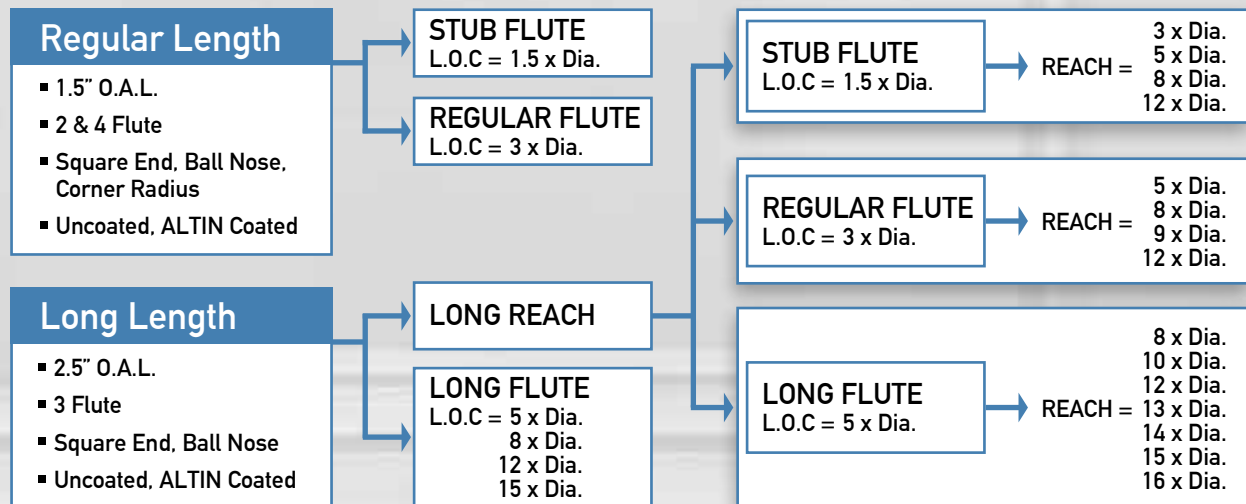
TITAN USA offers the industry's highest quality, Made in the USA, Carbide Micro End Mills



Expanded selection of Micro End Mills covering a wide range of profiles. Choose from 2, 3 and 4 Flute, Square, Ball, Corner Radius, and Stub, Regular, Long Flute lengths and Long Reaches. All our micro tools available uncoated, or Altin coated for optimum tool performance. All our tools are stocked and ready to ship. Order today, and we'll ship today!

Available in sizes starting at 0.005"

Our Micro End Mills are available in the following:

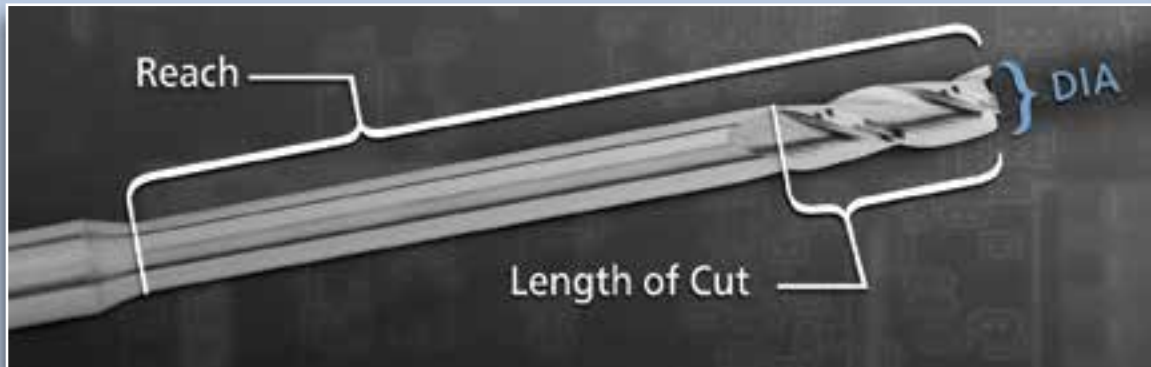


Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS




TAKE 55% OFF LIST PRICES




Reach and Length of Cut are measured as multiples of the cutting Diameter

Long Reaches of 3x, 5x, 8x, 9x, 10x, 12x, 13x, 14x, 15x and 16x Dia. available
Lengths of Cut of 1.5x, 3x, 5x, 8x, 12x and 15x Dia. available

- REGULAR LENGTH - STUB FLUTE
2FL & 4FL • Square End, Ball Nose &  Corner Radius



- REGULAR LENGTH - REGULAR FLUTE
2FL & 4FL • Square End, Ball Nose &  Corner Radius



- LONG REACH - STUB FLUTE
3FL • Square End & Ball Nose



- LONG REACH - REGULAR FLUTE
3FL • Square End & Ball Nose



- LONG REACH - LONG FLUTE
3FL • Square End & Ball Nose



- LONG LENGTH - LONG FLUTE
3FL • Square End & Ball Nose



With over 2400 carbide Micro End Mills in stock and ready to ship, Titan USA is committed to providing you with the highest quality, American-made Micro End Mills for all your micro machining needs.





Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - STUB FLUTE - SQUARE END - 30° HELIX



SERIES 520
UNCOATED



SERIES 522
ALTIN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	1.5	0.008	TC52005	57.71
0.010	1.5	0.015	TC52010	51.72
0.015	1.5	0.023	TC52015	32.36
0.020	1.5	0.030	TC52020	29.42
0.025	1.5	0.038	TC52025	29.42
0.030	1.5	0.045	TC52030	27.62
0.031	1.5	0.047	TC52031	25.88
0.035	1.5	0.053	TC52035	25.88
0.040	1.5	0.060	TC52040	25.88
0.045	1.5	0.068	TC52045	25.24
0.047	1.5	0.071	TC52047	25.24
0.050	1.5	0.075	TC52050	25.24
0.055	1.5	0.083	TC52055	25.24
0.060	1.5	0.090	TC52060	25.24
0.062	1.5	0.093	TC52062	25.24
0.065	1.5	0.098	TC52065	25.24
0.070	1.5	0.105	TC52070	25.24
0.075	1.5	0.113	TC52075	25.24
0.078	1.5	0.117	TC52078	25.24
0.080	1.5	0.120	TC52080	25.24
0.085	1.5	0.128	TC52085	25.24
0.090	1.5	0.135	TC52090	25.24
0.093	1.5	0.140	TC52093	25.24
0.095	1.5	0.143	TC52095	25.24
0.100	1.5	0.150	TC52100	25.24

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	1.5	0.008	TC52205	69.24
0.010	1.5	0.015	TC52210	62.05
0.015	1.5	0.023	TC52215	38.85
0.020	1.5	0.030	TC52220	35.31
0.025	1.5	0.038	TC52225	35.31
0.030	1.5	0.045	TC52230	33.13
0.031	1.5	0.047	TC52231	31.03
0.035	1.5	0.053	TC52235	31.03
0.040	1.5	0.060	TC52240	31.03
0.045	1.5	0.068	TC52245	30.29
0.047	1.5	0.071	TC52247	30.29
0.050	1.5	0.075	TC52250	30.29
0.055	1.5	0.083	TC52255	30.29
0.060	1.5	0.090	TC52260	30.29
0.062	1.5	0.093	TC52262	30.29
0.065	1.5	0.098	TC52265	30.29
0.070	1.5	0.105	TC52270	30.29
0.075	1.5	0.113	TC52275	30.29
0.078	1.5	0.117	TC52278	30.29
0.080	1.5	0.120	TC52280	30.29
0.085	1.5	0.128	TC52285	30.29
0.090	1.5	0.135	TC52290	30.29
0.093	1.5	0.140	TC52293	30.29
0.095	1.5	0.143	TC52295	30.29
0.100	1.5	0.150	TC52300	30.29

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - STUB FLUTE - BALL NOSE - 30° HELIX



SERIES 530
UNCOATED



SERIES 532
ALTIN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	1.5	0.008	TC53005	72.12
0.010	1.5	0.015	TC53010	64.66
0.015	1.5	0.023	TC53015	40.46
0.020	1.5	0.030	TC53020	36.78
0.025	1.5	0.038	TC53025	36.78
0.030	1.5	0.045	TC53030	34.50
0.031	1.5	0.047	TC53031	32.36
0.035	1.5	0.053	TC53035	32.36
0.040	1.5	0.060	TC53040	32.36
0.045	1.5	0.068	TC53045	31.56
0.047	1.5	0.071	TC53047	31.56
0.050	1.5	0.075	TC53050	31.56
0.055	1.5	0.083	TC53055	31.56
0.060	1.5	0.090	TC53060	31.56
0.062	1.5	0.093	TC53062	31.56
0.065	1.5	0.098	TC53065	31.56
0.070	1.5	0.105	TC53070	31.56
0.075	1.5	0.113	TC53075	31.56
0.078	1.5	0.117	TC53078	31.56
0.080	1.5	0.120	TC53080	31.56
0.085	1.5	0.128	TC53085	31.56
0.090	1.5	0.135	TC53090	31.56
0.093	1.5	0.140	TC53093	31.56
0.095	1.5	0.143	TC53095	31.56
0.100	1.5	0.150	TC53100	31.56

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	1.5	0.008	TC53205	86.56
0.010	1.5	0.015	TC53210	77.57
0.015	1.5	0.023	TC53215	48.55
0.020	1.5	0.030	TC53220	44.13
0.025	1.5	0.038	TC53225	44.13
0.030	1.5	0.045	TC53230	41.39
0.031	1.5	0.047	TC53231	38.85
0.035	1.5	0.053	TC53235	38.85
0.040	1.5	0.060	TC53240	38.85
0.045	1.5	0.068	TC53245	37.91
0.047	1.5	0.071	TC53247	37.91
0.050	1.5	0.075	TC53250	37.91
0.055	1.5	0.083	TC53255	37.91
0.060	1.5	0.090	TC53260	37.91
0.062	1.5	0.093	TC53262	37.91
0.065	1.5	0.098	TC53265	37.91
0.070	1.5	0.105	TC53270	37.91
0.075	1.5	0.113	TC53275	37.91
0.078	1.5	0.117	TC53278	37.91
0.080	1.5	0.120	TC53280	37.91
0.085	1.5	0.128	TC53285	37.91
0.090	1.5	0.135	TC53290	37.91
0.093	1.5	0.140	TC53293	37.91
0.095	1.5	0.143	TC53295	37.91
0.100	1.5	0.150	TC53300	37.91

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 560

UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	3	0.015	TC56005	50.19
0.006	3	0.018	TC56006	50.19
0.007	3	0.021	TC56007	50.19
0.008	3	0.024	TC56008	50.19
0.009	3	0.027	TC56009	44.97
0.010	3	0.030	TC56010	44.97
0.011	3	0.033	TC56011	40.26
0.012	3	0.036	TC56012	40.26
0.013	3	0.039	TC56013	33.30
0.014	3	0.042	TC56014	33.30
0.015	3	0.045	TC56015	28.15
0.016	3	0.048	TC56016	28.15
0.017	3	0.051	TC56017	28.15
0.018	3	0.054	TC56018	28.15
0.019	3	0.057	TC56019	28.15
0.020	3	0.060	TC56020	25.58
0.021	3	0.063	TC56021	25.58
0.022	3	0.066	TC56022	25.58
0.023	3	0.069	TC56023	25.58
0.024	3	0.072	TC56024	25.58
0.025	3	0.075	TC56025	25.58
0.026	3	0.078	TC56026	24.01
0.027	3	0.081	TC56027	24.01
0.028	3	0.084	TC56028	24.01
0.029	3	0.087	TC56029	24.01
0.030	3	0.090	TC56030	24.01
0.031	3	0.093	TC56031	22.50
0.032	3	0.096	TC56032	22.50
0.033	3	0.099	TC56033	22.50
0.034	3	0.102	TC56034	22.50
0.035	3	0.105	TC56035	22.50
0.036	3	0.108	TC56036	22.50
0.037	3	0.111	TC56037	22.50
0.038	3	0.114	TC56038	22.50
0.039	3	0.117	TC56039	22.50
0.040	3	0.120	TC56040	22.50
0.041	3	0.123	TC56041	22.50
0.042	3	0.126	TC56042	22.50
0.043	3	0.129	TC56043	22.50
0.044	3	0.132	TC56044	21.93
0.045	3	0.135	TC56045	21.93
0.046	3	0.138	TC56046	21.93
0.047	3	0.141	TC56047	21.93
0.048	3	0.144	TC56048	21.93
0.049	3	0.147	TC56049	21.93
0.050	3	0.150	TC56050	21.93
0.051	3	0.153	TC56051	21.93
0.052	3	0.156	TC56052	21.93
0.053	3	0.159	TC56053	21.93
0.054	3	0.162	TC56054	21.93
0.055	3	0.165	TC56055	21.93
0.056	3	0.168	TC56056	21.93
0.057	3	0.171	TC56057	21.93
0.058	3	0.174	TC56058	21.93

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.059	3	0.177	TC56059	21.93
0.060	3	0.180	TC56060	21.93
0.061	3	0.183	TC56061	21.93
0.062	3	0.186	TC56062	21.93
0.063	3	0.189	TC56063	21.93
0.064	3	0.192	TC56064	21.93
0.065	3	0.195	TC56065	21.93
0.066	3	0.198	TC56066	21.93
0.067	3	0.201	TC56067	21.93
0.068	3	0.204	TC56068	21.93
0.069	3	0.207	TC56069	21.93
0.070	3	0.210	TC56070	21.93
0.071	3	0.213	TC56071	21.93
0.072	3	0.216	TC56072	21.93
0.073	3	0.219	TC56073	21.93
0.074	3	0.222	TC56074	21.93
0.075	3	0.225	TC56075	21.93
0.076	3	0.228	TC56076	21.93
0.077	3	0.231	TC56077	21.93
0.078	3	0.234	TC56078	21.93
0.079	3	0.237	TC56079	21.93
0.080	3	0.240	TC56080	21.93
0.081	3	0.243	TC56081	21.93
0.082	3	0.246	TC56082	21.93
0.083	3	0.249	TC56083	21.93
0.084	3	0.252	TC56084	21.93
0.085	3	0.255	TC56085	21.93
0.086	3	0.258	TC56086	21.93
0.087	3	0.261	TC56087	21.93
0.088	3	0.264	TC56088	21.93
0.089	3	0.267	TC56089	21.93
0.090	3	0.270	TC56090	21.93
0.091	3	0.273	TC56091	21.93
0.092	3	0.276	TC56092	21.93
0.093	3	0.279	TC56093	21.93
0.094	3	0.282	TC56094	21.93
0.095	3	0.285	TC56095	21.93
0.096	3	0.288	TC56096	21.93
0.097	3	0.291	TC56097	21.93
0.098	3	0.294	TC56098	21.93
0.099	3	0.297	TC56099	21.93
0.100	3	0.300	TC56100	21.93
0.101	3	0.303	TC56101	21.93
0.102	3	0.306	TC56102	21.93
0.103	3	0.309	TC56103	21.93
0.104	3	0.312	TC56104	21.93
0.105	3	0.315	TC56105	21.93
0.106	3	0.318	TC56106	21.93
0.107	3	0.321	TC56107	21.93
0.108	3	0.324	TC56108	21.93
0.109	3	0.327	TC56109	21.93
0.110	3	0.330	TC56110	21.93
0.115	3	0.345	TC56115	21.93
0.120	3	0.360	TC56120	21.93

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 562
ALTiN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	3	0.015	TC56205	60.22
0.006	3	0.018	TC56206	60.22
0.007	3	0.021	TC56207	60.22
0.008	3	0.024	TC56208	60.22
0.009	3	0.027	TC56209	53.96
0.010	3	0.030	TC56210	53.96
0.011	3	0.033	TC56211	48.31
0.012	3	0.036	TC56212	48.31
0.013	3	0.039	TC56213	39.95
0.014	3	0.042	TC56214	39.95
0.015	3	0.045	TC56215	33.77
0.016	3	0.048	TC56216	33.77
0.017	3	0.051	TC56217	33.77
0.018	3	0.054	TC56218	33.77
0.019	3	0.057	TC56219	33.77
0.020	3	0.060	TC56220	30.69
0.021	3	0.063	TC56221	30.69
0.022	3	0.066	TC56222	30.69
0.023	3	0.069	TC56223	30.69
0.024	3	0.072	TC56224	30.69
0.025	3	0.075	TC56225	30.69
0.026	3	0.078	TC56226	28.82
0.027	3	0.081	TC56227	28.82
0.028	3	0.084	TC56228	28.82
0.029	3	0.087	TC56229	28.82
0.030	3	0.090	TC56230	28.82
0.031	3	0.093	TC56231	26.98
0.032	3	0.096	TC56232	26.98
0.033	3	0.099	TC56233	26.98
0.034	3	0.102	TC56234	26.98
0.035	3	0.105	TC56235	26.98
0.036	3	0.108	TC56236	26.98
0.037	3	0.111	TC56237	26.98
0.038	3	0.114	TC56238	26.98
0.039	3	0.117	TC56239	26.98
0.040	3	0.120	TC56240	26.98
0.041	3	0.123	TC56241	26.98
0.042	3	0.126	TC56242	26.98
0.043	3	0.129	TC56243	26.98
0.044	3	0.132	TC56244	26.35
0.045	3	0.135	TC56245	26.35
0.046	3	0.138	TC56246	26.35
0.047	3	0.141	TC56247	26.35
0.048	3	0.144	TC56248	26.35
0.049	3	0.147	TC56249	26.35
0.050	3	0.150	TC56250	26.35
0.051	3	0.153	TC56251	26.35
0.052	3	0.156	TC56252	26.35
0.053	3	0.159	TC56253	26.35
0.054	3	0.162	TC56254	26.35
0.055	3	0.165	TC56255	26.35
0.056	3	0.168	TC56256	26.35
0.057	3	0.171	TC56257	26.35
0.058	3	0.174	TC56258	26.35

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.059	3	0.177	TC56259	26.35
0.060	3	0.180	TC56260	26.35
0.061	3	0.183	TC56261	26.35
0.062	3	0.186	TC56262	26.35
0.063	3	0.189	TC56263	26.35
0.064	3	0.192	TC56264	26.35
0.065	3	0.195	TC56265	26.35
0.066	3	0.198	TC56266	26.35
0.067	3	0.201	TC56267	26.35
0.068	3	0.204	TC56268	26.35
0.069	3	0.207	TC56269	26.35
0.070	3	0.210	TC56270	26.35
0.071	3	0.213	TC56271	26.35
0.072	3	0.216	TC56272	26.35
0.073	3	0.219	TC56273	26.35
0.074	3	0.222	TC56274	26.35
0.075	3	0.225	TC56275	26.35
0.076	3	0.228	TC56276	26.35
0.077	3	0.231	TC56277	26.35
0.078	3	0.234	TC56278	26.35
0.079	3	0.237	TC56279	26.35
0.080	3	0.240	TC56280	26.35
0.081	3	0.243	TC56281	26.35
0.082	3	0.246	TC56282	26.35
0.083	3	0.249	TC56283	26.35
0.084	3	0.252	TC56284	26.35
0.085	3	0.255	TC56285	26.35
0.086	3	0.258	TC56286	26.35
0.087	3	0.261	TC56287	26.35
0.088	3	0.264	TC56288	26.35
0.089	3	0.267	TC56289	26.35
0.090	3	0.270	TC56290	26.35
0.091	3	0.273	TC56291	26.35
0.092	3	0.276	TC56292	26.35
0.093	3	0.279	TC56293	26.35
0.094	3	0.282	TC56294	26.35
0.095	3	0.285	TC56295	26.35
0.096	3	0.288	TC56296	26.35
0.097	3	0.291	TC56297	26.35
0.098	3	0.294	TC56298	26.35
0.099	3	0.297	TC56299	26.35
0.100	3	0.300	TC56300	26.35
0.101	3	0.303	TC56301	26.35
0.102	3	0.306	TC56302	26.35
0.103	3	0.309	TC56303	26.35
0.104	3	0.312	TC56304	26.35
0.105	3	0.315	TC56305	26.35
0.106	3	0.318	TC56306	26.35
0.107	3	0.321	TC56307	26.35
0.108	3	0.324	TC56308	26.35
0.109	3	0.327	TC56309	26.35
0.110	3	0.330	TC56310	26.35
0.115	3	0.345	TC56315	26.35
0.120	3	0.360	TC56320	26.35

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 570

UNCOATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	3	0.015	TC57005	62.72
0.006	3	0.018	TC57006	62.72
0.007	3	0.021	TC57007	62.72
0.008	3	0.024	TC57008	62.72
0.009	3	0.027	TC57009	56.24
0.010	3	0.030	TC57010	56.24
0.011	3	0.033	TC57011	50.32
0.012	3	0.036	TC57012	50.32
0.013	3	0.039	TC57013	41.69
0.014	3	0.042	TC57014	41.69
0.015	3	0.045	TC57015	35.17
0.016	3	0.048	TC57016	35.17
0.017	3	0.051	TC57017	35.17
0.018	3	0.054	TC57018	35.17
0.019	3	0.057	TC57019	35.17
0.020	3	0.060	TC57020	32.00
0.021	3	0.063	TC57021	32.00
0.022	3	0.066	TC57022	32.00
0.023	3	0.069	TC57023	32.00
0.024	3	0.072	TC57024	32.00
0.025	3	0.075	TC57025	32.00
0.026	3	0.078	TC57026	30.02
0.027	3	0.081	TC57027	30.02
0.028	3	0.084	TC57028	30.02
0.029	3	0.087	TC57029	30.02
0.030	3	0.090	TC57030	30.02
0.031	3	0.093	TC57031	28.15
0.032	3	0.096	TC57032	28.15
0.033	3	0.099	TC57033	28.15
0.034	3	0.102	TC57034	28.15
0.035	3	0.105	TC57035	28.15
0.036	3	0.108	TC57036	28.15
0.037	3	0.111	TC57037	28.15
0.038	3	0.114	TC57038	28.15
0.039	3	0.117	TC57039	28.15
0.040	3	0.120	TC57040	28.15
0.041	3	0.123	TC57041	28.15
0.042	3	0.126	TC57042	28.15
0.043	3	0.129	TC57043	28.15
0.044	3	0.132	TC57044	27.45
0.045	3	0.135	TC57045	27.45
0.046	3	0.138	TC57046	27.45
0.047	3	0.141	TC57047	27.45
0.048	3	0.144	TC57048	27.45
0.049	3	0.147	TC57049	27.45
0.050	3	0.150	TC57050	27.45
0.051	3	0.153	TC57051	27.45
0.052	3	0.156	TC57052	27.45
0.053	3	0.159	TC57053	27.45
0.054	3	0.162	TC57054	27.45
0.055	3	0.165	TC57055	27.45
0.056	3	0.168	TC57056	27.45
0.057	3	0.171	TC57057	27.45
0.058	3	0.174	TC57058	27.45

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.059	3	0.177	TC57059	27.45
0.060	3	0.180	TC57060	27.45
0.061	3	0.183	TC57061	27.45
0.062	3	0.186	TC57062	27.45
0.063	3	0.189	TC57063	27.45
0.064	3	0.192	TC57064	27.45
0.065	3	0.195	TC57065	27.45
0.066	3	0.198	TC57066	27.45
0.067	3	0.201	TC57067	27.45
0.068	3	0.204	TC57068	27.45
0.069	3	0.207	TC57069	27.45
0.070	3	0.210	TC57070	27.45
0.071	3	0.213	TC57071	27.45
0.072	3	0.216	TC57072	27.45
0.073	3	0.219	TC57073	27.45
0.074	3	0.222	TC57074	27.45
0.075	3	0.225	TC57075	27.45
0.076	3	0.228	TC57076	27.45
0.077	3	0.231	TC57077	27.45
0.078	3	0.234	TC57078	27.45
0.079	3	0.237	TC57079	27.45
0.080	3	0.240	TC57080	27.45
0.081	3	0.243	TC57081	27.45
0.082	3	0.246	TC57082	27.45
0.083	3	0.249	TC57083	27.45
0.084	3	0.252	TC57084	27.45
0.085	3	0.255	TC57085	27.45
0.086	3	0.258	TC57086	27.45
0.087	3	0.261	TC57087	27.45
0.088	3	0.264	TC57088	27.45
0.089	3	0.267	TC57089	27.45
0.090	3	0.270	TC57090	27.45
0.091	3	0.273	TC57091	27.45
0.092	3	0.276	TC57092	27.45
0.093	3	0.279	TC57093	27.45
0.094	3	0.282	TC57094	27.45
0.095	3	0.285	TC57095	27.45
0.096	3	0.288	TC57096	27.45
0.097	3	0.291	TC57097	27.45
0.098	3	0.294	TC57098	27.45
0.099	3	0.297	TC57099	27.45
0.100	3	0.300	TC57100	27.45
0.101	3	0.303	TC57101	27.45
0.102	3	0.306	TC57102	27.45
0.103	3	0.309	TC57103	27.45
0.104	3	0.312	TC57104	27.45
0.105	3	0.315	TC57105	27.45
0.106	3	0.318	TC57106	27.45
0.107	3	0.321	TC57107	27.45
0.108	3	0.324	TC57108	27.45
0.109	3	0.327	TC57109	27.45
0.110	3	0.330	TC57110	27.45
0.115	3	0.345	TC57115	27.45
0.120	3	0.360	TC57120	27.45

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 572
ALTIN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.005	3	0.015	TC57205	75.26
0.006	3	0.018	TC57206	75.26
0.007	3	0.021	TC57207	75.26
0.008	3	0.024	TC57208	75.26
0.009	3	0.027	TC57209	67.47
0.010	3	0.030	TC57210	67.47
0.011	3	0.033	TC57211	60.42
0.012	3	0.036	TC57212	60.42
0.013	3	0.039	TC57213	50.02
0.014	3	0.042	TC57214	50.02
0.015	3	0.045	TC57215	42.19
0.016	3	0.048	TC57216	42.19
0.017	3	0.051	TC57217	42.19
0.018	3	0.054	TC57218	42.19
0.019	3	0.057	TC57219	42.19
0.020	3	0.060	TC57220	38.38
0.021	3	0.063	TC57221	38.38
0.022	3	0.066	TC57222	38.38
0.023	3	0.069	TC57223	38.38
0.024	3	0.072	TC57224	38.38
0.025	3	0.075	TC57225	38.38
0.026	3	0.078	TC57226	36.01
0.027	3	0.081	TC57227	36.01
0.028	3	0.084	TC57228	36.01
0.029	3	0.087	TC57229	36.01
0.030	3	0.090	TC57230	36.01
0.031	3	0.093	TC57231	33.77
0.032	3	0.096	TC57232	33.77
0.033	3	0.099	TC57233	33.77
0.034	3	0.102	TC57234	33.77
0.035	3	0.105	TC57235	33.77
0.036	3	0.108	TC57236	33.77
0.037	3	0.111	TC57237	33.77
0.038	3	0.114	TC57238	33.77
0.039	3	0.117	TC57239	33.77
0.040	3	0.120	TC57240	33.77
0.041	3	0.123	TC57241	33.77
0.042	3	0.126	TC57242	33.77
0.043	3	0.129	TC57243	33.77
0.044	3	0.132	TC57244	32.97
0.045	3	0.135	TC57245	32.97
0.046	3	0.138	TC57246	32.97
0.047	3	0.141	TC57247	32.97
0.048	3	0.144	TC57248	32.97
0.049	3	0.147	TC57249	32.97
0.050	3	0.150	TC57250	32.97
0.051	3	0.153	TC57251	32.97
0.052	3	0.156	TC57252	32.97
0.053	3	0.159	TC57253	32.97
0.054	3	0.162	TC57254	32.97
0.055	3	0.165	TC57255	32.97
0.056	3	0.168	TC57256	32.97
0.057	3	0.171	TC57257	32.97
0.058	3	0.174	TC57258	32.97

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.059	3	0.177	TC57259	32.97
0.060	3	0.180	TC57260	32.97
0.061	3	0.183	TC57261	32.97
0.062	3	0.186	TC57262	32.97
0.063	3	0.189	TC57263	32.97
0.064	3	0.192	TC57264	32.97
0.065	3	0.195	TC57265	32.97
0.066	3	0.198	TC57266	32.97
0.067	3	0.201	TC57267	32.97
0.068	3	0.204	TC57268	32.97
0.069	3	0.207	TC57269	32.97
0.070	3	0.210	TC57270	32.97
0.071	3	0.213	TC57271	32.97
0.072	3	0.216	TC57272	32.97
0.073	3	0.219	TC57273	32.97
0.074	3	0.222	TC57274	32.97
0.075	3	0.225	TC57275	32.97
0.076	3	0.228	TC57276	32.97
0.077	3	0.231	TC57277	32.97
0.078	3	0.234	TC57278	32.97
0.079	3	0.237	TC57279	32.97
0.080	3	0.240	TC57280	32.97
0.081	3	0.243	TC57281	32.97
0.082	3	0.246	TC57282	32.97
0.083	3	0.249	TC57283	32.97
0.084	3	0.252	TC57284	32.97
0.085	3	0.255	TC57285	32.97
0.086	3	0.258	TC57286	32.97
0.087	3	0.261	TC57287	32.97
0.088	3	0.264	TC57288	32.97
0.089	3	0.267	TC57289	32.97
0.090	3	0.270	TC57290	32.97
0.091	3	0.273	TC57291	32.97
0.092	3	0.276	TC57292	32.97
0.093	3	0.279	TC57293	32.97
0.094	3	0.282	TC57294	32.97
0.095	3	0.285	TC57295	32.97
0.096	3	0.288	TC57296	32.97
0.097	3	0.291	TC57297	32.97
0.098	3	0.294	TC57298	32.97
0.099	3	0.297	TC57299	32.97
0.100	3	0.300	TC57300	32.97
0.101	3	0.303	TC57301	32.97
0.102	3	0.306	TC57302	32.97
0.103	3	0.309	TC57303	32.97
0.104	3	0.312	TC57304	32.97
0.105	3	0.315	TC57305	32.97
0.106	3	0.318	TC57306	32.97
0.107	3	0.321	TC57307	32.97
0.108	3	0.324	TC57308	32.97
0.109	3	0.327	TC57309	32.97
0.110	3	0.330	TC57310	32.97
0.115	3	0.345	TC57315	32.97
0.120	3	0.360	TC57320	32.97

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 FLUTE - STUB FLUTE - SQUARE END - 30° HELIX



SERIES 540
UNCOATED



SERIES 542
ALTIN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	1.5	0.015	TC54010	51.72
0.015	1.5	0.023	TC54015	32.36
0.020	1.5	0.030	TC54020	29.42
0.025	1.5	0.038	TC54025	29.42
0.030	1.5	0.045	TC54030	27.62
0.031	1.5	0.047	TC54031	25.88
0.035	1.5	0.053	TC54035	25.88
0.040	1.5	0.060	TC54040	25.88
0.045	1.5	0.068	TC54045	25.24
0.047	1.5	0.071	TC54047	25.24
0.050	1.5	0.075	TC54050	25.24
0.055	1.5	0.083	TC54055	25.24
0.060	1.5	0.090	TC54060	25.24
0.062	1.5	0.093	TC54062	25.24
0.065	1.5	0.098	TC54065	25.24
0.070	1.5	0.105	TC54070	25.24
0.075	1.5	0.113	TC54075	25.24
0.078	1.5	0.117	TC54078	25.24
0.080	1.5	0.120	TC54080	25.24
0.085	1.5	0.128	TC54085	25.24
0.090	1.5	0.135	TC54090	25.24
0.093	1.5	0.140	TC54093	25.24
0.095	1.5	0.143	TC54095	25.24
0.100	1.5	0.150	TC54100	25.24

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	1.5	0.015	TC54210	62.05
0.015	1.5	0.023	TC54215	38.85
0.020	1.5	0.030	TC54220	35.31
0.025	1.5	0.038	TC54225	35.31
0.030	1.5	0.045	TC54230	33.13
0.031	1.5	0.047	TC54231	31.03
0.035	1.5	0.053	TC54235	31.03
0.040	1.5	0.060	TC54240	31.03
0.045	1.5	0.068	TC54245	30.29
0.047	1.5	0.071	TC54247	30.29
0.050	1.5	0.075	TC54250	30.29
0.055	1.5	0.083	TC54255	30.29
0.060	1.5	0.090	TC54260	30.29
0.062	1.5	0.093	TC54262	30.29
0.065	1.5	0.098	TC54265	30.29
0.070	1.5	0.105	TC54270	30.29
0.075	1.5	0.113	TC54275	30.29
0.078	1.5	0.117	TC54278	30.29
0.080	1.5	0.120	TC54280	30.29
0.085	1.5	0.128	TC54285	30.29
0.090	1.5	0.135	TC54290	30.29
0.093	1.5	0.140	TC54293	30.29
0.095	1.5	0.143	TC54295	30.29
0.100	1.5	0.150	TC54300	30.29

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	-0.001, -0.003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - STUB FLUTE - BALL NOSE - 30° HELIX



SERIES 551
UNCOATED



SERIES 552
ALTIN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	1.5	0.015	TC55010	56.24
0.015	1.5	0.023	TC55015	35.17
0.020	1.5	0.030	TC55020	32.00
0.025	1.5	0.038	TC55025	32.00
0.030	1.5	0.045	TC55030	30.02
0.031	1.5	0.047	TC55031	28.15
0.035	1.5	0.053	TC55035	28.15
0.040	1.5	0.060	TC55040	28.15
0.045	1.5	0.068	TC55045	27.45
0.047	1.5	0.071	TC55047	27.45
0.050	1.5	0.075	TC55050	27.45
0.055	1.5	0.083	TC55055	27.45
0.060	1.5	0.090	TC55060	27.45
0.062	1.5	0.093	TC55062	27.45
0.065	1.5	0.098	TC55065	27.45
0.070	1.5	0.105	TC55070	27.45
0.075	1.5	0.113	TC55075	27.45
0.078	1.5	0.117	TC55078	27.45
0.080	1.5	0.120	TC55080	27.45
0.085	1.5	0.128	TC55085	27.45
0.090	1.5	0.135	TC55090	27.45
0.093	1.5	0.140	TC55093	27.45
0.095	1.5	0.143	TC55095	27.45
0.100	1.5	0.150	TC55100	27.45

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	1.5	0.015	TC55210	77.57
0.015	1.5	0.023	TC55215	48.55
0.020	1.5	0.030	TC55220	44.13
0.025	1.5	0.038	TC55225	44.13
0.030	1.5	0.045	TC55230	41.39
0.031	1.5	0.047	TC55231	38.85
0.035	1.5	0.053	TC55235	38.85
0.040	1.5	0.060	TC55240	38.85
0.045	1.5	0.068	TC55245	37.91
0.047	1.5	0.071	TC55247	37.91
0.050	1.5	0.075	TC55250	37.91
0.055	1.5	0.083	TC55255	37.91
0.060	1.5	0.090	TC55260	37.91
0.062	1.5	0.093	TC55262	37.91
0.065	1.5	0.098	TC55265	37.91
0.070	1.5	0.105	TC55270	37.91
0.075	1.5	0.113	TC55275	37.91
0.078	1.5	0.117	TC55278	37.91
0.080	1.5	0.120	TC55280	37.91
0.085	1.5	0.128	TC55285	37.91
0.090	1.5	0.135	TC55290	37.91
0.093	1.5	0.140	TC55293	37.91
0.095	1.5	0.143	TC55295	37.91
0.100	1.5	0.150	TC55300	37.91

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	-0.001, -0.003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 FLUTE - STUB FLUTE - CORNER RADIUS - 30° HELIX



SERIES 502
UNCOATED



SERIES 504
ALTIN COATED



DIA	xDIA	LOC	RAD	ITEM #	LIST PRICE
0.015	1.5	0.023	0.003	TC50203	68.44
0.020	1.5	0.030	0.005	TC50205	63.89
0.025	1.5	0.038	0.005	TC50207	63.89
0.030	1.5	0.045	0.005	TC50209	45.64
0.030	1.5	0.045	0.010	TC50211	45.64
0.031	1.5	0.047	0.005	TC50213	45.64
0.031	1.5	0.047	0.010	TC50215	45.64
0.035	1.5	0.053	0.005	TC50217	45.64
0.035	1.5	0.053	0.010	TC50219	45.64
0.040	1.5	0.060	0.005	TC50221	45.64
0.040	1.5	0.060	0.010	TC50223	45.64
0.045	1.5	0.068	0.005	TC50225	45.64
0.045	1.5	0.068	0.010	TC50227	45.64
0.045	1.5	0.068	0.015	TC50229	45.64
0.047	1.5	0.071	0.005	TC50231	45.64
0.047	1.5	0.071	0.010	TC50233	45.64
0.047	1.5	0.071	0.015	TC50235	45.64
0.050	1.5	0.075	0.005	TC50237	45.64
0.050	1.5	0.075	0.010	TC50239	45.64
0.050	1.5	0.075	0.015	TC50241	45.64
0.060	1.5	0.090	0.005	TC50249	45.64
0.060	1.5	0.090	0.010	TC50251	45.64
0.060	1.5	0.090	0.015	TC50253	45.64
0.062	1.5	0.093	0.005	TC50255	45.64
0.062	1.5	0.093	0.010	TC50257	45.64
0.062	1.5	0.093	0.015	TC50259	45.64
0.075	1.5	0.113	0.005	TC50273	45.64
0.075	1.5	0.113	0.010	TC50275	45.64
0.075	1.5	0.113	0.015	TC50277	45.64
0.078	1.5	0.117	0.005	TC50279	45.64
0.078	1.5	0.117	0.010	TC50281	45.64
0.078	1.5	0.117	0.015	TC50283	45.64
0.090	1.5	0.135	0.005	TC50297	45.64
0.090	1.5	0.135	0.010	TC50299	45.64
0.090	1.5	0.135	0.015	TC50301	45.64
0.093	1.5	0.140	0.005	TC50303	45.64
0.093	1.5	0.140	0.010	TC50305	45.64
0.093	1.5	0.140	0.015	TC50307	45.64
0.100	1.5	0.150	0.005	TC50315	45.64
0.100	1.5	0.150	0.010	TC50317	45.64
0.100	1.5	0.150	0.015	TC50319	45.64

DIA	xDIA	LOC	RAD	ITEM #	LIST PRICE
0.015	1.5	0.023	0.003	TC50404	84.86
0.020	1.5	0.030	0.005	TC50406	79.21
0.025	1.5	0.038	0.005	TC50408	79.21
0.030	1.5	0.045	0.005	TC50410	56.57
0.030	1.5	0.045	0.010	TC50412	56.57
0.031	1.5	0.047	0.005	TC50414	56.57
0.031	1.5	0.047	0.010	TC50416	56.57
0.035	1.5	0.053	0.005	TC50418	56.57
0.035	1.5	0.053	0.010	TC50420	56.57
0.040	1.5	0.060	0.005	TC50422	56.57
0.040	1.5	0.060	0.010	TC50424	56.57
0.045	1.5	0.068	0.005	TC50426	56.57
0.045	1.5	0.068	0.010	TC50428	56.57
0.045	1.5	0.068	0.015	TC50430	56.57
0.047	1.5	0.071	0.005	TC50432	56.57
0.047	1.5	0.071	0.010	TC50434	56.57
0.047	1.5	0.071	0.015	TC50436	56.57
0.050	1.5	0.075	0.005	TC50438	56.57
0.050	1.5	0.075	0.010	TC50440	56.57
0.050	1.5	0.075	0.015	TC50442	56.57
0.060	1.5	0.090	0.005	TC50450	56.57
0.060	1.5	0.090	0.010	TC50452	56.57
0.060	1.5	0.090	0.015	TC50454	56.57
0.062	1.5	0.093	0.005	TC50456	56.57
0.062	1.5	0.093	0.010	TC50458	56.57
0.062	1.5	0.093	0.015	TC50460	56.57
0.075	1.5	0.113	0.005	TC50474	56.57
0.075	1.5	0.113	0.010	TC50476	56.57
0.075	1.5	0.113	0.015	TC50478	56.57
0.078	1.5	0.117	0.005	TC50480	56.57
0.078	1.5	0.117	0.010	TC50482	56.57
0.078	1.5	0.117	0.015	TC50484	56.57
0.090	1.5	0.135	0.005	TC50498	56.57
0.090	1.5	0.135	0.010	TC50500	56.57
0.090	1.5	0.135	0.015	TC50502	56.57
0.093	1.5	0.140	0.005	TC50504	56.57
0.093	1.5	0.140	0.010	TC50506	56.57
0.093	1.5	0.140	0.015	TC50508	56.57
0.100	1.5	0.150	0.005	TC50516	56.57
0.100	1.5	0.150	0.010	TC50518	56.57
0.100	1.5	0.150	0.015	TC50520	56.57

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR FLUTE - CORNER RADIUS - 30° HELIX



SERIES 506
UNCOATED



SERIES 508
ALTIN COATED



DIA	xDIA	LOC	RAD	ITEM #	LIST PRICE
0.015	3	0.045	0.003	TC50603	68.44
0.020	3	0.060	0.005	TC50605	63.89
0.025	3	0.075	0.005	TC50607	63.89
0.030	3	0.090	0.005	TC50609	45.64
0.030	3	0.090	0.010	TC50611	45.64
0.031	3	0.093	0.005	TC50613	45.64
0.031	3	0.093	0.010	TC50615	45.64
0.035	3	0.105	0.005	TC50617	45.64
0.035	3	0.105	0.010	TC50619	45.64
0.040	3	0.120	0.005	TC50621	45.64
0.040	3	0.120	0.010	TC50623	45.64
0.045	3	0.135	0.005	TC50625	45.64
0.045	3	0.135	0.010	TC50627	45.64
0.045	3	0.135	0.015	TC50629	45.64
0.047	3	0.141	0.005	TC50631	45.64
0.047	3	0.141	0.010	TC50633	45.64
0.047	3	0.141	0.015	TC50635	45.64
0.050	3	0.150	0.005	TC50637	45.64
0.050	3	0.150	0.010	TC50639	45.64
0.050	3	0.150	0.015	TC50641	45.64
0.060	3	0.180	0.005	TC50649	45.64
0.060	3	0.180	0.010	TC50651	45.64
0.060	3	0.180	0.015	TC50653	45.64
0.062	3	0.186	0.005	TC50655	45.64
0.062	3	0.186	0.010	TC50657	45.64
0.062	3	0.186	0.015	TC50659	45.64
0.075	3	0.225	0.005	TC50673	45.64
0.075	3	0.225	0.010	TC50675	45.64
0.075	3	0.225	0.015	TC50677	45.64
0.078	3	0.234	0.005	TC50679	45.64
0.078	3	0.234	0.010	TC50681	45.64
0.078	3	0.234	0.015	TC50683	45.64
0.090	3	0.270	0.005	TC50697	45.64
0.090	3	0.270	0.010	TC50699	45.64
0.090	3	0.270	0.015	TC50701	45.64
0.093	3	0.279	0.005	TC50703	45.64
0.093	3	0.279	0.010	TC50705	45.64
0.093	3	0.279	0.015	TC50707	45.64
0.100	3	0.300	0.005	TC50715	45.64
0.100	3	0.300	0.010	TC50717	45.64
0.100	3	0.300	0.015	TC50719	45.64

DIA	xDIA	LOC	RAD	ITEM #	LIST PRICE
0.015	3	0.045	0.003	TC50804	84.86
0.020	3	0.060	0.005	TC50806	79.21
0.025	3	0.075	0.005	TC50808	79.21
0.030	3	0.090	0.005	TC50810	56.57
0.030	3	0.090	0.010	TC50812	56.57
0.031	3	0.093	0.005	TC50814	56.57
0.031	3	0.093	0.010	TC50816	56.57
0.035	3	0.105	0.005	TC50818	56.57
0.035	3	0.105	0.010	TC50820	56.57
0.040	3	0.120	0.005	TC50822	56.57
0.040	3	0.120	0.010	TC50824	56.57
0.045	3	0.135	0.005	TC50826	56.57
0.045	3	0.135	0.010	TC50828	56.57
0.045	3	0.135	0.015	TC50830	56.57
0.047	3	0.141	0.005	TC50832	56.57
0.047	3	0.141	0.010	TC50834	56.57
0.047	3	0.141	0.015	TC50836	56.57
0.050	3	0.150	0.005	TC50838	56.57
0.050	3	0.150	0.010	TC50840	56.57
0.050	3	0.150	0.015	TC50842	56.57
0.060	3	0.180	0.005	TC50850	56.57
0.060	3	0.180	0.010	TC50852	56.57
0.060	3	0.180	0.015	TC50854	56.57
0.062	3	0.186	0.005	TC50856	56.57
0.062	3	0.186	0.010	TC50858	56.57
0.062	3	0.186	0.015	TC50860	56.57
0.075	3	0.225	0.005	TC50874	56.57
0.075	3	0.225	0.010	TC50876	56.57
0.075	3	0.225	0.015	TC50878	56.57
0.078	3	0.234	0.005	TC50880	56.57
0.078	3	0.234	0.010	TC50882	56.57
0.078	3	0.234	0.015	TC50884	56.57
0.090	3	0.270	0.005	TC50898	56.57
0.090	3	0.270	0.010	TC50900	56.57
0.090	3	0.270	0.015	TC50902	56.57
0.093	3	0.279	0.005	TC50904	56.57
0.093	3	0.279	0.010	TC50906	56.57
0.093	3	0.279	0.015	TC50908	56.57
0.100	3	0.300	0.005	TC50916	56.57
0.100	3	0.300	0.010	TC50918	56.57
0.100	3	0.300	0.015	TC50920	56.57

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	-0.001, -0.003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 580

UNCOATED

DIA	xDIA	LOC	ITEM #	LIST PRICE	DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	3	0.030	TC58010	44.97	0.062	3	0.186	TC58062	21.93
0.011	3	0.033	TC58011	40.26	0.063	3	0.189	TC58063	21.93
0.012	3	0.036	TC58012	40.26	0.064	3	0.192	TC58064	21.93
0.013	3	0.039	TC58013	33.30	0.065	3	0.195	TC58065	21.93
0.014	3	0.042	TC58014	33.30	0.066	3	0.198	TC58066	21.93
0.015	3	0.045	TC58015	28.15	0.067	3	0.201	TC58067	21.93
0.016	3	0.048	TC58016	28.15	0.068	3	0.204	TC58068	21.93
0.017	3	0.051	TC58017	28.15	0.069	3	0.207	TC58069	21.93
0.018	3	0.054	TC58018	28.15	0.070	3	0.210	TC58070	21.93
0.019	3	0.057	TC58019	28.15	0.071	3	0.213	TC58071	21.93
0.020	3	0.060	TC58020	25.58	0.072	3	0.216	TC58072	21.93
0.021	3	0.063	TC58021	25.58	0.073	3	0.219	TC58073	21.93
0.022	3	0.066	TC58022	25.58	0.074	3	0.222	TC58074	21.93
0.023	3	0.069	TC58023	25.58	0.075	3	0.225	TC58075	21.93
0.024	3	0.072	TC58024	25.58	0.076	3	0.228	TC58076	21.93
0.025	3	0.075	TC58025	25.58	0.077	3	0.231	TC58077	21.93
0.026	3	0.078	TC58026	24.01	0.078	3	0.234	TC58078	21.93
0.027	3	0.081	TC58027	24.01	0.079	3	0.237	TC58079	21.93
0.028	3	0.084	TC58028	24.01	0.080	3	0.240	TC58080	21.93
0.029	3	0.087	TC58029	24.01	0.081	3	0.243	TC58081	21.93
0.030	3	0.090	TC58030	24.01	0.082	3	0.246	TC58082	21.93
0.031	3	0.093	TC58031	22.50	0.083	3	0.249	TC58083	21.93
0.032	3	0.096	TC58032	22.50	0.084	3	0.252	TC58084	21.93
0.033	3	0.099	TC58033	22.50	0.085	3	0.255	TC58085	21.93
0.034	3	0.102	TC58034	22.50	0.086	3	0.258	TC58086	21.93
0.035	3	0.105	TC58035	22.50	0.087	3	0.261	TC58087	21.93
0.036	3	0.108	TC58036	22.50	0.088	3	0.264	TC58088	21.93
0.037	3	0.111	TC58037	22.50	0.089	3	0.267	TC58089	21.93
0.038	3	0.114	TC58038	22.50	0.090	3	0.270	TC58090	21.93
0.039	3	0.117	TC58039	22.50	0.091	3	0.273	TC58091	21.93
0.040	3	0.120	TC58040	22.50	0.092	3	0.276	TC58092	21.93
0.041	3	0.123	TC58041	22.50	0.093	3	0.279	TC58093	21.93
0.042	3	0.126	TC58042	22.50	0.094	3	0.282	TC58094	21.93
0.043	3	0.129	TC58043	22.50	0.095	3	0.285	TC58095	21.93
0.044	3	0.132	TC58044	21.93	0.096	3	0.288	TC58096	21.93
0.045	3	0.135	TC58045	21.93	0.097	3	0.291	TC58097	21.93
0.046	3	0.138	TC58046	21.93	0.098	3	0.294	TC58098	21.93
0.047	3	0.141	TC58047	21.93	0.099	3	0.297	TC58099	21.93
0.048	3	0.144	TC58048	21.93	0.100	3	0.300	TC58100	21.93
0.049	3	0.147	TC58049	21.93	0.101	3	0.303	TC58101	21.93
0.050	3	0.150	TC58050	21.93	0.102	3	0.306	TC58102	21.93
0.051	3	0.153	TC58051	21.93	0.103	3	0.309	TC58103	21.93
0.052	3	0.156	TC58052	21.93	0.104	3	0.312	TC58104	21.93
0.053	3	0.159	TC58053	21.93	0.105	3	0.315	TC58105	21.93
0.054	3	0.162	TC58054	21.93	0.106	3	0.318	TC58106	21.93
0.055	3	0.165	TC58055	21.93	0.107	3	0.321	TC58107	21.93
0.056	3	0.168	TC58056	21.93	0.108	3	0.324	TC58108	21.93
0.057	3	0.171	TC58057	21.93	0.109	3	0.327	TC58109	21.93
0.058	3	0.174	TC58058	21.93	0.110	3	0.330	TC58110	21.93
0.059	3	0.177	TC58059	21.93	0.115	3	0.345	TC58115	21.93
0.060	3	0.180	TC58060	21.93	0.120	3	0.360	TC58120	21.93
0.061	3	0.183	TC58061	21.93	-	-	-	-	-

All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 582
ALTiN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	3	0.030	TC58210	53.96
0.011	3	0.033	TC58211	48.31
0.012	3	0.036	TC58212	48.31
0.013	3	0.039	TC58213	39.95
0.014	3	0.042	TC58214	39.95
0.015	3	0.045	TC58215	33.77
0.016	3	0.048	TC58216	33.77
0.017	3	0.051	TC58217	33.77
0.018	3	0.054	TC58218	33.77
0.019	3	0.057	TC58219	33.77
0.020	3	0.060	TC58220	30.69
0.021	3	0.063	TC58221	30.69
0.022	3	0.066	TC58222	30.69
0.023	3	0.069	TC58223	30.69
0.024	3	0.072	TC58224	30.69
0.025	3	0.075	TC58225	30.69
0.026	3	0.078	TC58226	28.82
0.027	3	0.081	TC58227	28.82
0.028	3	0.084	TC58228	28.82
0.029	3	0.087	TC58229	28.82
0.030	3	0.090	TC58230	28.82
0.031	3	0.093	TC58231	26.98
0.032	3	0.096	TC58232	26.98
0.033	3	0.099	TC58233	26.98
0.034	3	0.102	TC58234	26.98
0.035	3	0.105	TC58235	26.98
0.036	3	0.108	TC58236	26.98
0.037	3	0.111	TC58237	26.98
0.038	3	0.114	TC58238	26.98
0.039	3	0.117	TC58239	26.98
0.040	3	0.120	TC58240	26.98
0.041	3	0.123	TC58241	26.98
0.042	3	0.126	TC58242	26.98
0.043	3	0.129	TC58243	26.98
0.044	3	0.132	TC58244	26.35
0.045	3	0.135	TC58245	26.35
0.046	3	0.138	TC58246	26.35
0.047	3	0.141	TC58247	26.35
0.048	3	0.144	TC58248	26.35
0.049	3	0.147	TC58249	26.35
0.050	3	0.150	TC58250	26.35
0.051	3	0.153	TC58251	26.35
0.052	3	0.156	TC58252	26.35
0.053	3	0.159	TC58253	26.35
0.054	3	0.162	TC58254	26.35
0.055	3	0.165	TC58255	26.35
0.056	3	0.168	TC58256	26.35
0.057	3	0.171	TC58257	26.35
0.058	3	0.174	TC58258	26.35
0.059	3	0.177	TC58259	26.35
0.060	3	0.180	TC58260	26.35
0.061	3	0.183	TC58261	26.35

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	3	0.186	TC58262	26.35
0.063	3	0.189	TC58263	26.35
0.064	3	0.192	TC58264	26.35
0.065	3	0.195	TC58265	26.35
0.066	3	0.198	TC58266	26.35
0.067	3	0.201	TC58267	26.35
0.068	3	0.204	TC58268	26.35
0.069	3	0.207	TC58269	26.35
0.070	3	0.210	TC58270	26.35
0.071	3	0.213	TC58271	26.35
0.072	3	0.216	TC58272	26.35
0.073	3	0.219	TC58273	26.35
0.074	3	0.222	TC58274	26.35
0.075	3	0.225	TC58275	26.35
0.076	3	0.228	TC58276	26.35
0.077	3	0.231	TC58277	26.35
0.078	3	0.234	TC58278	26.35
0.079	3	0.237	TC58279	26.35
0.080	3	0.240	TC58280	26.35
0.081	3	0.243	TC58281	26.35
0.082	3	0.246	TC58282	26.35
0.083	3	0.249	TC58283	26.35
0.084	3	0.252	TC58284	26.35
0.085	3	0.255	TC58285	26.35
0.086	3	0.258	TC58286	26.35
0.087	3	0.261	TC58287	26.35
0.088	3	0.264	TC58288	26.35
0.089	3	0.267	TC58289	26.35
0.090	3	0.270	TC58290	26.35
0.091	3	0.273	TC58291	26.35
0.092	3	0.276	TC58292	26.35
0.093	3	0.279	TC58293	26.35
0.094	3	0.282	TC58294	26.35
0.095	3	0.285	TC58295	26.35
0.096	3	0.288	TC58296	26.35
0.097	3	0.291	TC58297	26.35
0.098	3	0.294	TC58298	26.35
0.099	3	0.297	TC58299	26.35
0.100	3	0.300	TC58300	26.35
0.101	3	0.303	TC58301	26.35
0.102	3	0.306	TC58302	26.35
0.103	3	0.309	TC58303	26.35
0.104	3	0.312	TC58304	26.35
0.105	3	0.315	TC58305	26.35
0.106	3	0.318	TC58306	26.35
0.107	3	0.321	TC58307	26.35
0.108	3	0.324	TC58308	26.35
0.109	3	0.327	TC58309	26.35
0.110	3	0.330	TC58310	26.35
0.115	3	0.345	TC58315	26.35
0.120	3	0.360	TC58320	26.35
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All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 590

UNCOATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	3	0.030	TC59010	56.24
0.011	3	0.033	TC59011	50.32
0.012	3	0.036	TC59012	50.32
0.013	3	0.039	TC59013	41.69
0.014	3	0.042	TC59014	41.69
0.015	3	0.045	TC59015	35.17
0.016	3	0.048	TC59016	35.17
0.017	3	0.051	TC59017	35.17
0.018	3	0.054	TC59018	35.17
0.019	3	0.057	TC59019	35.17
0.020	3	0.060	TC59020	32.00
0.021	3	0.063	TC59021	32.00
0.022	3	0.066	TC59022	32.00
0.023	3	0.069	TC59023	32.00
0.024	3	0.072	TC59024	32.00
0.025	3	0.075	TC59025	32.00
0.026	3	0.078	TC59026	30.02
0.027	3	0.081	TC59027	30.02
0.028	3	0.084	TC59028	30.02
0.029	3	0.087	TC59029	30.02
0.030	3	0.090	TC59030	30.02
0.031	3	0.093	TC59031	28.15
0.032	3	0.096	TC59032	28.15
0.033	3	0.099	TC59033	28.15
0.034	3	0.102	TC59034	28.15
0.035	3	0.105	TC59035	28.15
0.036	3	0.108	TC59036	28.15
0.037	3	0.111	TC59037	28.15
0.038	3	0.114	TC59038	28.15
0.039	3	0.117	TC59039	28.15
0.040	3	0.120	TC59040	28.15
0.041	3	0.123	TC59041	28.15
0.042	3	0.126	TC59042	28.15
0.043	3	0.129	TC59043	28.15
0.044	3	0.132	TC59044	27.45
0.045	3	0.135	TC59045	27.45
0.046	3	0.138	TC59046	27.45
0.047	3	0.141	TC59047	27.45
0.048	3	0.144	TC59048	27.45
0.049	3	0.147	TC59049	27.45
0.050	3	0.150	TC59050	27.45
0.051	3	0.153	TC59051	27.45
0.052	3	0.156	TC59052	27.45
0.053	3	0.159	TC59053	27.45
0.054	3	0.162	TC59054	27.45
0.055	3	0.165	TC59055	27.45
0.056	3	0.168	TC59056	27.45
0.057	3	0.171	TC59057	27.45
0.058	3	0.174	TC59058	27.45
0.059	3	0.177	TC59059	27.45
0.060	3	0.180	TC59060	27.45
0.061	3	0.183	TC59061	27.45

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	3	0.186	TC59062	27.45
0.063	3	0.189	TC59063	27.45
0.064	3	0.192	TC59064	27.45
0.065	3	0.195	TC59065	27.45
0.066	3	0.198	TC59066	27.45
0.067	3	0.201	TC59067	27.45
0.068	3	0.204	TC59068	27.45
0.069	3	0.207	TC59069	27.45
0.070	3	0.210	TC59070	27.45
0.071	3	0.213	TC59071	27.45
0.072	3	0.216	TC59072	27.45
0.073	3	0.219	TC59073	27.45
0.074	3	0.222	TC59074	27.45
0.075	3	0.225	TC59075	27.45
0.076	3	0.228	TC59076	27.45
0.077	3	0.231	TC59077	27.45
0.078	3	0.234	TC59078	27.45
0.079	3	0.237	TC59079	27.45
0.080	3	0.240	TC59080	27.45
0.081	3	0.243	TC59081	27.45
0.082	3	0.246	TC59082	27.45
0.083	3	0.249	TC59083	27.45
0.084	3	0.252	TC59084	27.45
0.085	3	0.255	TC59085	27.45
0.086	3	0.258	TC59086	27.45
0.087	3	0.261	TC59087	27.45
0.088	3	0.264	TC59088	27.45
0.089	3	0.267	TC59089	27.45
0.090	3	0.270	TC59090	27.45
0.091	3	0.273	TC59091	27.45
0.092	3	0.276	TC59092	27.45
0.093	3	0.279	TC59093	27.45
0.094	3	0.282	TC59094	27.45
0.095	3	0.285	TC59095	27.45
0.096	3	0.288	TC59096	27.45
0.097	3	0.291	TC59097	27.45
0.098	3	0.294	TC59098	27.45
0.099	3	0.297	TC59099	27.45
0.100	3	0.300	TC59100	27.45
0.101	3	0.303	TC59101	27.45
0.102	3	0.306	TC59102	27.45
0.103	3	0.309	TC59103	27.45
0.104	3	0.312	TC59104	27.45
0.105	3	0.315	TC59105	27.45
0.106	3	0.318	TC59106	27.45
0.107	3	0.321	TC59107	27.45
0.108	3	0.324	TC59108	27.45
0.109	3	0.327	TC59109	27.45
0.110	3	0.330	TC59110	27.45
0.115	3	0.345	TC59115	27.45
0.120	3	0.360	TC59120	27.45
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All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.

For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

4 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 592
ALTiN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	3	0.030	TC59210	67.47
0.011	3	0.033	TC59211	60.42
0.012	3	0.036	TC59212	60.42
0.013	3	0.039	TC59213	50.02
0.014	3	0.042	TC59214	50.02
0.015	3	0.045	TC59215	42.19
0.016	3	0.048	TC59216	42.19
0.017	3	0.051	TC59217	42.19
0.018	3	0.054	TC59218	42.19
0.019	3	0.057	TC59219	42.19
0.020	3	0.060	TC59220	38.38
0.021	3	0.063	TC59221	38.38
0.022	3	0.066	TC59222	38.38
0.023	3	0.069	TC59223	38.38
0.024	3	0.072	TC59224	38.38
0.025	3	0.075	TC59225	38.38
0.026	3	0.078	TC59226	36.01
0.027	3	0.081	TC59227	36.01
0.028	3	0.084	TC59228	36.01
0.029	3	0.087	TC59229	36.01
0.030	3	0.090	TC59230	36.01
0.031	3	0.093	TC59231	33.77
0.032	3	0.096	TC59232	33.77
0.033	3	0.099	TC59233	33.77
0.034	3	0.102	TC59234	33.77
0.035	3	0.105	TC59235	33.77
0.036	3	0.108	TC59236	33.77
0.037	3	0.111	TC59237	33.77
0.038	3	0.114	TC59238	33.77
0.039	3	0.117	TC59239	33.77
0.040	3	0.120	TC59240	33.77
0.041	3	0.123	TC59241	33.77
0.042	3	0.126	TC59242	33.77
0.043	3	0.129	TC59243	33.77
0.044	3	0.132	TC59244	32.97
0.045	3	0.135	TC59245	32.97
0.046	3	0.138	TC59246	32.97
0.047	3	0.141	TC59247	32.97
0.048	3	0.144	TC59248	32.97
0.049	3	0.147	TC59249	32.97
0.050	3	0.150	TC59250	32.97
0.051	3	0.153	TC59251	32.97
0.052	3	0.156	TC59252	32.97
0.053	3	0.159	TC59253	32.97
0.054	3	0.162	TC59254	32.97
0.055	3	0.165	TC59255	32.97
0.056	3	0.168	TC59256	32.97
0.057	3	0.171	TC59257	32.97
0.058	3	0.174	TC59258	32.97
0.059	3	0.177	TC59259	32.97
0.060	3	0.180	TC59260	32.97
0.061	3	0.183	TC59261	32.97

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	3	0.186	TC59262	32.97
0.063	3	0.189	TC59263	32.97
0.064	3	0.192	TC59264	32.97
0.065	3	0.195	TC59265	32.97
0.066	3	0.198	TC59266	32.97
0.067	3	0.201	TC59267	32.97
0.068	3	0.204	TC59268	32.97
0.069	3	0.207	TC59269	32.97
0.070	3	0.210	TC59270	32.97
0.071	3	0.213	TC59271	32.97
0.072	3	0.216	TC59272	32.97
0.073	3	0.219	TC59273	32.97
0.074	3	0.222	TC59274	32.97
0.075	3	0.225	TC59275	32.97
0.076	3	0.228	TC59276	32.97
0.077	3	0.231	TC59277	32.97
0.078	3	0.234	TC59278	32.97
0.079	3	0.237	TC59279	32.97
0.080	3	0.240	TC59280	32.97
0.081	3	0.243	TC59281	32.97
0.082	3	0.246	TC59282	32.97
0.083	3	0.249	TC59283	32.97
0.084	3	0.252	TC59284	32.97
0.085	3	0.255	TC59285	32.97
0.086	3	0.258	TC59286	32.97
0.087	3	0.261	TC59287	32.97
0.088	3	0.264	TC59288	32.97
0.089	3	0.267	TC59289	32.97
0.090	3	0.270	TC59290	32.97
0.091	3	0.273	TC59291	32.97
0.092	3	0.276	TC59292	32.97
0.093	3	0.279	TC59293	32.97
0.094	3	0.282	TC59294	32.97
0.095	3	0.285	TC59295	32.97
0.096	3	0.288	TC59296	32.97
0.097	3	0.291	TC59297	32.97
0.098	3	0.294	TC59298	32.97
0.099	3	0.297	TC59299	32.97
0.100	3	0.300	TC59300	32.97
0.101	3	0.303	TC59301	32.97
0.102	3	0.306	TC59302	32.97
0.103	3	0.309	TC59303	32.97
0.104	3	0.312	TC59304	32.97
0.105	3	0.315	TC59305	32.97
0.106	3	0.318	TC59306	32.97
0.107	3	0.321	TC59307	32.97
0.108	3	0.324	TC59308	32.97
0.109	3	0.327	TC59309	32.97
0.110	3	0.330	TC59310	32.97
0.115	3	0.345	TC59315	32.97
0.120	3	0.360	TC59320	32.97
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All regular length micro End Mills are 1/8" shank, 1-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	-0.001, -0.003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - STUB FLUTE - SQUARE END - 30° HELIX



SERIES 583

UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

SIZE	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.010	1.5	0.015	3	0.030	TC54310	72.74
0.010	1.5	0.015	5	0.050	TC54313	72.74
0.010	1.5	0.015	8	0.080	TC54316	72.74
0.010	1.5	0.015	12	0.125	TC54319	76.75
0.015	1.5	0.022	3	0.045	TC54322	60.33
0.015	1.5	0.022	5	0.078	TC54325	60.33
0.015	1.5	0.022	8	0.125	TC54328	60.33
0.015	1.5	0.022	12	0.187	TC54331	62.43
0.020	1.5	0.030	3	0.060	TC54334	57.85
0.020	1.5	0.030	5	0.100	TC54337	57.85
0.020	1.5	0.030	8	0.160	TC54340	57.85
0.020	1.5	0.030	12	0.250	TC54343	60.14
0.025	1.5	0.037	3	0.075	TC54346	55.55
0.025	1.5	0.037	5	0.125	TC54349	55.55
0.025	1.5	0.037	8	0.203	TC54352	55.55
0.025	1.5	0.037	12	0.312	TC54355	57.46
0.030	1.5	0.045	3	0.090	TC54358	55.55
0.030	1.5	0.045	5	0.156	TC54361	55.55
0.030	1.5	0.045	8	0.250	TC54364	55.55
0.030	1.5	0.045	12	0.375	TC54367	57.46
0.031	1.5	0.046	3	0.093	TC54370	55.55
0.031	1.5	0.046	5	0.156	TC54373	55.55
0.031	1.5	0.046	8	0.250	TC54376	55.55
0.031	1.5	0.046	12	0.375	TC54379	57.46
0.035	1.5	0.052	3	0.105	TC54382	55.55
0.035	1.5	0.052	5	0.187	TC54385	55.55
0.035	1.5	0.052	8	0.281	TC54388	55.55
0.035	1.5	0.052	12	0.425	TC54391	57.46
0.040	1.5	0.060	3	0.120	TC54394	55.55
0.040	1.5	0.060	5	0.203	TC54397	55.55
0.040	1.5	0.060	8	0.325	TC54400	55.55
0.040	1.5	0.060	12	0.480	TC54403	57.46
0.045	1.5	0.067	3	0.135	TC54406	54.41
0.045	1.5	0.067	5	0.225	TC54409	54.41
0.045	1.5	0.067	8	0.375	TC54412	54.41
0.045	1.5	0.067	12	0.550	TC54415	56.13
0.047	1.5	0.070	3	0.141	TC54418	54.41
0.047	1.5	0.070	5	0.250	TC54421	54.41
0.047	1.5	0.070	8	0.375	TC54424	54.41
0.047	1.5	0.070	12	0.570	TC54427	56.13
0.050	1.5	0.075	3	0.150	TC54430	54.41
0.050	1.5	0.075	5	0.250	TC54433	54.41
0.050	1.5	0.075	8	0.400	TC54436	54.41
0.050	1.5	0.075	12	0.600	TC54439	56.13
0.055	1.5	0.082	3	0.165	TC54442	54.41
0.055	1.5	0.082	5	0.275	TC54445	54.41
0.055	1.5	0.082	8	0.450	TC54448	54.41
0.055	1.5	0.082	12	0.660	TC54451	56.13

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.060	1.5	0.090	3	0.180	TC54454	54.41
0.060	1.5	0.090	5	0.312	TC54457	54.41
0.060	1.5	0.090	8	0.500	TC54460	54.41
0.060	1.5	0.090	12	0.720	TC54463	56.13
0.062	1.5	0.093	3	0.186	TC54466	54.41
0.062	1.5	0.093	5	0.312	TC54469	54.41
0.062	1.5	0.093	8	0.500	TC54472	54.41
0.062	1.5	0.093	12	0.750	TC54475	56.13
0.065	1.5	0.097	3	0.195	TC54478	54.41
0.065	1.5	0.097	5	0.325	TC54481	54.41
0.065	1.5	0.097	8	0.530	TC54484	54.41
0.065	1.5	0.097	12	0.800	TC54487	56.13
0.070	1.5	0.105	3	0.210	TC54490	54.41
0.070	1.5	0.105	5	0.375	TC54493	54.41
0.070	1.5	0.105	8	0.570	TC54496	54.41
0.070	1.5	0.105	12	0.850	TC54499	56.13
0.075	1.5	0.112	3	0.225	TC54502	54.41
0.075	1.5	0.112	5	0.375	TC54505	54.41
0.075	1.5	0.112	8	0.625	TC54508	54.41
0.075	1.5	0.112	12	0.900	TC54511	56.13
0.078	1.5	0.117	3	0.234	TC54514	54.41
0.078	1.5	0.117	5	0.406	TC54517	54.41
0.078	1.5	0.117	8	0.625	TC54520	54.41
0.078	1.5	0.117	12	0.940	TC54523	56.13
0.080	1.5	0.120	3	0.240	TC54526	54.41
0.080	1.5	0.120	5	0.406	TC54529	54.41
0.080	1.5	0.120	8	0.650	TC54532	54.41
0.080	1.5	0.120	12	0.960	TC54535	56.13
0.085	1.5	0.127	3	0.255	TC54538	54.41
0.085	1.5	0.127	5	0.425	TC54541	54.41
0.085	1.5	0.127	8	0.700	TC54544	54.41
0.085	1.5	0.127	12	1.020	TC54547	56.13
0.090	1.5	0.135	3	0.270	TC54550	54.41
0.090	1.5	0.135	5	0.450	TC54553	54.41
0.090	1.5	0.135	8	0.750	TC54556	54.41
0.090	1.5	0.135	12	1.080	TC54559	56.13
0.093	1.5	0.139	3	0.279	TC54562	54.41
0.093	1.5	0.139	5	0.500	TC54565	54.41
0.093	1.5	0.139	8	0.750	TC54568	54.41
0.093	1.5	0.139	12	1.125	TC54571	56.13
0.095	1.5	0.142	3	0.285	TC54574	54.41
0.095	1.5	0.142	5	0.500	TC54577	54.41
0.095	1.5	0.142	8	0.750	TC54580	54.41
0.095	1.5	0.142	12	1.150	TC54583	56.13
0.100	1.5	0.150	3	0.300	TC54586	54.41
0.100	1.5	0.150	5	0.500	TC54589	54.41
0.100	1.5	0.150	8	0.800	TC54592	54.41
0.100	1.5	0.150	12	1.200	TC54595	56.13

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - STUB FLUTE - SQUARE END - 30° HELIX



SERIES 585
ALTiN COATED

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.010	1.5	0.015	3	0.030	TC59501	87.28
0.010	1.5	0.015	5	0.050	TC59504	87.28
0.010	1.5	0.015	8	0.080	TC59507	87.28
0.010	1.5	0.015	12	0.125	TC59510	92.09
0.015	1.5	0.023	3	0.045	TC59513	72.39
0.015	1.5	0.023	5	0.078	TC59516	72.39
0.015	1.5	0.023	8	0.125	TC59519	72.39
0.015	1.5	0.023	12	0.187	TC59522	74.91
0.020	1.5	0.030	3	0.060	TC59525	69.41
0.020	1.5	0.030	5	0.100	TC59528	69.41
0.020	1.5	0.030	8	0.160	TC59531	69.41
0.020	1.5	0.030	12	0.250	TC59534	72.16
0.025	1.5	0.038	3	0.075	TC59537	66.67
0.025	1.5	0.038	5	0.125	TC59540	66.67
0.025	1.5	0.038	8	0.203	TC59543	66.67
0.025	1.5	0.038	12	0.312	TC59546	68.96
0.030	1.5	0.045	3	0.090	TC59549	66.67
0.030	1.5	0.045	5	0.156	TC59552	66.67
0.030	1.5	0.045	8	0.250	TC59555	66.67
0.030	1.5	0.045	12	0.375	TC59558	68.96
0.031	1.5	0.047	3	0.093	TC59561	66.67
0.031	1.5	0.047	5	0.156	TC59564	66.67
0.031	1.5	0.047	8	0.250	TC59567	66.67
0.031	1.5	0.047	12	0.375	TC59570	68.96
0.035	1.5	0.053	3	0.105	TC59573	66.67
0.035	1.5	0.053	5	0.187	TC59576	66.67
0.035	1.5	0.053	8	0.281	TC59570	66.67
0.035	1.5	0.053	12	0.425	TC59582	68.96
0.040	1.5	0.060	3	0.120	TC59585	66.67
0.040	1.5	0.060	5	0.203	TC59588	66.67
0.040	1.5	0.060	8	0.325	TC59591	66.67
0.040	1.5	0.060	12	0.480	TC59594	68.96
0.045	1.5	0.068	3	0.135	TC59597	65.29
0.045	1.5	0.068	5	0.225	TC59600	65.29
0.045	1.5	0.068	8	0.375	TC59603	65.29
0.045	1.5	0.068	12	0.550	TC59606	67.35
0.047	1.5	0.071	3	0.141	TC59609	65.29
0.047	1.5	0.071	5	0.250	TC59612	65.29
0.047	1.5	0.071	8	0.375	TC59615	65.29
0.047	1.5	0.071	12	0.570	TC59618	67.35
0.050	1.5	0.075	3	0.150	TC59621	65.29
0.050	1.5	0.075	5	0.250	TC59624	65.29
0.050	1.5	0.075	8	0.400	TC59627	65.29
0.050	1.5	0.075	12	0.600	TC59630	67.35
0.055	1.5	0.083	3	0.165	TC59633	65.29
0.055	1.5	0.083	5	0.275	TC59636	65.29
0.055	1.5	0.083	8	0.450	TC59639	65.29
0.055	1.5	0.083	12	0.660	TC59642	67.35

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.060	1.5	0.090	3	0.180	TC59645	65.29
0.060	1.5	0.090	5	0.312	TC59648	65.29
0.060	1.5	0.090	8	0.500	TC59651	65.29
0.060	1.5	0.090	12	0.720	TC59654	67.35
0.062	1.5	0.093	3	0.186	TC59657	65.29
0.062	1.5	0.093	5	0.312	TC59660	65.29
0.062	1.5	0.093	8	0.500	TC59663	65.29
0.062	1.5	0.093	12	0.750	TC59666	67.35
0.065	1.5	0.098	3	0.195	TC59669	65.29
0.065	1.5	0.098	5	0.325	TC59672	65.29
0.065	1.5	0.098	8	0.530	TC59675	65.29
0.065	1.5	0.098	12	0.800	TC59678	67.35
0.070	1.5	0.105	3	0.210	TC59681	65.29
0.070	1.5	0.105	5	0.375	TC59684	65.29
0.070	1.5	0.105	8	0.570	TC59687	65.29
0.070	1.5	0.105	12	0.850	TC59690	67.35
0.075	1.5	0.113	3	0.225	TC59693	65.29
0.075	1.5	0.113	5	0.375	TC59696	65.29
0.075	1.5	0.113	8	0.625	TC59699	65.29
0.075	1.5	0.113	12	0.900	TC59702	67.35
0.078	1.5	0.117	3	0.234	TC59705	65.29
0.078	1.5	0.117	5	0.406	TC59708	65.29
0.078	1.5	0.117	8	0.625	TC59711	65.29
0.078	1.5	0.117	12	0.940	TC59714	67.35
0.080	1.5	0.120	3	0.240	TC59717	65.29
0.080	1.5	0.120	5	0.406	TC59720	65.29
0.080	1.5	0.120	8	0.650	TC59723	65.29
0.080	1.5	0.120	12	0.960	TC59726	67.35
0.085	1.5	0.128	3	0.255	TC59729	65.29
0.085	1.5	0.128	5	0.425	TC59732	65.29
0.085	1.5	0.128	8	0.700	TC59735	65.29
0.085	1.5	0.128	12	1.020	TC59738	67.35
0.090	1.5	0.135	3	0.270	TC59741	65.29
0.090	1.5	0.135	5	0.450	TC59744	65.29
0.090	1.5	0.135	8	0.750	TC59747	65.29
0.090	1.5	0.135	12	1.080	TC59750	67.35
0.093	1.5	0.140	3	0.279	TC59753	65.29
0.093	1.5	0.140	5	0.500	TC59756	65.29
0.093	1.5	0.140	8	0.750	TC59759	65.29
0.093	1.5	0.140	12	1.125	TC59762	67.35
0.095	1.5	0.143	3	0.285	TC59765	65.29
0.095	1.5	0.143	5	0.500	TC59768	65.29
0.095	1.5	0.143	8	0.750	TC59771	65.29
0.095	1.5	0.143	12	1.150	TC59774	67.35
0.100	1.5	0.150	3	0.300	TC59777	65.29
0.100	1.5	0.150	5	0.500	TC59780	65.29
0.100	1.5	0.150	8	0.800	TC59783	65.29
0.100	1.5	0.150	12	1.200	TC59786	67.35

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - STUB FLUTE - BALL NOSE - 30° HELIX



SERIES 587

UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.010	1.5	0.015	3	0.030	TC55400	91.25
0.010	1.5	0.015	5	0.050	TC55403	91.25
0.010	1.5	0.015	8	0.080	TC55406	95.26
0.010	1.5	0.015	12	0.125	TC55409	107.10
0.015	1.5	0.022	3	0.045	TC55412	78.08
0.015	1.5	0.022	5	0.078	TC55415	78.08
0.015	1.5	0.022	8	0.125	TC55418	78.08
0.015	1.5	0.022	12	0.187	TC55421	79.99
0.020	1.5	0.030	3	0.060	TC55424	75.60
0.020	1.5	0.030	5	0.100	TC55427	75.60
0.020	1.5	0.030	8	0.160	TC55430	75.60
0.020	1.5	0.030	12	0.250	TC55433	77.70
0.025	1.5	0.037	3	0.075	TC55436	65.29
0.025	1.5	0.037	5	0.125	TC55439	65.29
0.025	1.5	0.037	8	0.203	TC55442	65.29
0.025	1.5	0.037	12	0.312	TC55445	67.20
0.030	1.5	0.045	3	0.090	TC55448	65.29
0.030	1.5	0.045	5	0.156	TC55451	65.29
0.030	1.5	0.045	8	0.250	TC55454	65.29
0.030	1.5	0.045	12	0.375	TC55457	67.20
0.031	1.5	0.046	3	0.093	TC55460	65.29
0.031	1.5	0.046	5	0.156	TC55463	65.29
0.031	1.5	0.046	8	0.250	TC55466	65.29
0.031	1.5	0.046	12	0.375	TC55469	67.20
0.035	1.5	0.052	3	0.105	TC55472	65.29
0.035	1.5	0.052	5	0.187	TC55475	65.29
0.035	1.5	0.052	8	0.281	TC55478	65.29
0.035	1.5	0.052	12	0.425	TC55481	67.20
0.040	1.5	0.060	3	0.120	TC55484	65.29
0.040	1.5	0.060	5	0.203	TC55487	65.29
0.040	1.5	0.060	8	0.325	TC55490	65.29
0.040	1.5	0.060	12	0.480	TC55493	67.20
0.045	1.5	0.067	3	0.135	TC55496	63.76
0.045	1.5	0.067	5	0.225	TC55499	63.76
0.045	1.5	0.067	8	0.375	TC55502	63.76
0.045	1.5	0.067	12	0.550	TC55505	65.48
0.047	1.5	0.070	3	0.141	TC55508	63.76
0.047	1.5	0.070	5	0.250	TC55511	63.76
0.047	1.5	0.070	8	0.375	TC55514	63.76
0.047	1.5	0.070	12	0.570	TC55517	65.48
0.050	1.5	0.075	3	0.150	TC55520	63.76
0.050	1.5	0.075	5	0.250	TC55523	63.76
0.050	1.5	0.075	8	0.400	TC55526	63.76
0.050	1.5	0.075	12	0.600	TC55529	65.48
0.055	1.5	0.082	3	0.165	TC55532	63.76
0.055	1.5	0.082	5	0.275	TC55535	63.76
0.055	1.5	0.082	8	0.450	TC55538	63.76
0.055	1.5	0.082	12	0.660	TC55541	65.48

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.060	1.5	0.090	3	0.180	TC55544	63.76
0.060	1.5	0.090	5	0.312	TC55547	63.76
0.060	1.5	0.090	8	0.500	TC55550	63.76
0.060	1.5	0.090	12	0.720	TC55553	65.48
0.062	1.5	0.093	3	0.186	TC55556	63.76
0.062	1.5	0.093	5	0.312	TC55559	63.76
0.062	1.5	0.093	8	0.500	TC55562	63.76
0.062	1.5	0.093	12	0.750	TC55565	65.48
0.065	1.5	0.097	3	0.195	TC55568	63.76
0.065	1.5	0.097	5	0.325	TC55571	63.76
0.065	1.5	0.097	8	0.530	TC55574	63.76
0.065	1.5	0.097	12	0.780	TC55577	65.48
0.070	1.5	0.105	3	0.210	TC55580	63.76
0.070	1.5	0.105	5	0.375	TC55583	63.76
0.070	1.5	0.105	8	0.570	TC55586	63.76
0.070	1.5	0.105	12	0.840	TC55589	65.48
0.075	1.5	0.112	3	0.225	TC55592	63.76
0.075	1.5	0.112	5	0.375	TC55595	63.76
0.075	1.5	0.112	8	0.625	TC55598	63.76
0.075	1.5	0.112	12	0.900	TC5601	65.48
0.078	1.5	0.117	3	0.234	TC5604	63.76
0.078	1.5	0.117	5	0.406	TC5607	63.76
0.078	1.5	0.117	8	0.625	TC5610	63.76
0.078	1.5	0.117	12	0.940	TC5613	65.48
0.080	1.5	0.120	3	0.240	TC5616	63.76
0.080	1.5	0.120	5	0.406	TC5619	63.76
0.080	1.5	0.120	8	0.650	TC5622	63.76
0.080	1.5	0.120	12	0.960	TC5625	65.48
0.085	1.5	0.127	3	0.255	TC5628	63.76
0.085	1.5	0.127	5	0.425	TC5631	63.76
0.085	1.5	0.127	8	0.700	TC5634	63.76
0.085	1.5	0.127	12	1.020	TC5637	65.48
0.090	1.5	0.135	3	0.270	TC5640	63.76
0.090	1.5	0.135	5	0.450	TC5643	63.76
0.090	1.5	0.135	8	0.750	TC5646	63.76
0.090	1.5	0.135	12	1.080	TC5649	65.48
0.093	1.5	0.139	3	0.279	TC5652	63.76
0.093	1.5	0.139	5	0.500	TC5655	63.76
0.093	1.5	0.139	8	0.750	TC5658	63.76
0.093	1.5	0.139	12	1.125	TC5661	65.48
0.095	1.5	0.142	3	0.285	TC5664	63.76
0.095	1.5	0.142	5	0.500	TC5667	63.76
0.095	1.5	0.142	8	0.750	TC5670	63.76
0.095	1.5	0.142	12	1.150	TC5673	65.48
0.100	1.5	0.150	3	0.300	TC5676	63.76
0.100	1.5	0.150	5	0.500	TC5679	63.76
0.100	1.5	0.150	8	0.800	TC5682	63.76
0.100	1.5	0.150	12	1.200	TC5685	65.48

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - STUB FLUTE - BALL NOSE - 30° HELIX



SERIES 589 ALTiN COATED

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.010	1.5	0.015	3	0.030	TC55701	109.51
0.010	1.5	0.015	5	0.050	TC55704	109.51
0.010	1.5	0.015	8	0.080	TC55707	114.32
0.010	1.5	0.015	12	0.125	TC55710	128.52
0.015	1.5	0.022	3	0.045	TC55713	93.70
0.015	1.5	0.022	5	0.078	TC55716	93.70
0.015	1.5	0.022	8	0.125	TC55719	93.70
0.015	1.5	0.022	12	0.187	TC55722	95.99
0.020	1.5	0.030	3	0.060	TC55725	90.72
0.020	1.5	0.030	5	0.100	TC55728	90.72
0.020	1.5	0.030	8	0.160	TC55731	90.72
0.020	1.5	0.030	12	0.250	TC55734	93.24
0.025	1.5	0.037	3	0.075	TC55737	78.35
0.025	1.5	0.037	5	0.125	TC55740	78.35
0.025	1.5	0.037	8	0.203	TC55743	78.35
0.025	1.5	0.037	12	0.312	TC55746	80.64
0.030	1.5	0.045	3	0.090	TC55749	78.35
0.030	1.5	0.045	5	0.156	TC55752	78.35
0.030	1.5	0.045	8	0.250	TC55755	78.35
0.030	1.5	0.045	12	0.375	TC55758	80.64
0.031	1.5	0.046	3	0.093	TC55761	78.35
0.031	1.5	0.046	5	0.156	TC55764	78.35
0.031	1.5	0.046	8	0.250	TC55767	78.35
0.031	1.5	0.046	12	0.375	TC55770	80.64
0.035	1.5	0.052	3	0.105	TC55773	78.35
0.035	1.5	0.052	5	0.187	TC55776	78.35
0.035	1.5	0.052	8	0.281	TC55779	78.35
0.035	1.5	0.052	12	0.425	TC55782	80.64
0.040	1.5	0.060	3	0.120	TC55785	78.35
0.040	1.5	0.060	5	0.203	TC55788	78.35
0.040	1.5	0.060	8	0.325	TC55791	78.35
0.040	1.5	0.060	12	0.480	TC55794	80.64
0.045	1.5	0.067	3	0.135	TC55797	76.52
0.045	1.5	0.067	5	0.225	TC55800	76.52
0.045	1.5	0.067	8	0.375	TC55803	76.52
0.045	1.5	0.067	12	0.550	TC55806	78.58
0.047	1.5	0.070	3	0.141	TC55809	76.52
0.047	1.5	0.070	5	0.250	TC55812	76.52
0.047	1.5	0.070	8	0.375	TC55815	76.52
0.047	1.5	0.070	12	0.570	TC55818	78.58
0.050	1.5	0.075	3	0.150	TC55821	76.52
0.050	1.5	0.075	5	0.250	TC55824	76.52
0.050	1.5	0.075	8	0.400	TC55827	76.52
0.050	1.5	0.075	12	0.600	TC55830	78.58
0.055	1.5	0.082	3	0.165	TC55833	76.52
0.055	1.5	0.082	5	0.275	TC55836	76.52
0.055	1.5	0.082	8	0.450	TC55839	76.52
0.055	1.5	0.082	12	0.660	TC55842	78.58

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.060	1.5	0.090	3	0.180	TC55845	76.52
0.060	1.5	0.090	5	0.312	TC55848	76.52
0.060	1.5	0.090	8	0.500	TC55851	76.52
0.060	1.5	0.090	12	0.720	TC55854	78.58
0.062	1.5	0.093	3	0.186	TC55857	76.52
0.062	1.5	0.093	5	0.312	TC55860	76.52
0.062	1.5	0.093	8	0.500	TC55863	76.52
0.062	1.5	0.093	12	0.750	TC55866	78.58
0.065	1.5	0.097	3	0.195	TC55869	76.52
0.065	1.5	0.097	5	0.325	TC55872	76.52
0.065	1.5	0.097	8	0.530	TC55875	76.52
0.065	1.5	0.097	12	0.780	TC55878	78.58
0.070	1.5	0.105	3	0.210	TC55881	76.52
0.070	1.5	0.105	5	0.375	TC55884	76.52
0.070	1.5	0.105	8	0.570	TC55887	76.52
0.070	1.5	0.105	12	0.840	TC55890	78.58
0.075	1.5	0.112	3	0.225	TC55893	76.52
0.075	1.5	0.112	5	0.375	TC55896	76.52
0.075	1.5	0.112	8	0.625	TC55899	76.52
0.075	1.5	0.112	12	0.900	TC55902	78.58
0.078	1.5	0.117	3	0.234	TC55905	76.52
0.078	1.5	0.117	5	0.406	TC55908	76.52
0.078	1.5	0.117	8	0.625	TC55911	76.52
0.078	1.5	0.117	12	0.940	TC55914	78.58
0.080	1.5	0.120	3	0.240	TC55917	76.52
0.080	1.5	0.120	5	0.406	TC55920	76.52
0.080	1.5	0.120	8	0.650	TC55923	76.52
0.080	1.5	0.120	12	0.960	TC55926	78.58
0.085	1.5	0.127	3	0.255	TC55929	76.52
0.085	1.5	0.127	5	0.425	TC55932	76.52
0.085	1.5	0.127	8	0.700	TC55935	76.52
0.085	1.5	0.127	12	1.020	TC55938	78.58
0.090	1.5	0.135	3	0.270	TC55941	76.52
0.090	1.5	0.135	5	0.450	TC55944	76.52
0.090	1.5	0.135	8	0.750	TC55947	76.52
0.090	1.5	0.135	12	1.080	TC55950	78.58
0.093	1.5	0.139	3	0.279	TC55953	76.52
0.093	1.5	0.139	5	0.500	TC55956	76.52
0.093	1.5	0.139	8	0.750	TC55959	76.52
0.093	1.5	0.139	12	1.125	TC55962	78.58
0.095	1.5	0.142	3	0.285	TC55965	76.52
0.095	1.5	0.142	5	0.500	TC55968	76.52
0.095	1.5	0.142	8	0.750	TC55971	76.52
0.095	1.5	0.142	12	1.150	TC55974	78.58
0.100	1.5	0.150	3	0.300	TC55977	76.52
0.100	1.5	0.150	5	0.500	TC55980	76.52
0.100	1.5	0.150	8	0.800	TC55983	76.52
0.100	1.5	0.150	12	1.200	TC55986	78.58

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 574
UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	3	0.030	5	0.050	TC57400	72.74
0.010	3	0.030	8	0.080	TC57403	72.74
0.010	3	0.030	12	0.125	TC57406	76.75
0.015	3	0.045	5	0.078	TC57409	60.33
0.015	3	0.045	8	0.128	TC57412	60.33
0.015	3	0.045	12	0.187	TC57415	62.43
0.020	3	0.060	5	0.100	TC57418	57.85
0.020	3	0.060	8	0.170	TC57421	57.85
0.020	3	0.060	12	0.250	TC57424	60.14
0.025	3	0.075	5	0.125	TC57427	55.55
0.025	3	0.075	8	0.213	TC57430	55.55
0.025	3	0.075	12	0.312	TC57433	57.65
0.030	3	0.090	5	0.156	TC57436	55.55
0.030	3	0.090	9	0.270	TC57439	55.55
0.030	3	0.090	12	0.375	TC57442	57.46
0.031	3	0.093	5	0.156	TC57445	55.55
0.031	3	0.093	9	0.279	TC57448	55.55
0.031	3	0.093	12	0.375	TC57451	57.46
0.035	3	0.105	5	0.175	TC57454	55.55
0.035	3	0.105	9	0.315	TC57457	55.55
0.035	3	0.105	12	0.420	TC57460	57.46
0.040	3	0.120	5	0.203	TC57463	55.55
0.040	3	0.120	9	0.360	TC57466	55.55
0.040	3	0.120	12	0.480	TC57469	57.46
0.045	3	0.135	5	0.225	TC57472	54.41
0.045	3	0.135	9	0.405	TC57475	54.41
0.045	3	0.135	12	0.540	TC57478	57.46
0.047	3	0.141	5	0.250	TC57481	54.41
0.047	3	0.141	9	0.423	TC57484	54.41
0.047	3	0.141	12	0.570	TC57487	56.13
0.050	3	0.150	5	0.250	TC57490	54.41
0.050	3	0.150	8	0.400	TC57493	54.41
0.050	3	0.150	12	0.600	TC57496	56.13
0.055	3	0.165	5	0.275	TC57499	54.41
0.055	3	0.165	8	0.440	TC57502	54.41
0.055	3	0.165	12	0.660	TC57505	56.13

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	3	0.180	5	0.312	TC57508	54.41
0.060	3	0.180	8	0.500	TC57511	54.41
0.060	3	0.180	12	0.720	TC57514	56.13
0.062	3	0.186	5	0.312	TC57517	54.41
0.062	3	0.186	8	0.500	TC57520	54.41
0.062	3	0.186	12	0.750	TC57523	56.13
0.065	3	0.195	5	0.325	TC57526	54.41
0.065	3	0.195	8	0.500	TC57529	54.41
0.065	3	0.195	12	0.780	TC57532	56.13
0.070	3	0.210	5	0.350	TC57535	54.41
0.070	3	0.210	8	0.560	TC57538	54.41
0.070	3	0.210	12	0.850	TC57541	56.13
0.075	3	0.225	5	0.375	TC57544	54.41
0.075	3	0.225	8	0.600	TC57547	54.41
0.075	3	0.225	12	0.900	TC57550	56.13
0.078	3	0.234	5	0.390	TC57553	54.41
0.078	3	0.234	8	0.624	TC57556	54.41
0.078	3	0.234	12	0.940	TC57559	56.13
0.080	3	0.240	5	0.400	TC57562	54.41
0.080	3	0.240	8	0.640	TC57565	54.41
0.080	3	0.240	12	0.960	TC57568	56.13
0.085	3	0.255	5	0.425	TC57571	54.41
0.085	3	0.255	8	0.680	TC57574	54.41
0.085	3	0.255	12	1.020	TC57577	56.13
0.090	3	0.270	5	0.450	TC57580	54.41
0.090	3	0.270	8	0.720	TC57583	54.41
0.090	3	0.270	12	1.080	TC57586	56.13
0.093	3	0.279	5	0.500	TC57589	54.41
0.093	3	0.279	8	0.744	TC57592	54.41
0.093	3	0.279	12	1.125	TC57595	56.13
0.095	3	0.285	5	0.475	TC57598	54.41
0.095	3	0.285	8	0.760	TC57601	54.41
0.095	3	0.285	12	1.140	TC57604	56.13
0.100	3	0.300	5	0.500	TC57607	54.41
0.100	3	0.300	8	0.800	TC57610	54.41
0.100	3	0.300	12	1.200	TC57613	56.13

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - REGULAR FLUTE - SQUARE END - 30° HELIX



SERIES 576
ALTIN COATED

DIA	XDIA	LOC	XDIA	REACH	ITEM #	LIST PRICE
0.010	3	0.030	5	0.050	TC57701	87.28
0.010	3	0.030	8	0.080	TC57704	87.28
0.010	3	0.030	12	0.125	TC57707	92.09
0.015	3	0.045	5	0.078	TC57710	72.39
0.015	3	0.045	8	0.128	TC57713	72.39
0.015	3	0.045	12	0.187	TC57716	74.91
0.020	3	0.060	5	0.100	TC57719	69.41
0.020	3	0.060	8	0.170	TC57722	69.41
0.020	3	0.060	12	0.250	TC57725	72.16
0.025	3	0.075	5	0.125	TC57728	66.67
0.025	3	0.075	8	0.213	TC57731	66.67
0.025	3	0.075	12	0.312	TC57734	69.19
0.030	3	0.090	5	0.156	TC57737	66.67
0.030	3	0.090	9	0.270	TC57740	66.67
0.030	3	0.090	12	0.375	TC57743	68.96
0.031	3	0.093	5	0.156	TC57746	66.67
0.031	3	0.093	9	0.279	TC57749	66.67
0.031	3	0.093	12	0.375	TC57752	68.96
0.035	3	0.105	5	0.175	TC57755	66.67
0.035	3	0.105	9	0.315	TC57758	66.67
0.035	3	0.105	12	0.420	TC57761	68.96
0.040	3	0.120	5	0.203	TC57764	66.67
0.040	3	0.120	9	0.360	TC57767	66.67
0.040	3	0.120	12	0.480	TC57770	68.96
0.045	3	0.135	5	0.225	TC57773	65.29
0.045	3	0.135	9	0.405	TC57776	65.29
0.045	3	0.135	12	0.540	TC57779	68.96
0.047	3	0.141	5	0.250	TC57782	65.29
0.047	3	0.141	9	0.423	TC57785	65.29
0.047	3	0.141	12	0.570	TC57788	67.35
0.050	3	0.150	5	0.250	TC57791	65.29
0.050	3	0.150	8	0.400	TC57794	65.29
0.050	3	0.150	12	0.600	TC57797	67.35
0.055	3	0.165	5	0.275	TC57800	65.29
0.055	3	0.165	8	0.440	TC57803	65.29
0.055	3	0.165	12	0.660	TC57806	67.35

DIA	XDIA	LOC	XDIA	REACH	ITEM #	LIST PRICE
0.060	3	0.180	5	0.312	TC57809	65.29
0.060	3	0.180	8	0.500	TC57812	65.29
0.060	3	0.180	12	0.720	TC57815	67.35
0.062	3	0.186	5	0.312	TC57818	65.29
0.062	3	0.186	8	0.500	TC57821	65.29
0.062	3	0.186	12	0.750	TC57824	67.35
0.065	3	0.195	5	0.325	TC57827	65.29
0.065	3	0.195	8	0.500	TC57830	65.29
0.065	3	0.195	12	0.780	TC57833	67.35
0.070	3	0.210	5	0.350	TC57836	65.29
0.070	3	0.210	8	0.560	TC57839	65.29
0.070	3	0.210	12	0.850	TC57857	67.35
0.075	3	0.225	5	0.375	TC57845	65.29
0.075	3	0.225	8	0.600	TC57848	65.29
0.075	3	0.225	12	0.900	TC57851	67.35
0.078	3	0.234	5	0.390	TC57854	65.29
0.078	3	0.234	8	0.624	TC57857	65.29
0.078	3	0.234	12	0.940	TC57860	67.35
0.080	3	0.240	5	0.400	TC57863	65.29
0.080	3	0.240	8	0.640	TC57866	65.29
0.080	3	0.240	12	0.960	TC57869	67.35
0.085	3	0.255	5	0.425	TC57872	65.29
0.085	3	0.255	8	0.680	TC57875	65.29
0.085	3	0.255	12	1.020	TC57857	67.35
0.090	3	0.270	5	0.450	TC57881	65.29
0.090	3	0.270	8	0.720	TC57884	65.29
0.090	3	0.270	12	1.080	TC57887	67.35
0.093	3	0.279	5	0.500	TC57890	65.29
0.093	3	0.279	8	0.744	TC57893	65.29
0.093	3	0.279	12	1.125	TC57896	67.35
0.095	3	0.285	5	0.475	TC57899	65.29
0.095	3	0.285	8	0.760	TC57875	65.29
0.095	3	0.285	12	1.140	TC57905	67.35
0.100	3	0.300	5	0.500	TC57908	65.29
0.100	3	0.300	8	0.800	TC57911	65.29
0.100	3	0.300	12	1.200	TC57914	67.35

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.

For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 578
UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	3	0.030	5	0.050	TC58400	98.51
0.010	3	0.030	8	0.080	TC58403	98.51
0.010	3	0.030	12	0.125	TC58406	100.23
0.015	3	0.045	5	0.078	TC58409	79.04
0.015	3	0.045	8	0.128	TC58412	79.04
0.015	3	0.045	12	0.187	TC58415	80.75
0.020	3	0.060	5	0.100	TC58418	75.98
0.020	3	0.060	8	0.170	TC58421	75.98
0.020	3	0.060	12	0.250	TC58424	77.70
0.025	3	0.075	5	0.125	TC58427	69.49
0.025	3	0.075	8	0.213	TC58430	69.49
0.025	3	0.075	12	0.312	TC58433	71.21
0.030	3	0.090	5	0.156	TC58436	69.49
0.030	3	0.090	9	0.270	TC58439	69.49
0.030	3	0.090	12	0.375	TC58442	71.21
0.031	3	0.093	5	0.156	TC58445	69.49
0.031	3	0.093	9	0.279	TC58448	69.49
0.031	3	0.093	12	0.375	TC58451	71.21
0.035	3	0.105	5	0.175	TC58454	69.49
0.035	3	0.105	8	0.280	TC58457	69.49
0.035	3	0.105	12	0.420	TC58460	71.21
0.040	3	0.120	5	0.200	TC58463	69.49
0.040	3	0.120	8	0.320	TC58466	69.49
0.040	3	0.120	12	0.480	TC58469	71.21
0.045	3	0.135	5	0.225	TC58472	67.20
0.045	3	0.135	8	0.360	TC58475	67.20
0.045	3	0.135	12	0.540	TC58478	68.92
0.047	3	0.141	5	0.250	TC58481	67.20
0.047	3	0.141	8	0.376	TC58484	67.20
0.047	3	0.141	12	0.570	TC58487	68.92
0.050	3	0.150	5	0.250	TC58490	67.20
0.050	3	0.150	8	0.400	TC58493	67.20
0.050	3	0.150	12	0.600	TC58496	68.92
0.055	3	0.165	5	0.275	TC58499	67.20
0.055	3	0.165	8	0.440	TC58502	67.20
0.055	3	0.165	12	0.660	TC58505	68.92

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	3	0.180	5	0.300	TC58508	67.20
0.060	3	0.180	8	0.500	TC58511	67.20
0.060	3	0.180	12	0.720	TC58514	68.92
0.062	3	0.186	5	0.312	TC58517	67.20
0.062	3	0.186	8	0.500	TC58520	67.20
0.062	3	0.186	12	0.750	TC58523	68.92
0.065	3	0.195	5	0.325	TC58526	67.20
0.065	3	0.195	8	0.500	TC58529	67.20
0.065	3	0.195	12	0.780	TC58532	68.92
0.070	3	0.210	5	0.350	TC58535	67.20
0.070	3	0.210	8	0.560	TC58538	67.20
0.070	3	0.210	12	0.840	TC58541	68.92
0.075	3	0.225	5	0.375	TC58544	67.20
0.075	3	0.225	8	0.600	TC58547	67.20
0.075	3	0.225	12	0.900	TC58550	68.92
0.078	3	0.234	5	0.390	TC58553	67.20
0.078	3	0.234	8	0.624	TC58556	67.20
0.078	3	0.234	12	0.940	TC58559	68.92
0.080	3	0.240	5	0.400	TC58562	67.20
0.080	3	0.240	8	0.640	TC58565	67.20
0.080	3	0.240	12	0.960	TC58568	68.92
0.085	3	0.255	5	0.425	TC58571	67.20
0.085	3	0.255	8	0.680	TC58574	67.20
0.085	3	0.255	12	1.020	TC58577	68.92
0.090	3	0.270	5	0.450	TC58580	67.20
0.090	3	0.270	8	0.720	TC58583	67.20
0.090	3	0.270	12	1.080	TC58586	68.92
0.093	3	0.279	5	0.500	TC58589	67.20
0.093	3	0.279	8	0.744	TC58592	67.20
0.093	3	0.279	12	1.125	TC58595	68.92
0.095	3	0.285	5	0.475	TC58598	67.20
0.095	3	0.285	8	0.760	TC58601	67.20
0.095	3	0.285	12	1.140	TC58604	68.92
0.100	3	0.300	5	0.500	TC58607	67.20
0.100	3	0.300	8	0.800	TC58610	67.20
0.100	3	0.300	12	1.200	TC58613	68.92

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - REGULAR FLUTE - BALL NOSE - 30° HELIX



SERIES 579
ALTiN COATED

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	3	0.030	5	0.050	TC58701	118.21
0.010	3	0.030	8	0.080	TC58704	118.21
0.010	3	0.030	12	0.125	TC58707	120.27
0.015	3	0.045	5	0.078	TC58710	94.84
0.015	3	0.045	8	0.128	TC58713	94.84
0.015	3	0.045	12	0.187	TC58716	96.91
0.020	3	0.060	5	0.100	TC58719	91.18
0.020	3	0.060	8	0.170	TC58722	91.18
0.020	3	0.060	12	0.250	TC58725	93.24
0.025	3	0.075	5	0.125	TC58728	83.39
0.025	3	0.075	8	0.213	TC58731	83.39
0.025	3	0.075	12	0.312	TC58734	85.45
0.030	3	0.090	5	0.156	TC58737	83.39
0.030	3	0.090	9	0.270	TC58740	83.39
0.030	3	0.090	12	0.375	TC58743	85.45
0.031	3	0.093	5	0.156	TC58746	83.39
0.031	3	0.093	9	0.279	TC58749	83.39
0.031	3	0.093	12	0.375	TC58752	85.45
0.035	3	0.105	5	0.175	TC58755	83.39
0.035	3	0.105	8	0.280	TC58758	83.39
0.035	3	0.105	12	0.420	TC58761	85.45
0.040	3	0.120	5	0.200	TC58764	83.39
0.040	3	0.120	8	0.320	TC58767	83.39
0.040	3	0.120	12	0.480	TC58770	85.45
0.045	3	0.135	5	0.225	TC58773	80.64
0.045	3	0.135	8	0.360	TC58776	80.64
0.045	3	0.135	12	0.540	TC58779	82.70
0.047	3	0.141	5	0.250	TC58782	80.64
0.047	3	0.141	8	0.376	TC58785	80.64
0.047	3	0.141	12	0.570	TC58788	82.70
0.050	3	0.150	5	0.250	TC58791	80.64
0.050	3	0.150	8	0.400	TC58794	80.64
0.050	3	0.150	12	0.600	TC58797	82.70
0.055	3	0.165	5	0.275	TC58800	80.64
0.055	3	0.165	8	0.440	TC58803	80.64
0.055	3	0.165	12	0.660	TC58806	82.70

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	3	0.180	5	0.300	TC58809	80.64
0.060	3	0.180	8	0.500	TC58812	80.64
0.060	3	0.180	12	0.720	TC58815	82.70
0.062	3	0.186	5	0.312	TC58818	80.64
0.062	3	0.186	8	0.500	TC58821	80.64
0.062	3	0.186	12	0.750	TC58824	82.70
0.065	3	0.195	5	0.325	TC58827	80.64
0.065	3	0.195	8	0.500	TC58830	80.64
0.065	3	0.195	12	0.780	TC58833	82.70
0.070	3	0.210	5	0.350	TC58836	80.64
0.070	3	0.210	8	0.560	TC58839	80.64
0.070	3	0.210	12	0.840	TC58842	82.70
0.075	3	0.225	5	0.375	TC58845	80.64
0.075	3	0.225	8	0.600	TC58848	80.64
0.075	3	0.225	12	0.900	TC58851	82.70
0.078	3	0.234	5	0.390	TC58854	80.64
0.078	3	0.234	8	0.624	TC58857	80.64
0.078	3	0.234	12	0.940	TC58860	82.70
0.080	3	0.240	5	0.400	TC58863	80.64
0.080	3	0.240	8	0.640	TC58866	80.64
0.080	3	0.240	12	0.960	TC58869	82.70
0.085	3	0.255	5	0.425	TC58872	80.64
0.085	3	0.255	8	0.680	TC58875	80.64
0.085	3	0.255	12	1.020	TC58878	82.70
0.090	3	0.270	5	0.450	TC58881	80.64
0.090	3	0.270	8	0.720	TC58884	80.64
0.090	3	0.270	12	1.080	TC58887	82.70
0.093	3	0.279	5	0.500	TC58890	80.64
0.093	3	0.279	8	0.744	TC58893	80.64
0.093	3	0.279	12	1.125	TC58896	82.70
0.095	3	0.285	5	0.475	TC58899	80.64
0.095	3	0.285	8	0.760	TC58902	80.64
0.095	3	0.285	12	1.140	TC58905	82.70
0.100	3	0.300	5	0.500	TC58908	80.64
0.100	3	0.300	8	0.800	TC58911	80.64
0.100	3	0.300	12	1.200	TC58914	82.70

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.

For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - LONG FLUTE - SQUARE END - 30° HELIX



SERIES 554
UNCOATED

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	5	0.050	10	0.100	TC54650	73.88
0.010	5	0.050	15	0.150	TC54653	91.25
0.015	5	0.075	10	0.150	TC54656	61.66
0.015	5	0.075	15	0.225	TC54659	78.46
0.020	5	0.100	10	0.200	TC54662	59.37
0.020	5	0.100	15	0.300	TC54665	75.60
0.025	5	0.125	10	0.250	TC54668	56.89
0.025	5	0.125	15	0.375	TC54671	73.31
0.030	5	0.150	10	0.300	TC54674	56.89
0.030	5	0.150	15	0.450	TC54677	73.31
0.031	5	0.155	10	0.310	TC54680	56.89
0.031	5	0.155	15	0.470	TC54683	73.31
0.035	5	0.175	10	0.350	TC54686	56.89
0.035	5	0.175	15	0.525	TC54689	73.31
0.040	5	0.200	10	0.400	TC54692	56.89
0.040	5	0.200	15	0.600	TC54695	73.31
0.045	5	0.225	10	0.450	TC54698	55.75
0.045	5	0.225	15	0.675	TC54701	69.68
0.047	5	0.250	10	0.500	TC54704	55.75
0.047	5	0.250	15	0.710	TC54707	69.68
0.050	5	0.300	10	0.500	TC54710	55.75
0.050	5	0.300	15	0.750	TC54713	69.68
0.055	5	0.385	10	0.550	TC54716	55.75
0.055	5	0.385	15	0.825	TC54719	69.68

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	5	0.312	10	0.625	TC54722	55.75
0.060	5	0.500	16	1.000	TC54725	55.75
0.062	5	0.312	10	0.625	TC54728	55.75
0.062	5	0.500	16	1.000	TC54731	55.75
0.065	5	0.325	10	0.650	TC54734	55.75
0.065	5	0.500	15	1.000	TC54737	55.75
0.070	5	0.350	10	0.700	TC54740	55.75
0.070	5	0.500	14	1.000	TC54743	55.75
0.075	5	0.375	10	0.750	TC54746	55.75
0.075	5	0.500	13	1.000	TC54749	55.75
0.078	5	0.406	10	0.800	TC54752	55.75
0.078	5	0.406	15	1.187	TC54755	55.75
0.080	5	0.400	10	0.800	TC54758	55.75
0.080	5	0.750	15	1.250	TC54761	55.75
0.085	5	0.425	10	0.850	TC54764	55.75
0.085	5	0.750	14	1.250	TC54767	55.75
0.090	5	0.450	10	0.900	TC54770	55.75
0.090	5	0.750	13	1.250	TC54773	55.75
0.093	5	0.500	10	0.950	TC54776	55.75
0.093	5	0.500	15	1.400	TC54779	55.75
0.095	5	0.500	10	0.950	TC54782	55.75
0.095	5	0.750	13	1.250	TC54785	55.75
0.100	5	0.500	10	1.000	TC54788	55.75
0.100	5	0.750	12	1.250	TC54791	55.75

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.0005, -0.0005	-0.0001, -0.0003	+0.010, -0.000

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - LONG FLUTE - SQUARE END - 30° HELIX



SERIES 555
ALTiN COATED

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	5	0.050	10	0.100	TC54801	88.66
0.010	5	0.050	15	0.150	TC54804	109.51
0.015	5	0.075	10	0.150	TC54807	74.00
0.015	5	0.075	15	0.225	TC54810	94.16
0.020	5	0.100	10	0.200	TC54813	71.25
0.020	5	0.100	15	0.300	TC54816	90.72
0.025	5	0.125	10	0.250	TC54819	68.27
0.025	5	0.125	15	0.375	TC54822	87.97
0.030	5	0.150	10	0.300	TC54825	68.27
0.030	5	0.150	15	0.450	TC54828	87.97
0.031	5	0.155	10	0.310	TC54831	68.27
0.031	5	0.155	15	0.470	TC54834	87.97
0.035	5	0.175	10	0.350	TC54837	68.27
0.035	5	0.175	15	0.525	TC54840	87.97
0.040	5	0.200	10	0.400	TC54843	68.27
0.040	5	0.200	15	0.600	TC54846	87.97
0.045	5	0.225	10	0.450	TC54849	66.89
0.045	5	0.225	15	0.675	TC54852	83.62
0.047	5	0.250	10	0.500	TC54855	66.89
0.047	5	0.250	15	0.710	TC54858	83.62
0.050	5	0.300	10	0.500	TC54861	66.89
0.050	5	0.300	15	0.750	TC54864	83.62
0.055	5	0.385	10	0.550	TC54867	66.89
0.055	5	0.385	15	0.825	TC54870	83.62

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	5	0.312	10	0.625	TC54873	66.89
0.060	5	0.500	16	1.000	TC54876	66.89
0.062	5	0.312	10	0.625	TC54879	66.89
0.062	5	0.500	16	1.000	TC54882	66.89
0.065	5	0.325	10	0.650	TC54885	66.89
0.065	5	0.500	15	1.000	TC54888	66.89
0.070	5	0.350	10	0.700	TC54891	66.89
0.070	5	0.500	14	1.000	TC54894	66.89
0.075	5	0.375	10	0.750	TC54897	66.89
0.075	5	0.500	13	1.000	TC54900	66.89
0.078	5	0.406	10	0.800	TC54903	66.89
0.078	5	0.406	15	1.187	TC54906	66.89
0.080	5	0.400	10	0.800	TC54909	66.89
0.080	5	0.750	15	1.250	TC54912	66.89
0.085	5	0.425	10	0.850	TC54915	66.89
0.085	5	0.750	14	1.250	TC54918	66.89
0.090	5	0.450	10	0.900	TC54921	66.89
0.090	5	0.750	13	1.250	TC54924	66.89
0.093	5	0.500	10	0.950	TC54927	66.89
0.093	5	0.500	15	1.400	TC54930	66.89
0.095	5	0.500	10	0.950	TC54933	66.89
0.095	5	0.750	13	1.250	TC54936	66.89
0.100	5	0.500	10	1.000	TC54939	66.89
0.100	5	0.750	12	1.250	TC54942	66.89

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003	+0.010, -0.000



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - LONG FLUTE - BALL NOSE - 30° HELIX



SERIES 558
UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.010	5	0.050	10	0.100	TC52750	92.40
0.010	5	0.050	15	0.150	TC52753	92.40
0.015	5	0.075	10	0.150	TC52756	79.23
0.015	5	0.075	15	0.225	TC52759	79.23
0.020	5	0.100	10	0.200	TC52762	76.75
0.020	5	0.100	15	0.300	TC52765	76.75
0.025	5	0.125	10	0.250	TC52768	66.44
0.025	5	0.125	15	0.375	TC52771	66.44
0.030	5	0.150	10	0.300	TC52774	66.44
0.030	5	0.150	15	0.450	TC52777	66.44
0.031	5	0.155	10	0.310	TC52780	66.44
0.031	5	0.155	15	0.470	TC52783	66.44
0.035	5	0.175	10	0.350	TC52786	66.44
0.035	5	0.175	15	0.525	TC52789	66.44
0.040	5	0.200	10	0.400	TC52792	66.44
0.040	5	0.200	15	0.600	TC52795	66.44
0.045	5	0.225	10	0.450	TC52798	64.72
0.045	5	0.225	15	0.675	TC52801	64.72
0.047	5	0.250	10	0.500	TC52804	64.72
0.047	5	0.250	15	0.710	TC52807	64.72
0.050	5	0.300	10	0.500	TC52810	64.72
0.050	5	0.300	15	0.750	TC52813	64.72
0.055	5	0.385	10	0.550	TC52816	64.72
0.055	5	0.385	15	0.825	TC52819	64.72

DIA	x DIA	LOC	x DIA	REACH	ITEM #	LIST PRICE
0.060	5	0.312	10	0.625	TC52822	64.72
0.060	5	0.500	16	1.000	TC52825	64.72
0.062	5	0.312	10	0.625	TC52828	64.72
0.062	5	0.500	16	1.000	TC52831	64.72
0.065	5	0.325	10	0.650	TC52834	64.72
0.065	5	0.500	15	1.000	TC52837	64.72
0.070	5	0.350	10	0.700	TC52840	64.72
0.070	5	0.500	14	1.000	TC52843	64.72
0.075	5	0.375	10	0.750	TC52846	64.72
0.075	5	0.500	13	1.000	TC52849	64.72
0.078	5	0.406	10	0.800	TC52852	64.72
0.078	5	0.406	15	1.187	TC52855	64.72
0.080	5	0.400	10	0.800	TC52858	64.72
0.080	5	0.750	15	1.250	TC52861	64.72
0.085	5	0.425	10	0.850	TC52864	64.72
0.085	5	0.750	14	1.250	TC52867	64.72
0.090	5	0.450	10	0.900	TC52870	64.72
0.090	5	0.750	13	1.250	TC52873	64.72
0.093	5	0.500	10	0.950	TC52876	64.72
0.093	5	0.500	15	1.400	TC52879	64.72
0.095	5	0.500	10	0.950	TC52882	64.72
0.095	5	0.750	13	1.250	TC52885	64.72
0.100	5	0.500	10	1.000	TC52888	64.72
0.100	5	0.750	12	1.250	TC52891	64.72

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.0005, -0.0005	-0.0001, -0.0003	+0.010, -0.000

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG REACH - LONG FLUTE - BALL NOSE - 30° HELIX



SERIES 559
ALTiN COATED

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.010	5	0.050	10	0.100	TC52900	110.88
0.010	5	0.050	15	0.150	TC52902	110.88
0.015	5	0.075	10	0.150	TC52904	95.07
0.015	5	0.075	15	0.225	TC52906	95.07
0.020	5	0.100	10	0.200	TC52908	92.09
0.020	5	0.100	15	0.300	TC52910	92.09
0.025	5	0.125	10	0.250	TC52912	79.72
0.025	5	0.125	15	0.375	TC52914	79.72
0.030	5	0.150	10	0.300	TC52916	79.72
0.030	5	0.150	15	0.450	TC52918	79.72
0.031	5	0.155	10	0.310	TC52920	79.72
0.031	5	0.155	15	0.470	TC52922	79.72
0.035	5	0.175	10	0.350	TC52924	79.72
0.035	5	0.175	15	0.525	TC52926	79.72
0.040	5	0.200	10	0.400	TC52928	79.72
0.040	5	0.200	15	0.600	TC52930	79.72
0.045	5	0.225	10	0.450	TC52932	77.66
0.045	5	0.225	15	0.675	TC52934	77.66
0.047	5	0.250	10	0.500	TC52936	77.66
0.047	5	0.250	15	0.710	TC52938	77.66
0.050	5	0.300	10	0.500	TC52940	77.66
0.050	5	0.300	15	0.750	TC52942	77.66
0.055	5	0.385	10	0.550	TC52944	77.66
0.055	5	0.385	15	0.825	TC52946	77.66

DIA	xDIA	LOC	xDIA	REACH	ITEM #	LIST PRICE
0.060	5	0.312	10	0.625	TC52948	77.66
0.060	5	0.500	16	1.000	TC52950	77.66
0.062	5	0.312	10	0.625	TC52952	77.66
0.062	5	0.500	16	1.000	TC52954	77.66
0.065	5	0.325	10	0.650	TC52956	77.66
0.065	5	0.500	15	1.000	TC52958	77.66
0.070	5	0.350	10	0.700	TC52960	77.66
0.070	5	0.500	14	1.000	TC52962	77.66
0.075	5	0.375	10	0.750	TC52964	77.66
0.075	5	0.500	13	1.000	TC52966	77.66
0.078	5	0.406	10	0.800	TC52968	77.66
0.078	5	0.406	15	1.187	TC52970	77.66
0.080	5	0.400	10	0.800	TC52972	77.66
0.080	5	0.750	15	1.250	TC52974	77.66
0.085	5	0.425	10	0.850	TC52976	77.66
0.085	5	0.750	14	1.250	TC52978	77.66
0.090	5	0.450	10	0.900	TC52980	77.66
0.090	5	0.750	13	1.250	TC52982	77.66
0.093	5	0.500	10	0.950	TC52984	77.66
0.093	5	0.500	15	1.400	TC52986	77.66
0.095	5	0.500	10	0.950	TC52988	77.66
0.095	5	0.750	13	1.250	TC52990	77.66
0.100	5	0.500	10	1.000	TC52992	77.66
0.100	5	0.750	12	1.250	TC52994	77.66

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

All long reach micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.0005, -0.0005	-0.0001, -0.0003	+0.010, -0.000



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG LENGTH - LONG FLUTE - SQUARE END - 30° HELIX



SERIES 563
UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	5	0.050	TC53420	59.37
0.010	8	0.080	TC53421	99.65
0.010	12	0.120	TC53422	118.36
0.015	5	0.078	TC53423	55.17
0.015	8	0.125	TC53424	95.26
0.015	12	0.187	TC53425	117.22
0.020	5	0.100	TC53426	47.35
0.020	8	0.160	TC53427	85.58
0.020	12	0.250	TC53428	112.45
0.025	5	0.125	TC53429	45.25
0.025	8	0.203	TC53430	85.58
0.025	12	0.312	TC53431	99.46
0.030	5	0.150	TC53432	43.53
0.030	8	0.250	TC53433	73.33
0.030	12	0.375	TC53434	94.50
0.031	5	0.156	TC53435	43.53
0.031	8	0.250	TC53436	70.00
0.031	12	0.375	TC53437	94.50
0.035	5	0.175	TC53438	43.53
0.035	8	0.280	TC53439	70.00
0.035	12	0.425	TC53440	94.50
0.040	5	0.200	TC53441	43.53
0.040	8	0.325	TC53442	70.00
0.040	12	0.480	TC53443	94.50
0.045	5	0.225	TC53444	43.53
0.045	8	0.375	TC53445	70.00
0.045	12	0.550	TC53446	93.93
0.047	5	0.250	TC53447	43.53
0.047	8	0.375	TC53448	70.00
0.047	12	0.570	TC53449	93.93
0.050	5	0.250	TC53450	43.53
0.050	8	0.400	TC53451	70.00
0.050	12	0.600	TC53452	94.50
0.055	5	0.275	TC53453	43.53
0.055	8	0.440	TC53454	70.00
0.055	12	0.660	TC53455	94.50
0.060	5	0.312	TC53456	38.75
0.060	8	0.500	TC53457	43.53
0.060	12	0.720	TC53458	94.50
0.062	5	0.312	TC53459	38.75
0.062	8	0.500	TC53460	43.34
0.062	12	0.750	TC53461	74.07

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	15	0.950	TC53462	101.37
0.065	5	0.325	TC53463	38.75
0.065	8	0.500	TC53464	43.34
0.065	12	0.780	TC53465	74.07
0.070	5	0.375	TC53466	38.75
0.070	8	0.560	TC53467	43.34
0.070	12	0.850	TC53468	74.07
0.075	5	0.375	TC53469	38.75
0.075	8	0.625	TC53470	43.34
0.075	12	0.900	TC53471	74.07
0.078	5	0.406	TC53472	38.75
0.078	8	0.625	TC53473	43.34
0.078	12	0.940	TC53474	74.07
0.078	15	1.187	TC53475	101.37
0.080	5	0.406	TC53476	38.75
0.080	8	0.750	TC53477	43.34
0.080	12	0.960	TC53478	74.07
0.085	5	0.425	TC53479	38.75
0.085	8	0.750	TC53480	43.34
0.085	12	1.020	TC53481	74.07
0.090	5	0.450	TC53482	38.75
0.090	8	0.750	TC53483	43.34
0.090	12	1.080	TC53484	74.07
0.093	5	0.500	TC53485	38.75
0.093	8	0.750	TC53486	43.34
0.093	12	1.125	TC53487	74.07
0.093	15	1.400	TC53488	105.38
0.095	5	0.500	TC53489	38.75
0.095	8	0.750	TC53490	43.34
0.095	12	1.140	TC53491	74.07
0.100	5	0.500	TC53492	38.75
0.100	8	0.800	TC53493	43.34
0.100	12	1.200	TC53494	74.07
0.109	5	0.570	TC53495	38.75
0.109	8	0.900	TC53496	43.34
0.109	12	1.320	TC53497	74.07
0.118	5	0.625	TC53498	38.75
0.118	8	0.950	TC53499	43.34
0.118	12	1.375	TC53500	74.07
0.120	5	0.600	TC53501	38.75
0.120	8	1.000	TC53502	43.34
0.120	12	1.500	TC53503	74.07

All long length micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

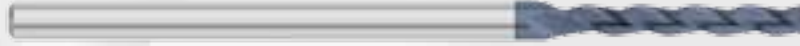
Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG LENGTH - LONG FLUTE - SQUARE END - 30° HELIX



SERIES 565
ALTiN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	5	0.050	TC53602	71.25
0.010	8	0.080	TC53603	119.59
0.010	12	0.120	TC53604	142.04
0.015	5	0.078	TC53605	66.21
0.015	8	0.125	TC53606	114.32
0.015	12	0.187	TC53607	140.66
0.020	5	0.100	TC53608	56.81
0.020	8	0.160	TC53609	102.69
0.020	12	0.250	TC53610	134.93
0.025	5	0.125	TC53611	54.29
0.025	8	0.203	TC53612	102.69
0.025	12	0.312	TC53613	119.36
0.030	5	0.150	TC53614	52.23
0.030	8	0.250	TC53615	88.00
0.030	12	0.375	TC53616	113.40
0.031	5	0.156	TC53617	52.23
0.031	8	0.250	TC53618	84.00
0.031	12	0.375	TC53619	113.40
0.035	5	0.175	TC53620	52.23
0.035	8	0.280	TC53621	84.00
0.035	12	0.425	TC53622	113.40
0.040	5	0.200	TC53623	52.23
0.040	8	0.325	TC53624	84.00
0.040	12	0.480	TC53625	113.40
0.045	5	0.225	TC53626	52.23
0.045	8	0.375	TC53627	84.00
0.045	12	0.550	TC53628	112.71
0.047	5	0.250	TC53629	52.23
0.047	8	0.375	TC53630	84.00
0.047	12	0.570	TC53631	112.71
0.050	5	0.250	TC53632	52.23
0.050	8	0.400	TC53633	84.00
0.050	12	0.600	TC53634	113.40
0.055	5	0.275	TC53635	52.23
0.055	8	0.440	TC53636	84.00
0.055	12	0.660	TC53637	113.40
0.060	5	0.312	TC53638	46.51
0.060	8	0.500	TC53639	52.23
0.060	12	0.720	TC53640	113.40
0.062	5	0.312	TC53641	46.51
0.062	8	0.500	TC53642	52.00
0.062	12	0.750	TC53643	88.89

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	15	0.950	TC53644	121.65
0.065	5	0.325	TC53645	46.51
0.065	8	0.500	TC53646	52.00
0.065	12	0.780	TC53647	88.89
0.070	5	0.375	TC53648	46.51
0.070	8	0.560	TC53649	52.00
0.070	12	0.850	TC53650	88.89
0.075	5	0.375	TC53651	46.51
0.075	8	0.625	TC53652	52.00
0.075	12	0.900	TC53653	88.89
0.078	5	0.406	TC53654	46.51
0.078	8	0.625	TC53655	52.00
0.078	12	0.940	TC53656	88.89
0.078	15	1.187	TC53657	121.65
0.080	5	0.406	TC53658	46.51
0.080	8	0.750	TC53659	52.00
0.080	12	0.960	TC53660	88.89
0.085	5	0.425	TC53661	46.51
0.085	8	0.750	TC53662	52.00
0.085	12	1.020	TC53663	88.89
0.090	5	0.450	TC53664	46.51
0.090	8	0.750	TC53665	52.00
0.090	12	1.080	TC53666	88.89
0.093	5	0.500	TC53667	46.51
0.093	8	0.750	TC53668	52.00
0.093	12	1.125	TC53669	88.89
0.093	15	1.400	TC53670	126.46
0.095	5	0.500	TC53671	46.51
0.095	8	0.750	TC53672	52.00
0.095	12	1.140	TC53673	88.89
0.100	5	0.500	TC53674	46.51
0.100	8	0.800	TC53675	52.00
0.100	12	1.200	TC53676	88.89
0.109	5	0.570	TC53677	46.51
0.109	8	0.900	TC53678	52.00
0.109	12	1.320	TC53679	88.89
0.118	5	0.625	TC53680	46.51
0.118	8	0.950	TC53681	52.00
0.118	12	1.375	TC53682	88.89
0.120	5	0.600	TC53683	46.51
0.120	8	1.000	TC53684	52.00
0.120	12	1.500	TC53685	88.89

All long length micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	-0.001, -0.003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

3 FLUTE - LONG LENGTH - LONG FLUTE - BALL NOSE - 30° HELIX



SERIES 567
UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	5	0.050	TC53730	67.96
0.010	8	0.080	TC53731	114.16
0.010	12	0.120	TC53732	133.64
0.015	5	0.078	TC53733	63.19
0.015	8	0.125	TC53734	109.39
0.015	12	0.187	TC53735	135.16
0.020	5	0.100	TC53736	54.41
0.020	8	0.160	TC53737	101.56
0.020	12	0.250	TC53738	126.95
0.025	5	0.125	TC53739	51.74
0.025	8	0.203	TC53740	98.89
0.025	12	0.312	TC53741	122.18
0.030	5	0.150	TC53742	50.02
0.030	8	0.250	TC53743	81.82
0.030	12	0.375	TC53744	120.27
0.031	5	0.156	TC53745	50.02
0.031	8	0.250	TC53746	78.79
0.031	12	0.375	TC53747	108.44
0.035	5	0.175	TC53748	50.02
0.035	8	0.281	TC53749	81.82
0.035	12	0.425	TC53750	108.44
0.040	5	0.200	TC53751	50.02
0.040	8	0.325	TC53752	81.82
0.040	12	0.480	TC53753	108.44
0.045	5	0.225	TC53754	50.02
0.045	8	0.375	TC53755	81.82
0.045	12	0.550	TC53756	108.44
0.047	5	0.250	TC53757	50.02
0.047	8	0.375	TC53758	81.82
0.047	12	0.570	TC53759	108.44
0.050	5	0.250	TC53760	50.02
0.050	8	0.400	TC53761	81.82
0.050	12	0.600	TC53762	108.44
0.055	5	0.275	TC53763	44.29
0.055	8	0.440	TC53764	53.45
0.055	12	0.660	TC53765	101.18
0.060	5	0.312	TC53766	44.29
0.060	8	0.500	TC53767	50.02
0.060	12	0.720	TC53768	92.02
0.062	5	0.312	TC53769	44.29
0.062	8	0.500	TC53770	49.45
0.062	12	0.750	TC53771	84.95

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	15	0.950	TC53772	116.26
0.065	5	0.325	TC53773	44.29
0.065	8	0.500	TC53774	49.45
0.065	12	0.780	TC53775	84.95
0.070	5	0.375	TC53776	44.29
0.070	8	0.560	TC53777	49.45
0.070	12	0.900	TC53778	84.95
0.075	5	0.375	TC53779	44.29
0.075	8	0.625	TC53780	49.45
0.075	12	0.900	TC53781	84.95
0.078	5	0.406	TC53782	44.29
0.078	8	0.625	TC53783	49.45
0.078	12	0.940	TC53784	84.95
0.078	15	1.187	TC53785	116.26
0.080	5	0.406	TC53786	44.29
0.080	8	0.750	TC53787	49.45
0.080	12	0.960	TC53788	84.95
0.085	5	0.425	TC53789	44.29
0.085	8	0.750	TC53790	49.45
0.085	12	1.020	TC53791	84.95
0.090	5	0.450	TC53792	44.29
0.090	8	0.750	TC53793	49.45
0.090	12	1.080	TC53794	84.95
0.093	5	0.500	TC53795	44.29
0.093	8	0.750	TC53796	49.45
0.093	12	1.125	TC53797	84.95
0.093	15	1.400	TC53798	118.75
0.095	5	0.500	TC53799	44.29
0.095	8	0.750	TC53800	49.45
0.095	12	1.140	TC53801	84.95
0.100	5	0.500	TC53802	44.29
0.100	8	0.800	TC53803	49.45
0.100	12	1.200	TC53804	84.95
0.109	5	0.570	TC53805	44.29
0.109	8	0.900	TC53806	49.45
0.109	12	1.320	TC53807	84.95
0.118	5	0.625	TC53808	44.29
0.118	8	0.950	TC53809	49.45
0.118	12	1.375	TC53810	84.95
0.120	5	0.600	TC53811	44.29
0.120	8	1.000	TC53812	49.45
0.120	12	1.500	TC53813	84.95

All long length micro End Mills are 1/8" shank, 2-1/2" OAL.
For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

Carbide Micro Endmills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

3 FLUTE - LONG LENGTH - LONG FLUTE - BALL NOSE - 30° HELIX



SERIES 568
ALTiN COATED

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.010	5	0.050	TC53861	81.56
0.010	8	0.080	TC53862	137.00
0.010	12	0.120	TC53863	160.36
0.015	5	0.078	TC53864	75.83
0.015	8	0.125	TC53865	131.27
0.015	12	0.187	TC53866	162.20
0.020	5	0.100	TC53867	65.29
0.020	8	0.160	TC53868	121.88
0.020	12	0.250	TC53869	152.35
0.025	5	0.125	TC53870	62.08
0.025	8	0.203	TC53871	118.67
0.025	12	0.312	TC53872	146.62
0.030	5	0.150	TC53873	60.02
0.030	8	0.250	TC53874	98.18
0.030	12	0.375	TC53875	144.33
0.031	5	0.156	TC53876	60.02
0.031	8	0.250	TC53877	94.55
0.031	12	0.375	TC53878	130.12
0.035	5	0.175	TC53879	60.02
0.035	8	0.281	TC53880	98.18
0.035	12	0.425	TC53881	130.12
0.040	5	0.200	TC53882	60.02
0.040	8	0.325	TC53883	98.18
0.040	12	0.480	TC53884	130.12
0.045	5	0.225	TC53885	60.02
0.045	8	0.375	TC53886	98.18
0.045	12	0.550	TC53887	130.12
0.047	5	0.250	TC53888	60.02
0.047	8	0.375	TC53889	98.18
0.047	12	0.570	TC53890	130.12
0.050	5	0.250	TC53891	60.02
0.050	8	0.400	TC53892	98.18
0.050	12	0.600	TC53893	130.12
0.055	5	0.275	TC53894	53.15
0.055	8	0.440	TC53895	64.15
0.055	12	0.660	TC53896	121.42
0.060	5	0.312	TC53897	53.15
0.060	8	0.500	TC53898	60.02
0.060	12	0.720	TC53899	110.42
0.062	5	0.312	TC53900	53.15
0.062	8	0.500	TC53901	59.33
0.062	12	0.750	TC53902	101.95

DIA	xDIA	LOC	ITEM #	LIST PRICE
0.062	15	0.950	TC53903	139.52
0.065	5	0.325	TC53904	53.15
0.065	8	0.500	TC53905	59.33
0.065	12	0.780	TC53906	101.95
0.070	5	0.375	TC53907	53.15
0.070	8	0.560	TC53908	59.33
0.070	12	0.900	TC53909	101.95
0.075	5	0.375	TC53910	53.15
0.075	8	0.625	TC53911	59.33
0.075	12	0.900	TC53912	101.95
0.078	5	0.406	TC53913	53.15
0.078	8	0.625	TC53914	59.33
0.078	12	0.940	TC53915	101.95
0.078	15	1.187	TC53916	139.52
0.080	5	0.406	TC53917	53.15
0.080	8	0.750	TC53918	59.33
0.080	12	0.960	TC53919	101.95
0.085	5	0.425	TC53920	53.15
0.085	8	0.750	TC53921	59.33
0.085	12	1.020	TC53922	101.95
0.090	5	0.450	TC53923	53.15
0.090	8	0.750	TC53924	59.33
0.090	12	1.080	TC53925	101.95
0.093	5	0.500	TC53926	53.15
0.093	8	0.750	TC53927	59.33
0.093	12	1.125	TC53928	101.95
0.093	15	1.400	TC53929	142.49
0.095	5	0.500	TC53930	53.15
0.095	8	0.750	TC53931	59.33
0.095	12	1.140	TC53932	101.95
0.100	5	0.500	TC53933	53.15
0.100	8	0.800	TC53934	59.33
0.100	12	1.200	TC53935	101.95
0.109	5	0.570	TC53936	53.15
0.109	8	0.900	TC53937	59.33
0.109	12	1.320	TC53938	101.95
0.118	5	0.625	TC53939	53.15
0.118	8	0.950	TC53940	59.33
0.118	12	1.375	TC53941	101.95
0.120	5	0.600	TC53942	53.15
0.120	8	1.000	TC53943	59.33
0.120t	12	1.500	TC53944	101.95

All long length micro End Mills are 1/8" shank, 2-1/2" OAL.
For coating information see page 6. For technical information, please see pages 233.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



M42 Cobalt Roughing End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

COARSE PITCH - 30° HELIX - NON CENTER CUTTING - M42 COBALT



SERIES 825
UNCOATED



SERIES 826
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE63404	72.67
5/16	3/8	3/4	2-1/2	3	TE63409	79.29
3/8	3/8	3/4	2-1/2	4	TE63414	82.85
7/16	3/8	1	2-11/16	4	TE63419	83.80
1/2	1/2	1	3	4	TE63428	84.86
1/2	1/2	1-1/4	3-1/4	4	TE63429	87.77
5/8	5/8	1-5/8	3-3/4	4	TE63436	111.69
3/4	3/4	1-5/8	3-7/8	4	TE63445	122.93
7/8	3/4	1-7/8	4-1/8	5	TE63454	157.38
1	1	2	4-1/2	5	TE63466	164.68
1-1/8	1	2	4-1/2	6	TE63471	255.82
1-1/4	1-1/4	2	4-1/2	6	TE63475	277.59
1-1/2	1-1/4	2	4-1/2	6	TE63483	325.46
2	1-1/4	2	4-1/2	8	TE63492	452.26

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE63504	90.80
5/16	3/8	3/4	2-1/2	3	TE63509	99.16
3/8	3/8	3/4	2-1/2	4	TE63514	103.59
7/16	3/8	1	2-11/16	4	TE63519	104.20
1/2	1/2	1	3	4	TE63528	106.09
1/2	1/2	1-1/4	3-1/4	4	TE63529	109.72
5/8	5/8	1-5/8	3-3/4	4	TE63536	139.63
3/4	3/4	1-5/8	3-7/8	4	TE63545	153.67
7/8	3/4	1-7/8	4-1/8	5	TE63554	212.94
1	1	2	4-1/2	5	TE63566	205.82
1-1/8	1	2	4-1/2	6	TE63571	319.64
1-1/4	1-1/4	2	4-1/2	6	TE63575	346.89
1-1/2	1-1/4	2	4-1/2	6	TE63583	406.84
2	1-1/4	2	4-1/2	8	TE63592	565.31

FINE PITCH - 30° HELIX - NON CENTER CUTTING - M42 COBALT



SERIES 830
UNCOATED



SERIES 831
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE66104	72.67
5/16	3/8	3/4	2-1/2	3	TE66109	79.33
3/8	3/8	3/4	2-1/2	4	TE66114	83.38
7/16	3/8	1	2-11/16	4	TE66119	83.80
1/2	1/2	1-1/4	3-1/4	4	TE66129	87.77
5/8	5/8	1-5/8	3-3/4	4	TE66136	111.69
3/4	3/4	1-5/8	3-7/8	4	TE66145	122.93
7/8	3/4	1-7/8	4-1/8	5	TE66154	160.82
1	1	2	4-1/2	5	TE66166	164.76
1-1/8	1	2	4-1/2	6	TE66171	273.19
1-1/4	1-1/4	2	4-1/2	6	TE66175	277.59
1-1/2	1-1/4	2	4-1/2	6	TE66183	342.91
2	1-1/4	2	4-1/2	8	TE66192	482.92

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE66204	90.80
5/16	3/8	3/4	2-1/2	3	TE66209	99.16
3/8	3/8	3/4	2-1/2	4	TE66214	104.20
7/16	3/8	1	2-11/16	4	TE66219	104.73
1/2	1/2	1-1/4	3-1/4	4	TE66229	106.09
5/8	5/8	1-5/8	3-3/4	4	TE66236	139.63
3/4	3/4	1-5/8	3-7/8	4	TE66245	153.67
7/8	3/4	1-7/8	4-1/8	5	TE66254	201.02
1	1	2	4-1/2	5	TE66266	205.97
1-1/8	1	2	4-1/2	6	TE66271	341.47
1-1/4	1-1/4	2	4-1/2	6	TE66275	346.89
1-1/2	1-1/4	2	4-1/2	6	TE66283	428.64
2	1-1/4	2	4-1/2	8	TE66292	604.22

For coating information, please see page 6.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.005, -.005	+.0000, -.0005

M42 Cobalt End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - REGULAR LENGTH - SQUARE END - 30° HELIX - M42 COBALT



SERIES 807
UNCOATED



SERIES 808
ALTIN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	2	TE82701	34.71
3/16	3/8	9/32	2-5/16	2	TE82705	34.71
1/4	3/8	1/2	2-5/16	2	TE82709	34.71
5/16	3/8	9/16	2-5/16	2	TE82713	34.71
3/8	3/8	9/16	2-5/16	2	TE82715	34.71
7/16	3/8	13/16	2-1/2	2	TE82717	47.96
1/2	3/8	13/16	2-1/2	2	TE82719	47.96
1/2	1/2	1	3	2	TE82721	50.72
9/16	1/2	1-1/8	3-1/8	2	TE82723	57.08
5/8	1/2	1-1/8	3-1/8	2	TE82725	63.93
5/8	5/8	1-5/16	3-7/16	2	TE82727	64.93
3/4	1/2	1-5/16	3-5/16	2	TE82729	74.23
3/4	5/8	1-5/16	3-7/16	2	TE82731	74.23
3/4	3/4	1-5/16	3-9/16	2	TE82733	74.23
13/16	5/8	1-1/2	3-5/8	2	TE82735	91.26
13/16	3/4	1-1/2	3-3/4	2	TE82737	91.79
7/8	3/4	1-1/2	3-3/4	2	TE82741	101.72
7/8	7/8	1-1/2	3-3/4	2	TE82743	101.72
15/16	5/8	1-1/2	3-5/8	2	TE82745	110.55
15/16	3/4	1-1/2	3-3/4	2	TE82747	117.08
1	3/4	1-1/2	3-3/4	2	TE82753	103.48
1	1	1-5/8	4-1/8	2	TE82757	117.84
1-1/8	1	1-5/8	4-1/8	2	TE82761	172.34
1-1/4	1	1-5/8	4-1/8	2	TE82765	192.13
1-1/2	1-1/4	1-5/8	4-1/8	2	TE82773	229.80

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	2	TE82802	43.40
3/16	3/8	9/32	2-5/16	2	TE82806	43.40
1/4	3/8	1/2	2-5/16	2	TE82810	43.40
5/16	3/8	9/16	2-5/16	2	TE82814	43.40
3/8	3/8	9/16	2-5/16	2	TE82816	43.40
7/16	3/8	13/16	2-1/2	2	TE82818	59.95
1/2	3/8	13/16	2-1/2	2	TE82820	59.95
1/2	1/2	1	3	2	TE82822	63.43
9/16	1/2	1-1/8	3-1/8	2	TE82824	71.37
5/8	1/2	1-1/8	3-1/8	2	TE82826	79.92
5/8	5/8	1-5/16	3-7/16	2	TE82828	81.18
3/4	1/2	1-5/16	3-5/16	2	TE82830	92.89
3/4	5/8	1-5/16	3-7/16	2	TE82832	92.89
3/4	3/4	1-5/16	3-9/16	2	TE82834	92.89
13/16	5/8	1-1/2	3-5/8	2	TE82836	114.07
13/16	3/4	1-1/2	3-3/4	2	TE82838	114.48
7/8	3/4	1-1/2	3-3/4	2	TE82842	127.14
7/8	7/8	1-1/2	3-3/4	2	TE82844	127.14
15/16	5/8	1-1/2	3-5/8	2	TE82846	138.16
15/16	3/4	1-1/2	3-3/4	2	TE82848	146.39
1	3/4	1-1/2	3-3/4	2	TE82854	129.37
1	1	1-5/8	4-1/8	2	TE82858	147.30
1-1/8	1	1-5/8	4-1/8	2	TE82862	215.44
1-1/4	1	1-5/8	4-1/8	2	TE82866	240.17
1-1/2	1-1/4	1-5/8	4-1/8	2	TE82874	287.26

COBALT ENDMILLS

For coating information, please see page 6.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .003, -.0000	+ .0000, -.0004



M42 Cobalt End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

4 & 6 FLUTE - REGULAR LENGTH - SQUARE END - 30° HELIX - M42 COBALT



SERIES 812

CENTER CUTTING - UNCOATED



SERIES 813

CENTER CUTTING - ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	4	TE81201	35.43
5/32	3/8	3/8	2-5/16	4	TE81203	48.54
3/16	3/8	1/2	2-3/8	4	TE81205	35.43
7/32	3/8	1/2	2-3/8	4	TE81207	48.54
1/4	3/8	5/8	2-7/16	4	TE81209	35.43
9/32	3/8	11/16	2-1/2	4	TE81211	48.54
5/16	3/8	3/4	2-1/2	4	TE81213	35.43
11/32	3/8	3/4	2-1/2	4	TE81215	49.56
3/8	3/8	3/4	2-1/2	4	TE81217	35.43
13/32	3/8	3/4	2-1/2	4	TE81219	72.42
7/16	3/8	1	2-11/16	4	TE81221	47.86
15/32	3/8	1	2-11/16	4	TE81223	84.92
1/2	3/8	1	2-11/16	4	TE81225	47.86
1/2	1/2	1-1/4	3-1/4	4	TE81227	47.86
17/32	1/2	1-1/4	3-1/4	4	TE81229	89.72
9/16	1/2	1-3/8	3-3/8	4	TE81231	57.43
5/8	1/2	1-3/8	3-3/8	4	TE81233	62.55
5/8	5/8	1-5/8	3-3/4	4	TE81235	69.46
11/16	1/2	1-5/8	3-5/8	4	TE81237	72.47
11/16	5/8	1-5/8	3-3/4	4	TE81239	73.86
3/4	1/2	1-5/8	3-5/8	4	TE81241	84.99
3/4	5/8	1-5/8	3-3/4	4	TE81243	84.99
3/4	3/4	1-5/8	3-7/8	4	TE81245	87.81
13/16	3/4	1-7/8	4-1/8	4	TE81247	99.24
7/8	3/4	1-7/8	4-1/8	4	TE81249	98.89
7/8	7/8	1-7/8	4-1/8	4	TE81251	98.89
15/16	3/4	1-7/8	4-1/8	4	TE81253	127.01
1	3/4	1-7/8	4-1/8	4	TE81257	112.56
1	1	2	4-1/2	4	TE81261	119.22
1-1/8	1	2	4-1/2	6	TE81265	170.08
1-1/4	1	2	4-1/2	6	TE81269	182.30
1-1/4	1-1/4	2	4-1/2	6	TE81273	185.82
1-3/8	1	2	4-1/2	6	TE81275	306.00
1-1/2	1	2	4-1/2	6	TE81277	327.30
1-1/2	1-1/4	2	4-1/2	4	TE81279	264.19
1-5/8	1-1/4	2	4-1/2	6	TE81283	410.00
2	1-1/4	2	4-1/2	6	TE81291	423.38

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	4	TE81302	44.28
5/32	3/8	3/8	2-5/16	4	TE81304	60.67
3/16	3/8	1/2	2-3/8	4	TE81306	44.28
7/32	3/8	1/2	2-3/8	4	TE81308	60.67
1/4	3/8	5/8	2-7/16	4	TE81310	44.28
9/32	3/8	11/16	2-1/2	4	TE81312	60.67
5/16	3/8	3/4	2-1/2	4	TE81314	44.28
11/32	3/8	3/4	2-1/2	4	TE81316	61.96
3/8	3/8	3/4	2-1/2	4	TE81318	44.28
13/32	3/8	3/4	2-1/2	4	TE81320	90.54
7/16	3/8	1	2-11/16	4	TE81322	59.85
15/32	3/8	1	2-11/16	4	TE81324	95.55
1/2	3/8	1	2-11/16	4	TE81326	59.85
1/2	1/2	1-1/4	3-1/4	4	TE81328	59.85
17/32	1/2	1-1/4	3-1/4	4	TE81330	112.15
9/16	1/2	1-3/8	3-3/8	4	TE81332	71.78
5/8	1/2	1-3/8	3-3/8	4	TE81334	78.16
5/8	5/8	1-5/8	3-3/4	4	TE81336	86.83
11/16	1/2	1-5/8	3-5/8	4	TE81338	90.60
11/16	5/8	1-5/8	3-3/4	4	TE81340	92.33
3/4	1/2	1-5/8	3-5/8	4	TE81342	109.92
3/4	5/8	1-5/8	3-3/4	4	TE81344	109.92
3/4	3/4	1-5/8	3-7/8	4	TE81346	109.92
13/16	3/4	1-7/8	4-1/8	4	TE81348	124.09
7/8	3/4	1-7/8	4-1/8	4	TE81350	123.65
7/8	7/8	1-7/8	4-1/8	4	TE81352	123.65
15/16	3/4	1-7/8	4-1/8	4	TE81354	158.77
1	3/4	1-7/8	4-1/8	4	TE81358	140.71
1	1	2	4-1/2	4	TE81362	149.00
1-1/8	1	2	4-1/2	6	TE81366	211.99
1-1/4	1	2	4-1/2	6	TE81370	227.88
1-1/4	1-1/4	2	4-1/2	6	TE81374	232.28
1-3/8	1	2	4-1/2	6	TE81376	316.00
1-1/2	1	2	4-1/2	6	TE81378	355.00
1-1/2	1-1/4	2	4-1/2	4	TE81380	291.00
1-5/8	1-1/4	2	4-1/2	6	TE81384	463.00
2	1-1/4	2	4-1/2	6	TE81392	525.03

For coating information, please see page 6.

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+ .003, -.0000	+ .0000, -.0004

M42 Cobalt End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

2 FLUTE - DOUBLE END - SQUARE END - 30° HELIX



SERIES 817
UNCOATED



SERIES 818
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	2	TE81701	53.11
5/32	3/8	7/16	3-1/8	2	TE81703	56.38
3/16	3/8	7/16	3-1/8	2	TE81705	53.17
7/32	3/8	1/2	3-1/8	2	TE81707	56.41
1/4	3/8	1/2	3-1/8	2	TE81709	53.17
9/32	3/8	9/16	3-1/8	2	TE81711	56.41
5/16	3/8	9/16	3-1/8	2	TE81713	53.17
11/32	3/8	9/16	3-1/8	2	TE81715	56.41
3/8	3/8	9/16	3-1/8	2	TE81717	53.17
13/32	1/2	13/16	3-3/4	2	TE81719	85.94
7/16	1/2	13/16	3-3/4	2	TE81721	80.83
1/2	1/2	13/16	3-3/4	2	TE81725	80.83
9/16	5/8	1-1/8	4-1/2	2	TE81727	101.44
5/8	5/8	1-1/8	4-1/2	2	TE81729	101.44
3/4	3/4	1-5/16	5	2	TE81733	127.73
7/8	7/8	1-9/16	5-1/2	2	TE81737	160.72
1	1	1-5/8	5-7/8	2	TE81741	197.69

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	2	TE81802	66.39
5/32	3/8	7/16	3-1/8	2	TE81804	70.48
3/16	3/8	7/16	3-1/8	2	TE81806	66.43
7/32	3/8	1/2	3-1/8	2	TE81808	70.51
1/4	3/8	1/2	3-1/8	2	TE81810	66.43
9/32	3/8	9/16	3-1/8	2	TE81812	70.51
5/16	3/8	9/16	3-1/8	2	TE81814	66.43
11/32	3/8	9/16	3-1/8	2	TE81816	70.51
3/8	3/8	9/16	3-1/8	2	TE81818	66.43
13/32	1/2	13/16	3-3/4	2	TE81820	46.12
7/16	1/2	13/16	3-3/4	2	TE81822	101.03
1/2	1/2	13/16	3-3/4	2	TE81826	101.03
9/16	5/8	1-1/8	4-1/2	2	TE81828	126.79
5/8	5/8	1-1/8	4-1/2	2	TE81830	126.79
3/4	3/4	1-5/16	5	2	TE81834	159.71
7/8	7/8	1-9/16	5-1/2	2	TE81838	200.90
1	1	1-5/8	5-7/8	2	TE81842	247.11

4 FLUTE - DOUBLE END - SQUARE END - 30° HELIX - CENTER CUTTING



SERIES 823
UNCOATED



SERIES 824
ALTiN COATED

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	4	TE82301	53.65
5/32	3/8	7/16	3-1/8	4	TE82303	56.65
3/16	3/8	1/2	3-1/8	4	TE82305	53.65
7/32	3/8	9/16	3-1/4	4	TE82307	56.65
1/4	3/8	5/8	3-3/8	4	TE82309	53.65
9/32	3/8	11/16	3-3/8	4	TE82311	56.65
5/16	3/8	3/4	3-1/2	4	TE82313	53.65
11/32	3/8	3/4	3-1/2	4	TE82315	56.65
3/8	3/8	3/4	3-1/2	4	TE82317	53.65
13/32	1/2	1	4-1/8	4	TE82319	83.29
7/16	1/2	1	4-1/8	4	TE82321	81.00
1/2	1/2	1	4-1/8	4	TE82325	81.00
9/16	5/8	1-3/8	5	4	TE82327	99.71
5/8	5/8	1-3/8	5	4	TE82329	99.71
3/4	3/4	1-5/8	5-5/8	4	TE82333	125.60
7/8	7/8	1-7/8	6-1/8	4	TE82337	167.69
1	1	1-7/8	6-3/8	4	TE82341	194.71

DIA	SHANK	LOC	OAL	# FL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	4	TE82402	67.07
5/32	3/8	7/16	3-1/8	4	TE82404	70.82
3/16	3/8	1/2	3-1/8	4	TE82406	67.07
7/32	3/8	9/16	3-1/4	4	TE82408	70.82
1/4	3/8	5/8	3-3/8	4	TE82410	67.07
9/32	3/8	11/16	3-3/8	4	TE82412	70.82
5/16	3/8	3/4	3-1/2	4	TE82414	67.07
11/32	3/8	3/4	3-1/2	4	TE82416	70.82
3/8	3/8	3/4	3-1/2	4	TE82418	67.07
13/32	1/2	1	4-1/8	4	TE82420	104.10
7/16	1/2	1	4-1/8	4	TE82422	101.27
1/2	1/2	1	4-1/8	4	TE82426	101.27
9/16	5/8	1-3/8	5	4	TE82428	124.65
5/8	5/8	1-3/8	5	4	TE82430	124.65
3/4	3/4	1-5/8	5-5/8	4	TE82434	157.01
7/8	7/8	1-7/8	6-1/8	4	TE82438	209.63
1	1	1-7/8	6-3/8	4	TE82442	243.24

For coating information, please see page 6.

TOLERANCES	DIAMETER IF SIZE & SHANK DIA. ARE NOT THE SAME		DIAMETER IF SIZE & SHANK DIA. ARE THE SAME		SHANK
ALL SIZES	+.0000, -.0015		+.0000, -.0025		+.0001, -.0005



Carbide Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SINGLE FLUTE

- SERIES 310 - 60°
- SERIES 311 - 82°
- SERIES 312 - 90°
- SERIES 313 - 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	CS31008	CS31108	CS31208	CS31308	21.89
3/16	3/16	2	1	CS31012	CS31112	CS31212	CS31312	23.39
1/4	1/4	2	1	CS31016	CS31116	CS31216	CS31316	26.57
3/8	1/4	2-5/8	1	CS31024	CS31124	CS31224	CS31324	48.11
1/2	1/4	2-5/8	1	CS31032	CS31132	CS31232	CS31332	59.59
5/8	3/8	2-3/4	1	CS31040	CS31140	CS31240	CS31340	87.06
3/4	3/8	2-3/4	1	CS31048	CS31148	CS31248	CS31348	123.05
1	1/2	3	1	CS31064	CS31164	CS31264	CS31364	182.41



THREE FLUTE

- SERIES 331 - 60°
- SERIES 332 - 82°
- SERIES 333 - 90°
- SERIES 334 - 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	CS33108	CS33208	CS33308	CS33408	21.89
3/16	3/16	2	1	CS33112	CS33212	CS33312	CS33412	23.39
1/4	1/4	2	1	CS33116	CS33216	CS33316	CS33416	26.57
3/8	1/4	2-5/8	1	CS33124	CS33224	CS33324	CS33424	48.11
1/2	1/4	2-5/8	1	CS33132	CS33232	CS33332	CS33432	59.59
5/8	3/8	2-3/4	1	CS33140	CS33240	CS33340	CS33440	87.06
3/4	3/8	2-3/4	1	CS33148	CS33248	CS33348	CS33448	123.05
1	1/2	3	1	CS33164	CS33264	CS33364	CS33464	182.41



SIX FLUTE - CHATTERLESS

- SERIES 366 - 60°
- SERIES 367 - 82°
- SERIES 368 - 90°
- SERIES 369 - 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM#	82° - ITEM#	90° - ITEM#	100° - ITEM#	LIST PRICE
1/8	1/8	1-1/2	1	CS36608	CS36708	CS36808	CS36908	21.89
3/16	3/16	2	1	CS36612	CS36712	CS36812	CS36912	23.39
1/4	1/4	2	1	CS36616	CS36716	CS36816	CS36916	26.57
3/8	1/4	2-5/8	1	CS36624	CS36724	CS36824	CS36924	48.11
1/2	1/4	2-5/8	1	CS36632	CS36732	CS36832	CS36932	59.59
5/8	3/8	2-3/4	1	CS36640	CS36740	CS36840	CS36940	87.06
3/4	3/8	2-3/4	1	CS36648	CS36748	CS36848	CS36948	123.05
1	1/2	3	1	CS36664	CS36764	CS36864	CS36964	182.41

COUNTERSINKS

Combined Drill & Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

CARBIDE



SERIES 3000
REGULAR - 60°
UNCOATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
00	.025	1/8	1-1/2	1	CS30020	29.73
0	1/32	1/8	1-1/2	1	CS30010	28.41
1	3/64	1/8	1-1/2	1	CS30001	25.86
2	5/64	3/16	2	1	CS30002	38.48
3	7/64	1/4	2	1	CS30003	43.40
4	1/8	5/16	2-1/8	1	CS30004	56.02
5	3/16	7/16	2-3/4	1	CS30005	88.81
6	7/32	1/2	3	1	CS30006	110.55



SERIES 3600
REGULAR - 60°
ALTiN COATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
00	.025	1/8	1-1/2	1	CS36020	37.13
0	1/32	1/8	1-1/2	1	CS36010	35.52
1	3/64	1/8	1-1/2	1	CS36001	32.31
2	5/64	3/16	2	1	CS36002	48.11
3	7/64	1/4	2	1	CS36003	54.23
4	1/8	5/16	2-1/8	1	CS36004	70.03
5	3/16	7/16	2-3/4	1	CS36005	111.02
6	7/32	1/2	3	1	CS36006	138.20

HIGH SPEED STEEL & COBALT



SERIES 1000
HIGH SPEED STEEL - REGULAR - 60°
UNCOATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
0	1/32	1/8	1-1/4	6	CS10010	15.08
1	3/64	1/8	1-1/4	6	CS10001	9.02
2	5/64	3/16	1-7/8	6	CS10002	9.43
3	7/64	1/4	2	6	CS10003	9.84
4	1/8	5/16	2-1/8	6	CS10004	10.13
5	3/16	7/16	2-3/4	1	CS10005	16.05
6	7/32	1/2	3	1	CS10006	24.11
7	1/4	5/8	3-1/4	1	CS10007	42.05
8	5/16	3/4	3-1/2	1	CS10008	58.50



SERIES 350
HIGH SPEED STEEL - REGULAR - 60°
TIN COATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
00	.025	1/8	1-1/4	6	CS35020	18.92
0	1/32	1/8	1-1/4	6	CS35010	18.92
1	3/64	1/8	1-1/4	6	CS35001	14.31
2	5/64	3/16	1-7/8	6	CS35002	14.70
3	7/64	1/4	2	6	CS35003	20.02
4	1/8	5/16	2-1/8	6	CS35004	20.64
5	3/16	7/16	2-3/4	1	CS35005	28.74
6	7/32	1/2	3	1	CS35006	45.87
7	1/4	5/8	3-1/4	1	CS35007	65.93
8	5/16	3/4	3-1/2	1	CS35008	106.09

SERIES 50

HIGH SPEED STEEL - MINIATURE - 60°

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
00000	.010	1/8	1-1/4	6	CS00050	16.30
0000	.015	1/8	1-1/4	6	CS00040	14.96
000	.020	1/8	1-1/4	6	CS00030	14.15
00	.025	1/8	1-1/4	6	CS00020	14.15

SERIES 2000

M42 COBALT - 60°

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1	3/64	1/8	1-1/4	6	CS20001	26.76
2	5/64	3/16	1-7/8	6	CS20002	28.92
3	7/64	1/4	2	6	CS20003	29.90
4	1/8	5/16	2-1/8	6	CS20004	31.10

For coating information, please see page 6.



Combined Drill & Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

COMBINED DRILL & COUNTERSINKS



SERIES 5000

HIGH SPEED STEEL - LONG LENGTH - 60°

SIZE	DRILL DIAMETER	BODY DIAMETER	PACKAGE QUANTITY	ITEM#	LIST PRICE
1 x 3	3/64	1/8	1	CS50013	22.62
1 x 4	3/64	1/8	1	CS50014	23.60
1 x 5	3/64	1/8	1	CS50015	32.79
1 x 6	3/64	1/8	1	CS50016	42.96
2 x 3	5/64	3/16	1	CS50023	22.87
2 x 4	5/64	3/16	1	CS50024	25.88
2 x 5	5/64	3/16	1	CS50025	33.13
2 x 6	5/64	3/16	1	CS50026	43.09
3 x 3	7/64	1/4	1	CS50033	23.90
3 x 4	7/64	1/4	1	CS50034	27.25
3 x 5	7/64	1/4	1	CS50035	35.84
3 x 6	7/64	1/4	1	CS50036	43.47
4 x 4	1/8	5/16	1	CS50044	30.21
4 x 5	1/8	5/16	1	CS50045	38.58
4 x 6	1/8	5/16	1	CS50046	44.59
4-1/2 x 4	9/64	3/8	1	CS50040	33.95
4-1/2 x 5	9/64	3/8	1	CS50050	49.40
4-1/2 x 6	9/64	3/8	1	CS50060	55.21
5 x 4	3/16	7/16	1	CS50054	39.66
5 x 5	3/16	7/16	1	CS50055	45.92
5 x 6	3/16	7/16	1	CS50056	51.54
6 x 5	7/32	1/2	1	CS50065	49.35
6 x 6	7/32	1/2	1	CS50066	59.65
7 x 6	1/4	5/8	1	CS50076	111.11
8 x 6	5/16	3/4	1	CS50086	134.35

COUNTERSINKS

HSS Machine Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

FOUR-FLUTE MACHINE COUNTERSINKS



HIGH SPEED STEEL

SERIES 521 - 60°

SIZE	SHANK DIA.	OVERALL LENGTH	PKG. QTY.	60° - ITEM#	LIST PRICE
1/2	1/2	3-7/8	1	CD52032	76.70
5/8	1/2	4	1	CD52040	86.35
3/4	1/2	4-1/8	1	CD52048	110.19
7/8	1/2	4-1/4	1	CD52056	129.52
1	1/2	4-3/8	1	CD52064	133.86

SERIES 523 - 82°

SIZE	SHANK DIA.	OVERALL LENGTH	PKG. QTY.	82° - ITEM#	LIST PRICE
1/2	1/2	3-7/8	1	CD52232	76.70
5/8	1/2	4	1	CD52240	86.35
3/4	1/2	4-1/8	1	CD52248	110.19
7/8	1/2	4-1/4	1	CD52256	129.52
1	1/2	4-3/8	1	CD52264	133.86

SINGLE-FLUTE COUNTERSINKS



HIGH SPEED STEEL

SERIES 505 - 60°

SIZE	SHANK DIA.	OVERALL LENGTH	PKG. QTY.	60° - ITEM#	LIST PRICE
1/4 - 60	3/16	1-7/16	1	CD50501	24.03
3/8 - 60	1/4	1-21/32	1	CD50502	27.35
1/2 - 60	1/4	1-13/32	1	CD50503	34.98
3/4 - 60	1/2	1-27/32	1	CD50504	48.30
1 - 60	1/2	2-13/16	1	CD50505	75.03

SERIES 510 - 82°

SIZE	SHANK DIA.	OVERALL LENGTH	PKG. QTY.	82° - ITEM#	LIST PRICE
1/4 - 82	3/16	1-7/16	1	CD51014	24.03
3/8 - 82	1/4	1-21/32	1	CD51015	27.35
1/2 - 82	1/4	1-13/32	1	CD51016	34.98
3/4 - 82	1/2	1-27/32	1	CD51017	48.30
1 - 82	1/2	2-13/16	1	CD51018	75.03

SERIES 515 - 90°

SIZE	SHANK DIA.	OVERALL LENGTH	PKG. QTY.	90° - ITEM#	LIST PRICE
1/4 - 90	3/16	1-7/16	1	CD51523	24.03
3/8 - 90	1/4	1-21/32	1	CD51524	27.35
1/2 - 90	1/4	1-13/32	1	CD51525	34.98
3/4 - 90	1/2	1-27/32	1	CD51526	48.30
1 - 90	1/2	2-13/16	1	CD51527	75.03

COUNTERSINKS



Spiral Point Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

Predator

PREMIUM POWDERED METAL



SERIES 772 - UNCOATED



SERIES 773 - ALTIN COATED



SERIES 771 - STEAM OXIDE



SERIES 778 - TiCN COATED

SIZE	H LIMIT	#FL	PKG QTY	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTIN	LIST PRICE	TICN	LIST PRICE
2 - 56	H2	2	1	TT97003	33.80	TT96903	35.76	TT97103	40.16	TT97903	40.16
4 - 40	H2	3	1	TT97015	26.10	TT96915	30.03	TT97115	40.16	TT97915	40.16
6 - 32	H3	3	1	TT97024	26.10	TT96924	30.03	TT97124	40.16	TT97924	40.16
8 - 32	H3	3	1	TT97030	26.10	TT96930	30.03	TT97130	40.16	TT97930	40.16
10 - 24	H3	3	1	TT97036	26.10	TT96936	30.03	TT97136	40.16	TT97936	40.16
10 - 32	H3	3	1	TT97040	26.10	TT96940	30.03	TT97140	40.16	TT97940	40.16
1/4 - 20	H3	3	1	TT97044	28.52	TT96944	32.81	TT97144	43.87	TT97944	43.88
1/4 - 20	H5	3	1	TT97048	28.52	TT96948	32.81	TT97148	43.87	TT97948	43.88
1/4 - 28	H3	3	1	TT97051	28.52	TT96951	32.81	TT97151	43.87	TT97951	43.88
1/4 - 28	H4	3	1	TT97054	28.52	TT96954	32.81	TT97154	43.87	TT97954	43.88
5/16 - 18	H3	3	1	TT97057	31.18	TT96957	35.87	TT97157	47.98	TT97957	47.99
5/16 - 18	H5	3	1	TT97060	31.18	TT96960	35.87	TT97160	47.98	TT97960	47.99
5/16 - 24	H3	3	1	TT97063	31.18	TT96963	35.87	TT97163	47.98	TT97963	47.99
5/16 - 24	H4	3	1	TT97066	31.18	TT96966	35.87	TT97166	47.98	TT97966	47.99
3/8 - 16	H3	3	1	TT97069	37.10	TT96969	42.65	TT97169	57.07	TT97969	57.07
3/8 - 16	H5	3	1	TT97071	37.10	TT96971	42.65	TT97171	57.07	TT97971	57.07
3/8 - 24	H3	3	1	TT97073	37.10	TT96973	42.65	TT97173	57.07	TT97973	57.07
3/8 - 24	H4	3	1	TT97075	37.10	TT96975	42.65	TT97175	57.07	TT97975	57.07
7/16 - 14	H3	3	1	TT97076	47.51	TT96976	54.62	TT97176	73.07	TT97976	73.08
7/16 - 14	H5	3	1	TT97078	47.51	TT96978	54.62	TT97178	73.07	TT97978	73.08
7/16 - 20	H3	3	1	TT97079	47.51	TT96979	54.62	TT97179	73.07	TT97979	73.08
7/16 - 20	H5	3	1	TT97081	47.51	TT96981	54.62	TT97181	73.07	TT97981	73.08
1/2 - 13	H3	4	1	TT97083	56.71	TT96983	65.21	TT97183	87.24	TT97983	87.24
1/2 - 13	H5	4	1	TT97085	56.71	TT96985	65.21	TT97185	87.24	TT97985	87.24
1/2 - 20	H3	4	1	TT97087	56.71	TT96987	65.21	TT97187	87.24	TT97987	87.24
1/2 - 20	H5	4	1	TT97089	56.71	TT96989	65.21	TT97189	87.24	TT97989	87.24
5/8 - 11	H3	4	1	TT97091	108.04	TT96991	124.26	TT97191	166.23	TT97991	166.23
5/8 - 11	H6	4	1	TT97093	108.04	TT96993	124.26	TT97193	166.23	TT97993	166.23
5/8 - 18	H3	4	1	TT97094	108.04	TT96994	124.26	TT97194	166.23	TT97994	166.23
5/8 - 18	H5	4	1	TT97095	108.04	TT96995	124.26	TT97195	166.23	TT97995	166.23
3/4 - 10	H3	4	1	TT97099	139.69	TT96999	160.64	TT97199	214.89	TT97999	214.90
3/4 - 10	H6	4	1	TT97096	139.69	TT96996	160.64	TT97196	214.89	TT97996	214.90
3/4 - 16	H3	4	1	TT97097	139.69	TT96997	160.64	TT97197	214.89	TT97997	214.90
3/4 - 16	H5	4	1	TT97098	139.69	TT96998	160.64	TT97198	214.89	TT97998	214.90

Predator Tap sizes 3/8" and smaller have male center. For coating information see page 6.

For technical information, please see pages 234 & 237.

Spiral Point Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

Predator

PREMIUM POWDERED METAL
METRIC



SERIES 711 - UNCOATED



SERIES 713 - ALTiN COATED



SERIES 712 - STEAM OXIDE



SERIES 714 - TiCN COATED

SIZE	D LIMIT	#FL	PKG QTY	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
M2.5 x .45	D3	2	1	TT98208	29.62	TT98301	34.08	TT98418	44.41	TT98955	44.41
M3 x 0.5	D3	3	1	TT98210	29.62	TT98303	34.08	TT98420	44.41	TT98961	44.41
M3.5 x 0.6	D3	3	1	TT98221	29.62	TT98317	34.08	TT98431	44.41	TT98979	44.41
M3.5 x 0.6	D4	3	1	TT98222	29.62	TT98318	34.08	TT98432	44.41	TT98962	44.41
M4 x 0.7	D3	3	1	TT98224	29.62	TT98321	34.08	TT98433	44.41	TT98981	44.41
M4 x 0.7	D4	3	1	TT98211	29.62	TT98304	34.08	TT98421	44.41	TT98963	44.41
M5 x 0.8	D3	3	1	TT98226	29.62	TT98323	34.08	TT98435	44.41	TT98983	44.41
M5 x 0.8	D4	3	1	TT98212	29.62	TT98305	34.08	TT98422	44.41	TT98965	44.41
M6 x 1.0	D3	3	1	TT98228	32.55	TT98325	37.42	TT98437	48.81	TT98985	48.81
M6 x 1.0	D5	3	1	TT98213	32.55	TT98306	37.42	TT98423	48.81	TT98967	48.81
M8 x 1.25	D3	3	1	TT98230	35.41	TT98327	40.73	TT98439	53.17	TT98987	53.17
M8 x 1.25	D5	3	1	TT98214	35.41	TT98308	40.73	TT98424	53.17	TT98969	53.17
M10 x 1.5	D3	3	1	TT98232	42.06	TT98329	48.33	TT98441	62.58	TT98989	62.57
M10 x 1.5	D6	3	1	TT98215	42.06	TT98310	48.33	TT98425	62.58	TT98971	62.57
M12 x 1.75	D3	4	1	TT98234	64.45	TT98331	74.10	TT98443	96.35	TT98991	96.36
M12 x 1.75	D6	4	1	TT98216	64.45	TT98312	74.10	TT98426	96.35	TT98973	96.36
M14 x 2.0	D3	4	1	TT98236	98.26	TT98333	112.99	TT98445	132.55	TT98993	132.55
M14 x 2.0	D7	4	1	TT98218	98.26	TT98314	112.99	TT98428	132.55	TT98975	132.55
M16 x 2.0	D3	4	1	TT98238	115.41	TT98335	132.72	TT98447	155.73	TT98995	155.73
M16 x 2.0	D7	4	1	TT98220	115.41	TT98316	132.72	TT98430	155.73	TT98977	155.73

- CNC STYLE
- FOR THROUGH HOLE TAPPING
- MATERIALS: STEEL, STEEL ALLOYS, STAINLESS STEELS, AND A VARIETY OF OTHER STEELS WITH A MAXIMUM OF RC 32

Predator Tap sizes 3/8" and smaller have male center. For coating information see page 6.
For technical information, please see pages 234 & 237.



Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

Predator

HIGH VANADIUM POWDERED METAL

45° HELIX - SEMI BOTTOMING ■ 2 - 2-1/2 THREAD CHAMFER



SERIES 774 - UNCOATED



SERIES 779 - ALTIN COATED



SERIES 799 - STEAM OXIDE



SERIES 781 - TiCN COATED

SIZE	H LIMIT	# FL	PKG QTY	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTIN	LIST PRICE	TiCN	LIST PRICE
2 - 56	H2	2	1	TT97203	40.38	TT97503	46.43	TT97303	62.08	TT97603	62.08
4 - 40	H2	2	1	TT97207	40.38	TT97507	46.43	TT97307	62.08	TT97607	62.08
6 - 32	H3	3	1	TT97215	40.38	TT97515	46.43	TT97315	62.08	TT97615	62.08
8 - 32	H3	3	1	TT97223	40.38	TT97523	46.43	TT97323	62.08	TT97623	62.08
10 - 24	H3	3	1	TT97227	40.38	TT97527	46.43	TT97327	62.08	TT97627	62.08
10 - 32	H3	3	1	TT97231	40.38	TT97531	46.43	TT97331	62.08	TT97631	62.08
1/4 - 20	H3	3	1	TT97237	41.60	TT97537	47.84	TT97337	63.99	TT97637	63.99
1/4 - 20	H5	3	1	TT97239	41.60	TT97539	47.84	TT97339	63.99	TT97639	63.99
1/4 - 28	H3	3	1	TT97241	41.60	TT97541	47.84	TT97341	63.99	TT97641	63.99
1/4 - 28	H4	3	1	TT97243	41.60	TT97543	47.84	TT97343	63.99	TT97643	63.99
5/16 - 18	H3	3	1	TT97245	45.57	TT97545	52.38	TT97345	70.08	TT97645	70.08
5/16 - 18	H5	3	1	TT97247	45.57	TT97547	52.38	TT97347	70.08	TT97647	70.08
5/16 - 24	H3	3	1	TT97249	45.57	TT97549	52.38	TT97349	70.08	TT97649	70.08
5/16 - 24	H4	3	1	TT97251	45.57	TT97551	52.38	TT97351	70.08	TT97651	70.08
3/8 - 16	H3	3	1	TT97253	53.97	TT97553	62.08	TT97353	83.06	TT97653	83.06
3/8 - 16	H5	3	1	TT97255	53.97	TT97555	62.08	TT97355	83.06	TT97655	83.06
3/8 - 24	H3	3	1	TT97257	53.97	TT97557	62.08	TT97357	83.06	TT97657	83.06
3/8 - 24	H4	3	1	TT97259	53.97	TT97559	62.08	TT97359	83.06	TT97659	83.06
7/16 - 14	H3	3	1	TT97261	68.28	TT97561	78.55	TT97361	105.05	TT97661	105.05
7/16 - 14	H5	3	1	TT97263	68.28	TT97563	78.55	TT97363	105.05	TT97663	105.05
7/16 - 20	H3	3	1	TT97265	68.28	TT97565	78.55	TT97365	105.05	TT97665	105.05
7/16 - 20	H5	3	1	TT97267	68.28	TT97567	78.55	TT97367	105.05	TT97667	105.05
1/2 - 13	H3	3	1	TT97269	80.97	TT97569	93.15	TT97369	124.59	TT97669	124.59
1/2 - 13	H5	3	1	TT97271	80.97	TT97571	93.15	TT97371	124.59	TT97671	124.59
1/2 - 20	H3	3	1	TT97273	80.97	TT97573	93.15	TT97373	124.59	TT97673	124.59
1/2 - 20	H5	3	1	TT97275	80.97	TT97575	93.15	TT97375	124.59	TT97675	124.59
5/8 - 11	H3	4	1	TT97277	154.69	TT97577	177.91	TT97377	238.00	TT97677	238.00
5/8 - 11	H6	4	1	TT97279	154.69	TT97579	177.91	TT97379	238.00	TT97679	238.00
5/8 - 18	H3	4	1	TT97281	154.69	TT97581	177.91	TT97381	238.00	TT97681	238.00
5/8 - 18	H5	4	1	TT97283	154.69	TT97583	177.91	TT97383	238.00	TT97683	238.00
3/4 - 10	H3	4	1	TT97285	180.79	TT97585	207.94	TT97385	278.20	TT97685	278.20
3/4 - 10	H6	4	1	TT97287	180.79	TT97587	207.94	TT97387	278.20	TT97687	278.20
3/4 - 16	H3	4	1	TT97289	180.79	TT97589	207.94	TT97389	278.20	TT97689	278.20
3/4 - 16	H5	4	1	TT97291	180.79	TT97591	207.94	TT97391	278.20	TT97691	278.20

Predator Tap sizes 3/8" and smaller have male center. For coating information see page 6.

For technical information, please see pages 234 & 237.

Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

Predator

HIGH VANADIUM POWDERED METAL
METRIC

45° HELIX - SEMI BOTTOMING ■ 2 - 2-1/2 THREAD CHAMFER



SERIES 716 - UNCOATED



SERIES 718 - ALTiN COATED



SERIES 717 - STEAM OXIDE



SERIES 719 - TiCN COATED

SIZE	D LIMIT	#FL	PKG QTY	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
M2.5 x .45	D3	2	1	TT98508	45.80	TT98601	52.66	TT98715	67.59	TT98845	67.59
M3 x 0.5	D3	3	1	TT98510	45.81	TT98603	52.66	TT98720	67.59	TT98851	67.59
M3.5 x 0.6	D3	3	1	TT98521	45.80	TT98617	52.66	TT98731	67.59	TT98869	67.59
M3.5 x 0.6	D4	3	1	TT98522	45.80	TT98618	52.66	TT98732	67.59	TT98852	67.59
M4 x 0.7	D3	3	1	TT98523	45.81	TT98619	52.66	TT98733	67.59	TT98871	67.59
M4 x 0.7	D4	3	1	TT98511	45.81	TT98604	52.66	TT98721	67.59	TT98853	67.59
M5 x 0.8	D3	3	1	TT98525	45.81	TT98621	52.66	TT98735	67.59	TT98873	67.59
M5 x 0.8	D4	3	1	TT98512	45.81	TT98605	52.66	TT98722	67.59	TT98855	67.59
M6 x 1.0	D3	3	1	TT98527	47.17	TT98623	54.26	TT98737	70.08	TT98875	70.08
M6 x 1.0	D5	3	1	TT98513	47.17	TT98606	54.26	TT98723	70.08	TT98857	70.08
M8 x 1.25	D3	3	1	TT98529	51.81	TT98625	59.58	TT98739	77.57	TT98877	77.57
M8 x 1.25	D5	3	1	TT98514	51.81	TT98608	59.58	TT98724	77.57	TT98859	77.57
M10 x 1.5	D3	3	1	TT98531	61.25	TT98627	70.45	TT98741	91.34	TT98879	91.34
M10 x 1.5	D6	3	1	TT98515	61.25	TT98610	70.45	TT98725	91.34	TT98861	91.34
M12 x 1.75	D3	3	1	TT98533	91.92	TT98629	105.69	TT98743	137.66	TT98881	137.66
M12 x 1.75	D6	3	1	TT98516	91.92	TT98612	105.69	TT98726	137.66	TT98863	137.66
M14 x 2.0	D3	4	1	TT98535	130.27	TT98631	149.83	TT98745	175.87	TT98883	175.87
M14 x 2.0	D7	4	1	TT98518	130.27	TT98614	149.83	TT98728	175.87	TT98865	175.87
M16 x 2.0	D3	4	1	TT98537	152.42	TT98633	175.29	TT98747	205.76	TT98885	205.76
M16 x 2.0	D7	4	1	TT98520	152.42	TT98616	175.29	TT98730	205.76	TT98867	205.76

- CNC STYLE
- SUITED FOR BLIND HOLE TAPPING
- MATERIALS: STEEL, STEEL ALLOYS, STAINLESS STEELS, AND A VARIETY OF OTHER STEELS WITH A MAXIMUM OF RC 32

Predator Tap sizes 3/8" and smaller have male center. For coating information see page 6. For technical information, please see pages 234 & 237.

HP TAPS

TAPS

DIES



Thread Forming Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 876
HIGH SPEED STEEL
UNCOATED



SERIES 898
HIGH SPEED STEEL
METRIC
UNCOATED

SIZE	H LIMIT	# OF LUBE GROOVES	PKG. QTY.	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	1	TT88301	TT82800	-	27.95
0-80	H3	0	1	TT88303	TT82802	-	27.95
1-64	H3	0	1	-	TT82804	-	27.95
1-72	H3	0	1	TT88307	TT82806	-	27.95
2-56	H3	0	1	TT88309	TT82808	-	27.77
2-56	H4	0	1	TT88311	TT82810	-	27.77
2-64	H3	0	1	-	TT82814	-	27.77
3-48	H3	0	1	-	TT82818	-	27.77
3-56	H3	0	1	-	TT82820	-	27.77
3-56	H5	0	1	-	TT82822	-	27.77
4-40	H3	0	1	TT88321	TT82824	TT82823	25.03
4-40	H5	0	1	TT88323	TT82826	TT82825	25.03
4-48	H4	0	1	-	TT82828	-	25.03
5-40	H4	0	1	-	TT82832	TT82831	25.03
5-44	H4	0	1	-	TT82836	-	25.03
6-32	H3	1	1	TT88331	TT82840	TT82839	20.63
6-32	H5	1	1	TT88333	TT82842	TT82841	20.63
6-40	H4	1	1	-	TT82846	TT82845	20.63
8-32	H3	1	1	TT88337	TT82850	TT82849	20.63
8-32	H5	1	1	TT88339	TT82852	TT82851	20.63
8-32	H7	1	1	-	TT82854	TT82853	20.63
8-36	H4	1	1	-	TT82856	TT82855	20.63
10-24	H5	1	1	-	TT82858	TT82857	19.84
10-24	H7	1	1	-	TT82860	TT82859	19.84
10-32	H3	1	1	TT88347	TT82862	TT82861	19.84
10-32	H5	1	1	TT88349	TT82864	TT82863	19.84
12-24	H5	2	1	-	TT82866	TT82865	19.84
12-28	H4	2	1	-	TT82870	TT82869	19.84
1/4-20	H5	2	1	TT88355	TT82872	TT82871	21.06
1/4-20	H8	2	1	TT88357	TT82874	TT82873	21.06
1/4-28	H4	2	1	TT88359	TT82878	TT82877	21.06
1/4-28	H6	2	1	TT88361	TT82880	TT82879	21.06
5/16-18	H5	2	1	-	TT82882	TT82881	23.39
5/16-18	H8	2	1	TT88365	TT82884	TT82883	23.39
5/16-24	H5	2	1	TT88367	TT82886	TT82885	23.39
5/16-24	H7	2	1	TT88369	TT82888	TT82887	23.39
3/8-16	H6	2	1	TT88371	TT82890	TT82889	26.70
3/8-16	H8	2	1	TT88373	TT82892	TT82891	26.70
3/8-24	H5	2	1	TT88375	TT82894	TT82893	26.70
3/8-24	H7	2	1	TT88377	TT82896	TT82895	26.70
7/16-14	H7	4	1	-	TT82898	TT82897	40.62
7/16-14	H9	4	1	-	TT82902	TT82901	40.62
7/16-20	H5	4	1	-	TT82904	TT82903	40.62
7/16-20	H8	4	1	-	TT82906	TT82905	40.62
1/2-13	H7	6	1	-	TT82908	TT82907	45.43
1/2-13	H10	6	1	-	TT82910	TT82909	45.43
1/2-20	H5	6	1	-	TT82912	TT82911	45.43
1/2-20	H8	6	1	-	TT82914	TT82913	45.43

Plug Tap sizes 3/8" and smaller have male centers

SIZE	D LIMIT	# OF LUBE GROOVES	PKG. QTY.	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
M1.6 x .35	D5	0	1	-	TT89690	-	23.00
M1.7 x .35	D5	0	1	-	TT89692	-	23.00
M2 x 0.4	D5	0	1	TT88380	TT89694	-	23.00
M2.5 x .45	D6	0	1	TT88382	TT89696	-	23.00
M3 x 0.5	D6	0	1	TT88384	TT89802	-	23.00
M3.5 x 0.6	D7	1	1	TT88386	TT89698	TT89697	20.75
M4 x 0.7	D7	1	1	TT88388	TT89804	TT89803	20.75
M5 x 0.8	D8	1	1	TT88390	TT89806	TT89805	20.75
M6 x 1.0	D9	2	1	TT88392	TT89808	TT89807	22.01
M8 x 1.25	D10	2	1	TT88394	TT89810	TT89809	25.18
M10 x 1.5	D11	2	1	TT88396	TT89812	TT89811	28.34
M12 x 1.75	D12	4	1	TT88398	TT89814	TT89813	48.89

Plug Tap sizes M10 and smaller have male centers



- **SINGLE THREAD – 1.5 Thread Chamfer**
For maximum thread length in blind holes due to its short chamfer
- **BOTTOM – 2.5 Thread Chamfer**
For blind hole tapping
- **PLUG – 4.0 Thread Chamfer**
For through hole tapping
- **THREAD FORMING**
Taps have no flutes or cutting edges & provide chipless tapping
- **LUBE GROOVES**
For lubrication & venting in blind holes
- **MATERIALS:**
aluminum, brass, copper, zinc, most ductile materials producing stringy chips are great for uncoated thread forming taps

For technical information, please see pages 235 & 236, or go to: titanman.com

For coating options available on our Thread Forming Taps, please see page 6.

HP TAPS

TAPS

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Thread Forming Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 776
HIGH SPEED STEEL
TIN COATED



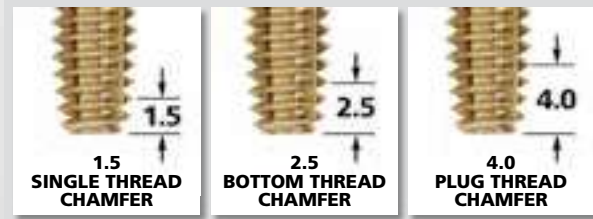
SERIES 798
HIGH SPEED STEEL
METRIC
TIN COATED

SIZE	H LIMIT	# OF LUBE GROOVES	PKG. QTY.	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	1	TT88401	TT92800	-	34.94
0-80	H3	0	1	TT88403	TT92802	-	34.94
1-64	H3	0	1	-	TT92804	-	34.94
1-72	H3	0	1	TT88407	TT92806	-	34.94
2-56	H3	0	1	TT88409	TT92808	-	34.71
2-56	H4	0	1	TT88411	TT92810	-	34.71
2-64	H3	0	1	-	TT92814	-	34.71
3-48	H3	0	1	-	TT92818	-	34.71
3-56	H3	0	1	-	TT92820	-	34.71
3-56	H5	0	1	-	TT92822	-	34.71
4-40	H3	0	1	TT88421	TT92824	TT92823	31.29
4-40	H5	0	1	TT88423	TT92826	TT92825	31.29
4-48	H4	0	1	-	TT92828	-	31.29
5-40	H4	0	1	-	TT92832	TT92831	31.29
5-44	H4	0	1	-	TT92836	-	31.29
6-32	H3	1	1	TT88431	TT92840	TT92839	25.78
6-32	H5	1	1	TT88433	TT92842	TT92841	25.78
6-40	H4	1	1	-	TT92846	TT92845	25.78
8-32	H3	1	1	TT88437	TT92850	TT92849	25.78
8-32	H5	1	1	TT88439	TT92852	TT92851	25.78
8-32	H7	1	1	-	TT92854	TT92853	25.78
8-36	H4	1	1	-	TT92856	TT92855	25.78
10-24	H5	1	1	-	TT92858	TT92857	24.80
10-24	H7	1	1	-	TT92860	TT92859	24.80
10-32	H3	1	1	TT88447	TT92862	TT92861	24.80
10-32	H5	1	1	TT88449	TT92864	TT92863	24.80
12-24	H5	2	1	-	TT92866	TT92865	24.80
12-28	H4	2	1	-	TT92870	TT92869	24.80
1/4-20	H5	2	1	TT88455	TT92872	TT92871	26.34
1/4-20	H8	2	1	TT88457	TT92874	TT92873	26.34
1/4-28	H4	2	1	TT88459	TT92878	TT92877	26.34
1/4-28	H6	2	1	TT88461	TT92880	TT92879	26.34
5/16-18	H5	2	1	-	TT92882	TT92881	29.24
5/16-18	H8	2	1	TT88465	TT92884	TT92883	29.24
5/16-24	H5	2	1	TT88467	TT92886	TT92885	29.24
5/16-24	H7	2	1	TT88469	TT92888	TT92887	29.24
3/8-16	H6	2	1	TT88471	TT92890	TT92889	33.37
3/8-16	H8	2	1	TT88473	TT92892	TT92891	33.37
3/8-24	H5	2	1	TT88475	TT92894	TT92893	33.37
3/8-24	H7	2	1	TT88477	TT92896	TT92895	33.37
7/16-14	H7	4	1	-	TT92898	TT92897	50.78
7/16-14	H9	4	1	-	TT92902	TT92901	50.78
7/16-20	H5	4	1	-	TT92904	TT92903	50.78
7/16-20	H8	4	1	-	TT92906	TT92905	50.78
1/2-13	H7	6	1	-	TT92908	TT92907	56.79
1/2-13	H10	6	1	-	TT92910	TT92909	56.79
1/2-20	H5	6	1	-	TT92912	TT92911	56.79
1/2-20	H8	6	1	-	TT92914	TT92913	56.79

Plug Tap sizes 3/8" and smaller have male center

SIZE	D LIMIT	# OF LUBE GROOVES	PKG. QTY.	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
M1.6 x .35	D5	0	1	-	TT89790	-	28.00
M1.7 x .35	D5	0	1	-	TT89792	-	28.00
M2 x 0.4	D5	0	1	TT88580	TT89794	-	28.00
M2.5 x .45	D6	0	1	TT88582	TT89796	-	28.00
M3 x 0.5	D6	0	1	TT88584	TT79802	-	28.00
M3.5 x 0.6	D7	1	1	TT88586	TT89798	TT89797	25.95
M4 x 0.7	D7	1	1	TT88588	TT79804	TT79803	25.95
M5 x 0.8	D8	1	1	TT88590	TT79806	TT79805	25.95
M6 x 1.0	D9	2	1	TT88592	TT79808	TT79807	27.51
M8 x 1.25	D10	2	1	TT88594	TT79810	TT79809	31.49
M10 x 1.5	D11	2	1	TT88596	TT79812	TT79811	35.41
M12 x 1.75	D12	4	1	TT88598	TT79814	TT79813	61.12

Plug Tap sizes M10 and smaller have male center



- **SINGLE THREAD – 1.5 Thread Chamfer**
For maximum thread length in blind holes due to its short chamfer
- **BOTTOM – 2.5 Thread Chamfer**
For blind hole tapping
- **PLUG – 4.0 Thread Chamfer**
For through hole tapping
- **THREAD FORMING**
Taps have no flutes or cutting edges & provide chipless tapping
- **LUBE GROOVES**
For lubrication & venting in blind holes
- **MATERIALS:**
lead, stainless steels, carbon steels, die cast aluminum, most ductile materials producing stringy chips are great for Tin coated forming taps

For technical information, please see pages 235 & 236, or go to: titanman.com

For coating options available on our Thread Forming Taps, please see page 6.



Taper Pipe Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

NPT HIGH SPEED STEEL



SERIES 775
UNCOATED



SERIES 777
STEAM OXIDE



SERIES 878
TIN COATED

SIZE	# OF FLUTES	PKG. QTY.	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
1/16 - 27	4	1	TT93400	33.35	TT93400S	38.37	TT93400TIN	43.39
1/8 - 27*	4	1	TT93401	33.35	TT93401S	38.37	TT93401TIN	43.39
1/8 - 27	4	1	TT93402	33.35	TT93402S	38.37	TT93402TIN	43.39
1/4 - 18	4	1	TT93406	36.92	TT93406S	42.45	TT93406TIN	48.01
3/8 - 18	4	1	TT93408	48.59	TT93408S	55.89	TT93408TIN	63.15
1/2 - 14	4	1	TT93410	77.28	TT93410S	88.88	TT93410TIN	100.44
3/4 - 14	5	1	TT93412	108.10	TT93412S	124.32	TT93412TIN	140.54
1 - 11-1/2	5	1	TT93414	164.28	TT93414S	188.88	TT93414TIN	196.94
1-1/4 - 11-1/2	5	1	TT93416	234.15	TT93416S	269.27	TT93416TIN	304.38
1-1/2 - 11-1/2	7	1	TT93418	314.07	TT93418S	361.21	TT93418TIN	408.29
2 - 11-1/2	7	1	TT93420	427.22	TT93420S	491.31	TT93420TIN	555.41

* SMALL SHANK

NPT - INTERRUPTED HIGH SPEED STEEL



SERIES 785
UNCOATED



SERIES 786
STEAM OXIDE



SERIES 880
TIN COATED

SIZE	# OF FLUTES	PKG. QTY.	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
1/8 - 27*	5	1	TT93601	51.74	TT93601S	59.50	TT93601TIN	67.27
1/8 - 27	5	1	TT93602	51.74	TT93602S	59.50	TT93602TIN	67.27
1/4 - 18	5	1	TT93606	57.23	TT93606S	65.79	TT93606TIN	74.39
3/8 - 18	5	1	TT93608	72.40	TT93608S	83.24	TT93608TIN	94.12
1/2 - 14	5	1	TT93610	115.14	TT93610S	132.41	TT93610TIN	149.68
3/4 - 14	5	1	TT93612	167.56	TT93612S	192.67	TT93612TIN	217.82
1 - 11-1/2	5	1	TT93614	254.63	TT93614S	292.82	TT93614TIN	331.01
1-1/4 - 11-1/2	5	1	TT93616	360.60	TT93616S	414.68	TT93616TIN	468.77
1-1/2 - 11-1/2	7	1	TT93618	483.69	TT93618S	556.24	TT93618TIN	628.78
2 - 11-1/2	7	1	TT93620	653.68	TT93620S	751.73	TT93620TIN	849.75

* SMALL SHANK

For coating information see page 6.
For technical information, please see page 237.

Taper Pipe Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

NPTF DRYSEAL HIGH SPEED STEEL



SERIES 787
UNCOATED



SERIES 883
TIN COATED

SIZE	# OF FLUTES	PKG. QTY.	ITEM #	LIST PRICE
1/16 - 27	4	1	TT93800	36.71
1/8 - 27*	4	1	TT93801	36.71
1/8 - 27	4	1	TT93802	36.71
1/4 - 18	4	1	TT93806	40.61
3/8 - 18	4	1	TT93808	53.43
1/2 - 14	4	1	TT93810	85.01
3/4 - 14	5	1	TT93812	118.90
1 - 11-1/2	5	1	TT93814	180.68
1-1/4 - 11-1/2	5	1	TT93816	257.56
1-1/2 - 11-1/2	7	1	TT93818	345.46
2 - 11-1/2	7	1	TT93820	469.96

* SMALL SHANK

SIZE	# OF FLUTES	PKG. QTY.	ITEM #	LIST PRICE
1/16 - 27	4	1	TT93800TIN	54.99
1/8 - 27*	4	1	TT93801TIN	54.99
1/8 - 27	4	1	TT93802TIN	54.99
1/4 - 18	4	1	TT93806TIN	60.84
3/8 - 18	4	1	TT93808TIN	80.06
1/2 - 14	4	1	TT93810TIN	127.32
3/4 - 14	5	1	TT93812TIN	178.11
1 - 11-1/2	5	1	TT93814TIN	270.68
1-1/4 - 11-1/2	5	1	TT93816TIN	385.82
1-1/2 - 11-1/2	7	1	TT93818TIN	517.54
2 - 11-1/2	7	1	TT93820TIN	704.00

* SMALL SHANK

NPTF DRYSEAL - INTERRUPTED HIGH SPEED STEEL



SERIES 788
UNCOATED



SERIES 884
TIN COATED

SIZE	# OF FLUTES	PKG. QTY.	ITEM #	LIST PRICE
1/8 - 27*	5	1	TT94001	56.90
1/8 - 27	5	1	TT94002	56.90
1/4 - 18	5	1	TT94006	62.94
3/8 - 18	5	1	TT94008	79.63
1/2 - 14	5	1	TT94010	126.67
3/4 - 14	5	1	TT94012	184.29
1 - 11-1/2	5	1	TT94014	280.07
1-1/4 - 11-1/2	5	1	TT94016	396.62
1-1/2 - 11-1/2	7	1	TT94018	532.07
2 - 11-1/2	7	1	TT94020	719.03

* SMALL SHANK

SIZE	# OF FLUTES	PKG. QTY.	ITEM #	LIST PRICE
1/8 - 27*	5	1	TT94001TIN	85.26
1/8 - 27	5	1	TT94002TIN	85.26
1/4 - 18	5	1	TT94006TIN	94.30
3/8 - 18	5	1	TT94008TIN	119.30
1/2 - 14	5	1	TT94010TIN	189.71
3/4 - 14	5	1	TT94012TIN	276.10
1 - 11-1/2	5	1	TT94014TIN	419.56
1-1/4 - 11-1/2	5	1	TT94016TIN	594.17
1-1/2 - 11-1/2	7	1	TT94018TIN	797.00
2 - 11-1/2	7	1	TT94020TIN	1,077.10

* SMALL SHANK

For coating information see page 6.
For technical information, please see page 237.

HP TAPS

TAPS

DIES



Pipe Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

STRAIGHT PIPE - NPS HIGH SPEED STEEL



SERIES 792
UNCOATED



SERIES 888
TIN COATED

SIZE	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
1/8 - 27	4	1	TT94201	53.29
1/4 - 18	4	1	TT94202	58.96
3/8 - 18	4	1	TT94203	77.60
1/2 - 14	4	1	TT94204	123.45
3/4 - 14	5	1	TT94205	172.66
1 - 11-1/2	5	1	TT94206	262.37

SIZE	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
1/8 - 27	4	1	TT94201TIN	79.84
1/4 - 18	4	1	TT94202TIN	88.33
3/8 - 18	4	1	TT94203TIN	116.26
1/2 - 14	4	1	TT94204TIN	184.91
3/4 - 14	5	1	TT94205TIN	258.65
1 - 11-1/2	5	1	TT94206TIN	393.04

EXTENSION TAPER PIPE - NPT HIGH SPEED STEEL



SERIES 793
UNCOATED

SIZE	# OF FLUTES	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1/8 - 27	4	6	1	TT94221	99.90
1/4 - 18	4	6	1	TT94223	115.14
3/8 - 18	4	6	1	TT94225	155.79
1/2 - 14	4	6	1	TT94227	250.01



SERIES 890
TIN COATED

SIZE	# OF FLUTES	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1/8 - 27	4	6	1	TT94221TIN	149.64
1/4 - 18	4	6	1	TT94223TIN	172.51
3/8 - 18	4	6	1	TT94225TIN	233.39
1/2 - 14	4	6	1	TT94227TIN	374.51

For coating information see page 6.
For technical information, please see page 237.

HP TAPS

TAPS

DIES

Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

52° HELIX - SEMI BOTTOMING - 2 TO 2-1/2 THREAD CHAMFER
HIGH SPEED STEEL



SERIES 761



SERIES 763
METRIC

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
3 - 48	H2	2	1	TT76101	35.48
3 - 56	H2	2	1	TT76103	35.48
4 - 40	H2	2	1	TT76105	29.19
4 - 48	H2	2	1	TT76107	29.19
5 - 40	H3	2	1	TT76109	29.19
5 - 44	H3	2	1	TT76111	29.19
6 - 32	H3	2	1	TT76113	23.70
6 - 40	H3	2	1	TT76115	23.70
8 - 32	H3	3	1	TT76117	23.70
8 - 36	H3	3	1	TT76119	23.70
10 - 24	H3	3	1	TT76121	23.70
10 - 32	H3	3	1	TT76123	23.70
12 - 24	H3	3	1	TT76125	25.72
12 - 28	H3	3	1	TT76127	25.72
1/4 - 20	H3	3	1	TT76129	25.72
1/4 - 28	H3	3	1	TT76131	25.72
5/16 - 18	H3	3	1	TT76133	31.68
5/16 - 24	H3	3	1	TT76135	31.68
3/8 - 16	H3	3	1	TT76137	36.56
3/8 - 24	H3	3	1	TT76139	36.56
7/16 - 14	H3	3	1	TT76141	54.81
7/16 - 20	H3	3	1	TT76143	54.81
1/2 - 13	H3	3	1	TT76145	65.97
1/2 - 20	H3	3	1	TT76147	65.97
9/16 - 12	H3	4	1	TT76149	110.05
9/16 - 18	H3	4	1	TT76151	110.05
5/8 - 11	H3	4	1	TT76153	143.61
5/8 - 18	H3	4	1	TT76155	143.61
3/4 - 10	H3	4	1	TT76157	183.82
3/4 - 16	H3	4	1	TT76159	183.82

SIZE	D-LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
M3 x 0.5	D3	2	1	TT76349	30.02
M3.5 x 0.6	D4	3	1	TT76351	24.31
M4 x 0.7	D4	3	1	TT76353	24.31
M4.5 x 0.75	D4	3	1	TT76355	24.31
M5 x 0.8	D4	3	1	TT76357	24.31
M6 x 1.0	D5	3	1	TT76359	26.55
M8 x 1.25	D5	3	1	TT76361	32.73
M10 x 1.5	D6	3	1	TT76363	56.58
M12 x 1.75	D6	3	1	TT76365	68.10

- CAN BE USED FOR PLUG OR BOTTOMING APPLICATIONS
- ALLOWS FOR THREADING CLOSE TO BOTTOM IN BLIND HOLES
- CAN BE USED FOR THROUGH OR BLIND HOLES
- CUTS MORE EFFICIENTLY THAN BOTTOMING TAPS
- SLIGHTLY LONGER CHAMFER DISTRIBUTES CUTTING OVER GREATER NUMBER OF TEETH FOR INCREASED PRODUCTION
- MATERIALS: FOR TAPPING IN RELATIVELY DEEP HOLES IN COPPER, BRASS, ALUMINUM AND OTHER SOFT DUCTILE MATERIALS

For technical information, please see page 237.



Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 725
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
0 - 80	H1	2	1	TT90000	TT90001	TT90002	17.04	TT90003	51.09
0 - 80	H2	2	1	-	TT90005	TT90006	17.04	-	-
1 - 64	H1	2	1	-	TT90009	TT90010	15.85	-	-
1 - 72	H1	2	1	TT90016	TT90017	TT90018	15.85	TT90019	47.51
1 - 72	H2	2	1	-	TT90021	TT90022	15.85	-	-
2 - 56	H1	3	1	TT90028	TT90029	TT90030	14.66	TT90031	43.93
2 - 56	H2	2	1	-	TT90033	TT90034	14.66	-	-
2 - 56	H2	3	1	TT90036	TT90037	TT90038	13.63	TT90039	40.90
2 - 64	H2	3	1	TT90044	TT90045	TT90046	14.66	TT90047	43.93
3 - 48	H2	2	1	-	TT90053	-	11.93	-	-
3 - 48	H2	3	1	TT90056	TT90057	TT90058	10.50	TT90059	31.46
3 - 56	H2	3	1	TT90060	TT90061	TT90062	11.79	TT90063	35.34
4 - 40	H1	2	1	-	TT90065	-	9.65	-	-
4 - 40	H1	3	1	TT90068	TT90069	TT90070	9.27	TT90071	27.74
4 - 40	H2	2	1	-	TT90073	TT90074	9.27	-	-
4 - 40	H2	3	1	TT90076	TT90077	TT90078	8.62	TT90079	25.84
4 - 48	H2	3	1	TT90084	TT90085	TT90086	9.27	TT90087	27.74
4 - 36	H2	3	1	-	TT90089	-	9.27	-	-
5 - 40	H1	3	1	-	TT90093	TT90094	9.27	-	-
5 - 40	H2	2	1	-	TT90097	TT90098	9.27	-	-
5 - 40	H2	3	1	TT90100	TT90101	TT90102	8.62	TT90103	25.84
5 - 44	H2	3	1	TT90108	TT90109	TT90110	9.27	TT90111	27.85
6 - 32	H1	3	1	TT90116	TT90117	TT90118	8.15	TT90119	24.40
6 - 32	H2	2	1	-	TT90121	TT90122	8.15	-	-
6 - 32	H2	3	1	TT90124	TT90125	TT90126	6.99	TT90127	21.03
6 - 32	H3	2	1	-	TT90129	TT90130	6.99	-	-
6 - 32	H3	3	1	TT90132	TT90133	TT90134	6.61	TT90135	19.80
6 - 32	H7	3	1	-	TT90137	TT90138	8.15	-	-
6 - 40	H2	2	1	-	TT90145	-	8.15	-	-
6 - 40	H2	3	1	TT90148	TT90149	TT90150	6.99	TT90151	21.03
8 - 32	H1	3	1	-	TT90157	TT90158	8.15	-	-
8 - 32	H1	4	1	TT90160	TT90161	TT90162	8.15	TT90163	24.40
8 - 32	H2	2	1	-	TT90165	TT90166	8.15	-	-
8 - 32	H2	3	1	-	TT90169	TT90170	8.15	-	-
8 - 32	H2	4	1	TT90172	TT90173	TT90174	6.99	TT90175	21.03
8 - 32	H3	2	1	-	TT90177	TT90178	6.99	-	-
8 - 32	H3	3	1	-	TT90181	TT90182	6.99	-	-
8 - 32	H3	4	1	TT90184	TT90185	TT90186	6.75	TT90187	20.28

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For technical information, please see page 237.

Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 725
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
8 - 32	H7	3	1	-	TT90189	TT90190	8.15	-	-
8 - 36	H1	4	1	-	TT90197	-	8.15	-	-
8 - 36	H2	4	1	TT90200	TT90201	TT90202	6.99	TT90203	21.03
10 - 24	H1	3	1	-	TT90205	-	8.15	-	-
10 - 24	H1	4	1	TT90208	TT90209	TT90210	7.23	TT90211	21.64
10 - 24	H2	2	1	-	TT90213	TT90214	8.15	-	-
10 - 24	H2	3	1	-	TT90217	-	8.15	-	-
10 - 24	H2	4	1	TT90220	TT90221	TT90222	7.23	TT90223	21.64
10 - 24	H3	2	1	-	TT90225	TT90226	7.23	-	-
10 - 24	H3	3	1	-	TT90229	TT90230	7.23	-	-
10 - 24	H3	4	1	TT90232	TT90233	TT90234	6.99	TT90235	21.03
10 - 24	H7	3	1	-	TT90237	TT90238	8.15	-	-
10 - 24	H7	4	1	-	TT90241	TT90242	8.15	-	-
10 - 32	H1	2	1	-	TT90245	TT90246	8.15	-	-
10 - 32	H1	3	1	-	TT90249	-	8.15	-	-
10 - 32	H1	4	1	TT90252	TT90253	TT90254	7.23	TT90255	21.64
10 - 32	H2	2	1	-	TT90257	TT90258	8.15	-	-
10 - 32	H2	3	1	-	TT90261	TT90262	8.15	-	-
10 - 32	H2	4	1	TT90264	TT90265	TT90266	7.23	TT90267	21.64
10 - 32	H3	2	1	-	TT90269	TT90270	7.23	-	-
10 - 32	H3	3	1	-	TT90273	TT90274	7.23	-	-
10 - 32	H3	4	1	TT90276	TT90277	TT90278	6.99	TT90279	21.03
12 - 24	H3	4	1	TT90288	TT90289	TT90290	7.40	TT90291	22.19
12 - 28	H3	4	1	TT90296	TT90297	TT90298	8.15	TT90299	24.40
1/4 - 20	H1	3	1	-	TT90301	-	9.41	-	-
1/4 - 20	H1	4	1	TT90304	TT90305	TT90306	9.41	TT90307	28.22
1/4 - 20	H2	3	1	-	TT90309	-	9.41	-	-
1/4 - 20	H2	4	1	TT90311	TT90312	TT90313	8.96	TT90314	26.89
1/4 - 20	H3	2	1	-	TT90316	TT90317	9.41	-	-
1/4 - 20	H3	3	1	-	TT90320	TT90321	8.96	-	-
1/4 - 20	H3	4	1	TT90323	TT90324	TT90325	7.53	TT90326	22.60
1/4 - 20	H5	3	1	-	TT90328	TT90329	9.41	-	-
1/4 - 20	H5	4	1	-	TT90332	TT90333	8.96	-	-
1/4 - 28	H1	4	1	-	TT90336	TT90337	8.96	-	-
1/4 - 28	H2	4	1	-	TT90340	TT90341	9.41	-	-
1/4 - 28	H3	2	1	-	TT90344	TT90345	9.41	-	-
1/4 - 28	H3	3	1	-	TT90348	TT90349	9.41	-	-
1/4 - 28	H3	4	1	TT90351	TT90352	TT90353	7.53	TT90354	22.60
1/4 - 28	H4	4	1	-	TT90356	TT90357	9.41	-	-
5/16 - 18	H1	4	1	TT90359	TT90360	TT90361	10.43	-	-
5/16 - 18	H2	4	1	TT90363	TT90364	TT90365	10.43	TT90366	31.29

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For technical information, please see page 237.



Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 725
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
5/16 - 18	H3	2	1	-	TT90368	TT90369	11.72	-	-
5/16 - 18	H3	3	1	-	TT90372	TT90373	10.43	-	-
5/16 - 18	H3	4	1	TT90375	TT90376	TT90377	9.27	TT90378	27.81
5/16 - 18	H5	3	1	-	TT90380	TT90381	11.72	-	-
5/16 - 18	H5	4	1	-	TT90384	TT90385	10.43	-	-
5/16 - 24	H1	4	1	-	TT90388	TT90389	10.43	-	-
5/16 - 24	H2	4	1	-	TT90392	-	10.43	-	-
5/16 - 24	H3	3	1	-	TT90396	TT90397	10.43	-	-
5/16 - 24	H3	4	1	TT90399	TT90400	TT90401	9.27	TT90402	27.81
5/16 - 24	H4	4	1	-	TT90404	TT90405	10.43	-	-
3/8 - 16	H1	3	1	-	TT90408	-	13.36	-	-
3/8 - 16	H2	4	1	TT90414	TT90415	TT90416	11.72	TT90417	35.21
3/8 - 16	H3	3	1	-	TT90419	TT90420	11.72	-	-
3/8 - 16	H3	4	1	TT90422	TT90423	TT90424	10.46	TT90425	31.39
3/8 - 16	H5	3	1	-	TT90427	TT90428	13.36	-	-
3/8 - 16	H5	4	1	-	TT90431	TT90432	11.72	-	-
3/8 - 24	H3	3	1	-	TT90443	TT90444	13.36	-	-
3/8 - 24	H3	4	1	TT90446	TT90447	TT90448	10.46	TT90449	31.39
3/8 - 24	H4	4	1	-	TT90451	TT90452	11.72	-	-
7/16 - 14	H2	4	1	-	TT90459	TT90460	19.77	-	-
7/16 - 14	H3	3	1	-	TT90463	-	19.77	-	-
7/16 - 14	H3	4	1	TT90465	TT90466	TT90467	18.00	TT90468	53.95
7/16 - 14	H5	4	1	-	TT90470	TT90471	19.77	-	-
7/16 - 20	H2	4	1	-	TT90478	TT90479	19.77	-	-
7/16 - 20	H3	3	1	-	TT90482	-	19.77	-	-
7/16 - 20	H3	4	1	TT90484	TT90485	TT90486	18.00	TT90487	53.95
7/16 - 20	H5	4	1	-	TT90489	TT90490	19.77	-	-
1/2 - 13	H1	4	1	-	TT90493	TT90494	23.07	-	-
1/2 - 13	H2	4	1	-	TT90497	TT90498	23.07	-	-
1/2 - 13	H3	3	1	-	TT90501	TT90502	23.07	-	-
1/2 - 13	H3	4	1	TT90504	TT90505	TT90506	18.75	TT90507	56.27
1/2 - 13	H5	4	1	-	TT90509	TT90510	23.42	-	-
1/2 - 20	H1	4	1	TT90512	TT90513	TT90514	23.07	-	-
1/2 - 20	H3	3	1	-	TT90521	-	23.07	-	-
1/2 - 20	H3	4	1	TT90523	TT90524	TT90525	21.20	TT90526	63.60
1/2 - 20	H5	4	1	-	TT90528	TT90529	23.07	-	-
9/16 - 12	H2	4	1	-	TT90532	-	34.29	-	-
9/16 - 12	H3	4	1	TT90535	TT90536	TT90537	31.46	TT90538	94.41
9/16 - 12	H5	4	1	-	TT90540	TT90541	34.29	-	-

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For technical information, please see page 237.

Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 725
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
9/16 - 18	H2	4	1	-	TT90544	-	34.29	-	-
9/16 - 18	H3	4	1	TT90546	TT90547	TT90548	31.46	TT90549	94.41
9/16 - 18	H5	4	1	-	TT90551	TT90552	34.29	-	-
5/8 - 11	H3	4	1	TT90561	TT90562	TT90563	37.76	TT90564	113.26
5/8 - 11	H5	4	1	-	TT90566	TT90567	43.42	-	-
5/8 - 18	H2	4	1	-	TT90574	TT90575	43.42	-	-
5/8 - 18	H3	4	1	TT90577	TT90578	TT90579	37.76	TT90580	113.26
11/16 - 11	H3	4	1	TT90585	TT90586	TT90587	46.90	TT90588	140.70
11/16 - 16	H3	4	1	TT90589	TT90590	TT90591	46.90	TT90592	140.70
3/4 - 10	H2	4	1	-	TT90597	-	57.09	-	-
3/4 - 10	H3	4	1	TT90600	TT90601	TT90602	52.86	TT90603	158.49
3/4 - 10	H5	4	1	-	TT90605	TT90606	57.09	-	-
3/4 - 16	H2	4	1	-	TT90612	-	57.09	-	-
3/4 - 16	H3	4	1	TT90615	TT90616	TT90617	52.86	TT90618	158.49
3/4 - 16	H5	4	1	-	TT90620	TT90621	57.09	-	-
7/8 - 9	H4	4	1	TT90626	TT90627	TT90628	73.65	TT90629	220.96
7/8 - 9	H6	4	1	-	TT90631	-	77.34	-	-
7/8 - 14	H2	4	1	-	TT90634	-	77.34	-	-
7/8 - 14	H4	4	1	TT90636	TT90637	TT90638	73.65	TT90639	220.96
7/8 - 14	H6	4	1	-	TT90641	-	77.34	-	-
1 - 8	H2	4	1	-	TT90644	-	100.85	-	-
1 - 8	H4	4	1	TT90646	TT90647	TT90648	97.92	TT90649	293.80
1 - 8	H6	4	1	-	TT90651	-	100.85	-	-
1 - 12	H4	4	1	TT90653	TT90654	TT90655	97.92	TT90656	293.80
1 - 14	H2	4	1	-	TT90658	-	100.85	-	-
1 - 14	H4	4	1	TT90660	TT90661	TT90662	97.92	TT90663	293.80
1 - 14	H6	4	1	TT90664	TT90665	TT90666	100.85	-	-
1-1/8 - 7	H4	4	1	TT90668	TT90669	TT90670	158.49	TT90671	475.47
1-1/8 - 12	H4	4	1	TT90672	TT90673	TT90674	167.86	TT90675	503.59
1-1/4 - 7	H4	4	1	TT90676	TT90677	TT90678	208.05	TT90679	624.07
1-1/4 - 12	H4	6	1	TT90680	TT90681	TT90682	211.66	TT90683	634.98
1-3/8 - 6	H4	4	1	TT90684	TT90685	TT90686	261.39	TT90687	784.13
1-3/8 - 12	H4	6	1	TT90688	TT90689	TT90690	263.23	TT90691	789.65
1-1/2 - 6	H4	4	1	TT90692	TT90693	TT90694	301.84	TT90695	905.53
1-1/2 - 12	H4	6	1	TT90696	TT90697	TT90698	307.40	TT90699	922.17

For technical information, please see page 237.



Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

STEAM OXIDE



SERIES 726
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
0 - 80	H1	2	1	TT90000S	TT90001S	TT90002S	19.60
2 - 56	H2	3	1	TT90036S	TT90037S	TT90038S	15.71
3 - 48	H2	3	1	TT90056S	TT90057S	TT90058S	12.10
4 - 40	H2	3	1	TT90076S	TT90077S	TT90078S	9.92
4 - 48	H2	3	1	TT90084S	TT90085S	TT90086S	10.67
5 - 40	H2	3	1	TT90100S	TT90101S	TT90102S	9.92
6 - 32	H2	3	1	TT90124S	TT90125S	TT90126S	8.08
6 - 40	H2	3	1	TT90148S	TT90149S	TT90150S	8.08
8 - 32	H3	4	1	TT90184S	TT90185S	TT90186S	7.81
8 - 36	H2	4	1	TT90200S	TT90201S	TT90202S	8.08
10 - 24	H3	4	1	TT90232S	TT90233S	TT90234S	8.08
10 - 32	H3	4	1	TT90276S	TT90277S	TT90278S	8.08
12 - 24	H3	4	1	TT90288S	TT90289S	TT90290S	8.52
12 - 28	H3	4	1	TT90296S	TT90297S	TT90298S	9.37
1/4 - 20	H3	4	1	TT90323S	TT90324S	TT90325S	8.66
1/4 - 28	H3	4	1	TT90351S	TT90352S	TT90353S	8.66
5/16 - 18	H3	4	1	TT90375S	TT90376S	TT90377S	10.67
5/16 - 24	H3	4	1	TT90399S	TT90400S	TT90401S	10.67
3/8 - 16	H3	4	1	TT90422S	TT90423S	TT90424S	12.03
3/8 - 24	H3	4	1	TT90446S	TT90447S	TT90448S	12.03
7/16 - 14	H3	4	1	TT90465S	TT90466S	TT90467S	20.72
7/16 - 20	H3	4	1	TT90484S	TT90485S	TT90486S	20.72
1/2 - 13	H3	4	1	TT90504S	TT90505S	TT90506S	21.57
1/2 - 20	H3	4	1	TT90523S	TT90524S	TT90525S	24.40
9/16 - 12	H3	4	1	TT90535S	TT90536S	TT90537S	36.16
9/16 - 18	H3	4	1	TT90546S	TT90547S	TT90548S	36.16
5/8 - 11	H3	4	1	TT90561S	TT90562S	TT90563S	43.42
5/8 - 18	H3	4	1	TT90577S	TT90578S	TT90579S	43.42
3/4 - 10	H3	4	1	TT90600S	TT90601S	TT90602S	60.77
3/4 - 16	H3	4	1	TT90615S	TT90616S	TT90617S	60.77
7/8 - 9	H4	4	1	TT90626S	TT90627S	TT90628S	84.73
7/8 - 14	H4	4	1	TT90636S	TT90637S	TT90638S	84.73
1 - 8	H4	4	1	TT90646S	TT90647S	TT90648S	112.54
1 - 12	H4	4	1	TT90653S	TT90654S	TT90655S	112.54
1 - 14	H4	4	1	TT90660S	TT90661S	TT90662S	112.54
1-1/8 - 7	H4	4	1	TT90668S	TT90669S	TT90670S	182.25
1-1/8 - 12	H4	4	1	TT90672S	TT90673S	TT90674S	193.05
1-1/4 - 7	H4	4	1	TT90676S	TT90677S	TT90678S	239.23
1-1/4 - 12	H4	6	1	TT90680S	TT90681S	TT90682S	243.39
1-3/8 - 6	H4	4	1	TT90684S	TT90685S	TT90686S	300.58
1-3/8 - 12	H4	6	1	TT90688S	TT90689S	TT90690S	302.70
1-1/2 - 6	H4	4	1	TT90692S	TT90693S	TT90694S	347.11
1-1/2 - 12	H4	6	1	TT90696S	TT90697S	TT90698S	353.52

STEAM OXIDE: A BLACK OXIDE COATING OF NON-MEASURABLE THICKNESS IS USED TO INCREASE TAP SURFACE CAPILLARY WHERE LUBRICANT PROPERTIES ARE REQUIRED.

MATERIALS: STEEL, STEEL ALLOYS, STAINLESS STEELS, TITANIUM ALLOYS AND A WIDE RANGE OF FERROUS MATERIALS (IRON BASED).

For technical information, please see page 237.

HP TAPS
TAPS
DIES

Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

NITRIDE & STEAM OXIDE



SERIES 727
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4 - 40	H2	3	1	TT90077NS	TT90078NS	9.92
6 - 32	H2	3	1	TT90125NS	TT90126NS	8.08
6 - 40	H2	3	1	TT90149NS	TT90150NS	8.08
8 - 32	H3	4	1	TT90185NS	TT90186NS	7.81
10 - 24	H3	4	1	TT90233NS	TT90234NS	8.08
10 - 32	H3	4	1	TT90277NS	TT90278NS	8.08
1/4 - 20	H3	4	1	TT90324NS	TT90325NS	8.66
1/4 - 28	H3	4	1	TT90352NS	TT90353NS	8.66
5/16 - 18	H3	4	1	TT90376NS	TT90377NS	10.67
3/8 - 16	H3	4	1	TT90423NS	TT90424NS	12.03
3/8 - 24	H3	4	1	TT90447NS	TT90448NS	12.03
7/16 - 14	H3	4	1	TT90466NS	TT90467NS	20.72
7/16 - 20	H3	4	1	TT90485NS	TT90486NS	20.72
1/2 - 13	H3	4	1	TT90505NS	TT90506NS	21.57
1/2 - 20	H3	4	1	TT90524NS	TT90525NS	24.40
9/16 - 12	H3	4	1	TT90536NS	TT90537NS	36.16
9/16 - 18	H3	4	1	TT90547NS	TT90548NS	36.16
5/8 - 11	H3	4	1	TT90562NS	TT90563NS	43.42
5/8 - 18	H3	4	1	TT90578NS	TT90579NS	43.42
3/4 - 10	H3	4	1	TT90601NS	TT90602NS	60.77
3/4 - 16	H3	4	1	TT90616NS	TT90617NS	60.77
7/8 - 9	H3	4	1	TT90627NS	TT90628NS	84.73
7/8 - 14	H4	4	1	TT90637NS	TT90638NS	84.73
1 - 8	H4	4	1	TT90647NS	TT90648NS	112.54
1-1/8 - 7	H4	4	1	TT90669NS	TT90670NS	182.25
1-1/4 - 7	H4	4	1	TT90677NS	TT90678NS	239.23
1-1/4 - 12	H4	6	1	TT90681NS	TT90682NS	243.39
1-1/2 - 6	H4	4	1	TT90693NS	TT90694NS	347.11
1-1/2 - 12	H4	6	1	TT90697NS	TT90698NS	353.52

NITRIDE & STEAM OXIDE: A NITRIDED SURFACE FOLLOWED BY A STEAM OXIDE TREATMENT PROVIDES THE BENEFITS OF WEAR AND DUCTILITY.

MATERIALS: ALL TYPES OF GRAY, DUCTILE AND MALLEABLE CAST IRON FERROUS MATERIALS (IRON BASED).

For technical information, please see page 237.



Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 729
HIGH SPEED STEEL
TIN COATED

SIZE	H-LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
0 - 80	H1	2	1	TT75200	TT75201	TT75202	30.67	TT75203	92.06
2 - 56	H2	3	1	TT75223	TT75224	TT75225	24.57	TT75226	73.67
4 - 40	H2	3	1	TT75249	TT75250	TT75251	15.50	TT75252	46.53
5 - 40	H2	3	1	TT75266	TT75267	TT75268	15.50	TT75269	46.53
6 - 32	H3	3	1	TT75288	TT75289	TT75290	11.89	TT75291	35.66
8 - 32	H3	4	1	TT75319	TT75320	TT75321	12.18	TT75322	36.56
10 - 24	H3	4	1	TT75348	TT75349	TT75350	12.61	TT75351	37.90
10 - 32	H3	4	1	TT75375	TT75376	TT75377	12.61	TT75378	37.90
12 - 24	H3	4	1	TT75383	TT75384	TT75385	13.33	TT75386	39.96
12 - 28	H3	4	1	TT75388	TT75389	TT75390	14.67	TT75391	44.00
1/4 - 20	H3	4	1	TT75406	TT75407	TT75408	13.55	TT75409	40.72
1/4 - 28	H3	4	1	TT75422	TT75423	TT75424	13.55	TT75425	40.72
5/16 - 18	H3	4	1	TT75439	TT75440	TT75441	16.73	TT75442	50.15
5/16 - 24	H3	4	1	TT75454	TT75455	TT75456	16.73	TT75457	50.15
3/8 - 16	H3	4	1	TT75469	TT75470	TT75471	18.86	TT75472	56.54
3/8 - 24	H3	4	1	TT75484	TT75485	TT75486	18.86	TT75487	56.54
7/16 - 14	H3	4	1	TT75495	TT75496	TT75497	32.41	TT75498	97.26
7/16 - 20	H3	4	1	TT75506	TT75507	TT75508	32.41	TT75509	97.26
1/2 - 13	H3	4	1	TT75518	TT75519	TT75520	33.78	TT75521	101.38
1/2 - 20	H3	4	1	TT75530	TT75531	TT75532	38.19	TT75533	114.60
9/16 - 18	H3	4	1	TT75544	TT75545	TT75546	51.88	TT75547	155.82
5/8 - 11	H3	4	1	TT75552	TT75553	TT75554	68.07	TT75555	204.05
5/8 - 18	H3	4	1	TT75561	TT75562	TT75563	68.07	TT75564	204.05
3/4 - 10	H3	4	1	TT75577	TT75578	TT75579	95.24	TT75580	285.60
3/4 - 16	H3	4	1	TT75585	TT75586	TT75587	95.24	TT75588	285.60
1 - 8	H4	4	1	TT75604	TT75605	TT75606	161.60	TT75607	484.92

For coating information see page 6.
For technical information, please see page 237.

Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 755
HIGH SPEED STEEL
METRIC
UNCOATED

SIZE	D-LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
M1.6 x 0.35	D3	2	1	-	TT93002	-	22.77	-	-
M2 x 0.4	D3	3	1	TT93007	TT93008	TT93009	22.77	TT93100	68.27
M2.5 x 0.45	D3	3	1	-	TT93014	-	14.01	-	-
M3 x 0.5	D3	3	1	TT93016	TT93017	TT93018	11.66	TT93102	35.00
M3.5 x 0.6	D4	3	1	-	TT93020	-	9.65	-	-
M4 x 0.7	D4	4	1	TT93022	TT93023	TT93024	9.65	TT93104	28.94
M4.5 x 0.75	D4	4	1	-	TT93026	-	9.65	-	-
M5 x 0.8	D4	4	1	TT93028	TT93029	TT93030	9.65	TT93106	28.94
M6 x 1.0	D5	4	1	TT93031	TT93032	TT93033	10.19	TT93108	30.54
M7 x 1.0	D5	4	1	TT93037	TT93038	TT93039	10.19	TT93110	30.57
M8 x 1.25	D5	4	1	TT93043	TT93044	TT93045	10.19	TT93112	30.57
M10 x 1.25	D5	4	1	TT93046	TT93047	TT93048	20.93	TT93114	62.75
M10 x 1.50	D6	4	1	TT93049	TT93050	TT93051	20.93	TT93116	62.75
M12 x 1.25	D5	4	1	TT93052	TT93053	TT93054	24.54	TT93118	73.59
M12 x 1.75	D6	4	1	TT93055	TT93056	TT93057	24.54	TT93120	73.59
M14 x 1.5	D6	4	1	TT93058	TT93059	TT93060	36.67	TT93122	110.02
M14 x 2.0	D7	4	1	TT93061	TT93062	TT93063	36.67	TT93124	110.02
M16 x 1.5	D6	4	1	TT93064	TT93065	TT93066	44.68	TT93126	134.05
M16 x 2.0	D7	4	1	TT93067	TT93068	TT93069	44.68	TT93128	134.05
M18 x 1.5	D6	4	1	TT93070	TT93071	TT93072	60.19	TT93130	180.54
M18 x 2.5	D7	4	1	TT93073	TT93074	TT93075	60.19	TT93132	180.54
M20 x 2.5	D7	4	1	TT93076	TT93077	TT93078	77.85	TT93134	233.51
M24 x 3.0	D8	4	1	TT93082	TT93083	TT93084	113.91	TT93136	341.69
M27 x 3.0	D8	4	1	TT93085	TT93086	TT93087	196.87	TT93138	590.60
M30 x 3.5	D9	4	1	TT93088	TT93089	TT93090	251.44	TT93140	754.24
M33 x 3.5	D9	4	1	TT93091	TT93092	TT93093	250.75	TT93142	752.26
M36 x 4.0	D9	4	1	TT93094	TT93095	TT93096	318.00	TT93144	954.04

For technical information, please see page 237.



Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 757
HIGH SPEED STEEL
METRIC
TIN COATED

SIZE	D-LIMIT	# OF FLUTES	PKG. QTY.	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE	SET-ITEM#	LIST PRICE
M1.6 x 0.35	D3	2	1	-	TT75700	-	41.01	-	-
M2 x 0.4	D3	3	1	TT75702	TT75704	TT75706	41.01	TT75846	123.02
M2.5 x 0.45	D3	3	1	-	TT75708	-	25.22	-	-
M3 x 0.5	D3	3	1	TT75710	TT75712	TT75714	21.03	TT75848	63.12
M3.5 x 0.6	D4	3	1	-	TT75716	-	17.38	-	-
M4 x 0.7	D4	4	1	TT75718	TT75720	TT75722	17.38	TT75850	52.13
M4.5 x 0.75	D4	4	1	-	TT75724	-	17.38	-	-
M5 x 0.8	D4	4	1	TT75726	TT75728	TT75730	17.38	TT75852	52.13
M6 x 1.0	D5	4	1	TT75732	TT75734	TT75736	18.35	TT75854	55.02
M7 x 1.0	D5	4	1	TT75738	TT75740	TT75742	18.39	TT75856	55.06
M8 x 1.25	D5	4	1	TT75744	TT75746	TT75748	18.39	TT75858	55.06
M10 x 1.25	D5	4	1	TT75750	TT75752	TT75754	37.68	TT75860	113.08
M10 x 1.50	D6	4	1	TT75756	TT75758	TT75760	37.68	TT75862	113.08
M12 x 1.25	D5	4	1	TT75762	TT75764	TT75766	44.19	TT75864	132.59
M12 x 1.75	D6	4	1	TT75768	TT75770	TT75772	44.19	TT75866	132.59
M14 x 1.5	D6	4	1	TT75774	TT75776	TT75778	66.08	TT75868	198.24
M14 x 2.0	D7	4	1	TT75780	TT75782	TT75784	66.08	TT75870	198.24
M16 x 1.5	D6	4	1	TT75786	TT75788	TT75790	80.53	TT75872	241.59
M16 x 2.0	D7	4	1	TT75792	TT75794	TT75796	80.53	TT75874	241.59
M18 x 1.5	D6	4	1	TT75798	TT75800	TT75802	108.42	TT75876	325.30
M18 x 2.5	D7	4	1	TT75804	TT75806	TT75808	108.42	TT75878	325.30
M20 x 2.5	D7	4	1	TT75810	TT75812	TT75814	140.25	TT75880	420.79
M24 x 3.0	D8	4	1	TT75816	TT75818	TT75820	205.25	TT75882	615.74
M27 x 3.0	D8	4	1	TT75822	TT75824	TT75826	354.75	TT75884	1,064.28
M30 x 3.5	D9	4	1	TT75828	TT75830	TT75832	453.05	TT75886	1,359.16
M33 x 3.5	D9	4	1	TT75834	TT75836	TT75838	451.86	TT75888	1,355.58
M36 x 4.0	D9	4	1	TT75840	TT75842	TT75844	573.07	TT75890	1,719.18

For coating information see page 6.
For technical information, please see page 237.

Spiral Point Plug Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 750
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0 - 80	H1	2	1	TT91000	21.00
0 - 80	H2	2	1	TT91001	21.00
1 - 64	H1	2	1	TT91002	18.95
1 - 64	H2	2	1	TT91003	18.95
1 - 72	H1	2	1	TT91004	18.95
1 - 72	H2	2	1	TT91005	18.95
2 - 56	H1	2	1	TT91006	18.03
2 - 56	H2	2	1	TT91007	16.09
2 - 64	H1	2	1	TT91008	18.03
2 - 64	H2	2	1	TT91009	18.03
3 - 48	H1	2	1	TT91010	12.92
3 - 48	H2	2	1	TT91011	12.92
3 - 56	H1	2	1	TT91012	15.81
3 - 56	H2	2	1	TT91013	14.38
4 - 40	H1	2	1	TT91014	11.79
4 - 40	H2	2	1	TT91015	10.36
4 - 48	H1	2	1	TT91016	12.00
4 - 48	H2	2	1	TT91017	11.79
4 - 36	H2	2	1	TT91018	11.79
5 - 40	H1	2	1	TT91019	11.79
5 - 40	H2	2	1	TT91020	10.36
5 - 44	H2	2	1	TT91021	11.79
6 - 32	H1	2	1	TT91022	10.36
6 - 32	H2	2	1	TT91023	8.73
6 - 32	H3	2	1	TT91024	8.73
6 - 32	H7	2	1	TT91025	9.88
6 - 40	H1	2	1	TT91026	9.88
6 - 40	H2	2	1	TT91027	9.88
8 - 32	H1	2	1	TT91028	9.88
8 - 32	H2	2	1	TT91029	8.73
8 - 32	H3	2	1	TT91030	8.73
8 - 32	H7	2	1	TT91031	9.88
8 - 36	H1	2	1	TT91032	9.88
8 - 36	H2	2	1	TT91033	9.88
10 - 24	H1	2	1	TT91034	10.80
10 - 24	H2	2	1	TT91035	9.88
10 - 24	H3	2	1	TT91036	8.73
10 - 24	H7	2	1	TT91037	10.80
10 - 32	H1	2	1	TT91038	9.88
10 - 32	H2	2	1	TT91039	8.73
10 - 32	H3	2	1	TT91040	8.73
10 - 32	H7	2	1	TT91041	10.80
12 - 24	H1	2	1	TT91042	9.88
12 - 24	H3	2	1	TT91043	9.88
12 - 28	H3	2	1	TT91044	9.88
1/4 - 20	H1	2	1	TT91045	9.88
1/4 - 20	H2	2	1	TT91046	9.88
1/4 - 20	H3	2	1	TT91047	8.73
1/4 - 20	H3	3	1	TT91048	10.80
1/4 - 20	H5	2	1	TT91049	9.85

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
1/4 - 20	H5	3	1	TT91050	10.80
1/4 - 28	H1	2	1	TT91051	10.80
1/4 - 28	H2	2	1	TT91052	9.85
1/4 - 28	H2	3	1	TT91053	10.80
1/4 - 28	H3	2	1	TT91054	8.73
1/4 - 28	H4	2	1	TT91055	10.80
1/4 - 28	H4	3	1	TT91056	10.80
5/16 - 18	H1	2	1	TT91057	12.44
5/16 - 18	H2	2	1	TT91058	10.80
5/16 - 18	H3	2	1	TT91059	9.41
5/16 - 18	H3	3	1	TT91060	12.44
5/16 - 18	H5	2	1	TT91061	10.80
5/16 - 18	H5	3	1	TT91062	12.44
5/16 - 24	H1	2	1	TT91063	12.44
5/16 - 24	H2	2	1	TT91064	12.44
5/16 - 24	H2	3	1	TT91065	12.44
5/16 - 24	H3	2	1	TT91066	10.98
5/16 - 24	H4	2	1	TT91067	12.44
5/16 - 24	H4	3	1	TT91068	12.44
3/8 - 16	H1	3	1	TT91069	13.94
3/8 - 16	H2	3	1	TT91070	12.95
3/8 - 16	H3	3	1	TT91071	11.15
3/8 - 16	H5	3	1	TT91072	14.04
3/8 - 24	H1	3	1	TT91073	14.14
3/8 - 24	H2	3	1	TT91074	14.14
3/8 - 24	H3	3	1	TT91075	12.00
3/8 - 24	H4	3	1	TT91076	14.14
7/16 - 14	H2	3	1	TT91077	20.69
7/16 - 14	H3	3	1	TT91078	18.95
7/16 - 14	H5	3	1	TT91079	20.69
7/16 - 20	H2	3	1	TT91080	20.69
7/16 - 20	H3	3	1	TT91081	18.95
7/16 - 20	H5	3	1	TT91082	20.69
1/2 - 13	H1	3	1	TT91083	25.32
1/2 - 13	H2	3	1	TT91084	25.32
1/2 - 13	H3	3	1	TT91085	19.33
1/2 - 13	H5	3	1	TT91086	22.80
1/2 - 20	H1	3	1	TT91087	25.32
1/2 - 20	H2	3	1	TT91088	25.32
1/2 - 20	H3	3	1	TT91089	22.70
1/2 - 20	H5	3	1	TT91090	25.32
9/16 - 12	H3	3	1	TT91091	31.56
9/16 - 18	H3	3	1	TT91092	31.56
5/8 - 11	H3	3	1	TT91093	43.08
5/8 - 11	H5	3	1	TT91094	43.08
5/8 - 18	H3	3	1	TT91095	43.08
3/4 - 10	H3	3	1	TT91096	60.77
3/4 - 10	H5	3	1	TT91097	60.77
3/4 - 16	H3	3	1	TT91098	60.77
-	-	-	-	-	-

For technical information, please see page 237.



Spiral Point Plug Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

STEAM OXIDE



SERIES 751
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0 - 80	H2	2	1	TT91001S	24.17
1 - 64	H2	2	1	TT91003S	21.85
1 - 72	H2	2	1	TT91005S	21.85
2 - 56	H2	2	1	TT91007S	18.54
2 - 64	H2	2	1	TT91009S	20.76
3 - 48	H2	2	1	TT91011S	14.86
3 - 56	H2	2	1	TT91013S	16.56
4 - 40	H2	2	1	TT91015S	11.93
4 - 48	H2	2	1	TT91017S	13.60
4 - 36	H2	2	1	TT91018S	13.60
5 - 40	H2	2	1	TT91020S	11.93
5 - 44	H2	2	1	TT91021S	13.60
6 - 32	H3	2	1	TT91024S	10.02
6 - 40	H2	2	1	TT91027S	11.38
8 - 32	H3	2	1	TT91030S	10.02
8 - 36	H2	2	1	TT91033S	11.38
10 - 24	H3	2	1	TT91036S	10.02
10 - 32	H3	2	1	TT91040S	10.02
12 - 24	H3	2	1	TT91043S	11.38
1/4 - 20	H3	2	1	TT91047S	10.02
1/4 - 28	H3	2	1	TT91054S	10.02
5/16 - 18	H3	2	1	TT91059S	10.84
5/16 - 24	H3	2	1	TT91066S	11.55
3/8 - 16	H3	3	1	TT91071S	12.85
3/8 - 24	H3	3	1	TT91075S	13.80
7/16 - 14	H3	3	1	TT91078S	21.85
7/16 - 20	H3	3	1	TT91081S	21.85
1/2 - 13	H3	3	1	TT91085S	22.26
1/2 - 20	H3	3	1	TT91089S	26.11
9/16 - 12	H3	3	1	TT91091S	36.30
9/16 - 18	H3	3	1	TT91092S	36.30
5/8 - 11	H3	3	1	TT91093S	49.56
5/8 - 18	H3	3	1	TT91095S	49.56
3/4 - 10	H3	3	1	TT91096S	69.91
3/4 - 16	H3	3	1	TT91098S	69.91

NITRIDE & STEAM OXIDE



SERIES 752
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
4 - 40	H2	2	1	TT91015NS	11.93
4 - 48	H2	2	1	TT91017NS	13.60
4 - 36	H2	2	1	TT91018NS	13.60
5 - 40	H2	2	1	TT91020NS	11.93
5 - 44	H2	2	1	TT91021NS	13.60
6 - 32	H3	2	1	TT91024NS	10.02
6 - 40	H2	2	1	TT91027NS	11.38
8 - 32	H3	2	1	TT91030NS	10.02
8 - 36	H2	2	1	TT91033NS	11.38
10 - 24	H3	2	1	TT91036NS	10.02
10 - 32	H3	2	1	TT91040NS	10.02
12 - 24	H3	2	1	TT91043NS	11.38
1/4 - 20	H3	2	1	TT91047NS	10.02
1/4 - 28	H3	2	1	TT91054NS	10.02
5/16 - 18	H3	2	1	TT91059NS	10.84
5/16 - 24	H3	2	1	TT91066NS	10.84
3/8 - 16	H3	3	1	TT91071NS	12.85
3/8 - 24	H3	3	1	TT91075NS	13.80
7/16 - 14	H3	3	1	TT91078NS	21.85
7/16 - 20	H3	3	1	TT91081NS	21.85
1/2 - 13	H3	3	1	TT91085NS	22.26
1/2 - 20	H3	3	1	TT91089NS	26.11
9/16 - 12	H3	3	1	TT91091NS	36.30
9/16 - 18	H3	3	1	TT91092NS	36.30
5/8 - 11	H3	3	1	TT91093NS	49.56
5/8 - 18	H3	3	1	TT91095NS	49.56
3/4 - 10	H3	3	1	TT91096NS	69.91
3/4 - 16	H3	3	1	TT91098NS	69.91

STEAM OXIDE: A BLACK OXIDE COATING OF NON-MEASURABLE THICKNESS IS USED TO INCREASE TAP SURFACE CAPILLARY WHERE LUBRICANT PROPERTIES ARE REQUIRED.

MATERIALS: STEEL, STEEL ALLOYS, STAINLESS STEELS, TITANIUM ALLOYS AND A WIDE RANGE OF FERROUS MATERIALS (IRON BASED).

NITRIDE & STEAM OXIDE: A NITRIDED SURFACE FOLLOWED BY A STEAM OXIDE TREATMENT PROVIDES THE BENEFITS OF WEAR AND DUCTILITY.

MATERIALS: ALL TYPES OF GRAY, DUCTILE AND MALLEABLE CAST IRON FERROUS MATERIALS (IRON BASED).

For technical information, please see page 237.

Spiral Point Plug Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 760
HIGH SPEED STEEL
TIN COATED



SERIES 762
HIGH SPEED STEEL
ALTiN COATED

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0-80	H2	2	1	TT99401	31.07
2-56	H2	2	1	TT99407	24.93
4-40	H2	2	1	TT99415	17.63
5-40	H2	2	1	TT99420	17.63
6-32	H3	2	1	TT99424	16.47
8-32	H3	2	1	TT99430	16.47
10-24	H3	2	1	TT99436	16.47
10-32	H3	2	1	TT99440	16.47
12-24	H3	2	1	TT99443	17.99
12-28	H3	2	1	TT99444	17.99
1/4-20	H3	2	1	TT99447	16.47
1/4-28	H3	2	1	TT99454	16.47
5/16-18	H3	2	1	TT99459	19.03
5/16-24	H3	2	1	TT99466	19.03
3/8-16	H3	3	1	TT99471	21.17
3/8-24	H3	3	1	TT99475	22.26
7/16-14	H3	3	1	TT99478	35.01
7/16-20	H3	3	1	TT99481	35.01
1/2-13	H3	3	1	TT99485	35.48
1/2-20	H3	3	1	TT99489	39.63
5/8-11	H3	3	1	TT99493	82.01
5/8-18	H3	3	1	TT99495	82.01
3/4-10	H3	3	1	TT99496	107.09
3/4-16	H3	3	1	TT99498	107.09

TIN COATED: IT IS AN EXCELLENT GENERAL PURPOSE WEAR COATING WITH GOOD LUBRICITY.

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0-80	H2	2	1	TT98001	31.07
2-56	H2	2	1	TT98002	24.93
4-40	H2	2	1	TT98003	17.63
5-40	H2	2	1	TT98004	17.63
6-32	H3	2	1	TT98005	16.47
8-32	H3	2	1	TT98006	16.47
10-24	H3	2	1	TT98007	16.47
10-32	H3	2	1	TT98008	16.47
12-24	H3	2	1	TT98009	17.99
12-28	H3	2	1	TT98010	17.99
1/4-20	H3	2	1	TT98011	16.47
1/4-28	H3	2	1	TT98012	16.47
5/16-18	H3	2	1	TT98013	19.03
5/16-24	H3	2	1	TT98014	19.03
3/8-16	H3	3	1	TT98015	21.17
3/8-24	H3	3	1	TT98016	22.26
7/16-14	H3	3	1	TT98017	35.01
7/16-20	H3	3	1	TT98018	35.01
1/2-13	H3	3	1	TT98019	35.48
1/2-20	H3	3	1	TT98020	39.63
5/8-11	H3	3	1	TT98021	82.01
5/8-18	H3	3	1	TT98022	82.01
3/4-10	H3	3	1	TT98023	107.09
3/4-16	H3	3	1	TT98024	107.09

ALTiN COATED: A MULTI-LAYERED COATING FOR A WIDE RANGE OF HIGH SPEED STEEL APPLICATIONS FOR CAST IRON, STAINLESS STEEL, NICKEL BASED HIGH TEMPERATURE ALLOYS AND TITANIUM ALLOYS.

For coating information see page 6.
For technical information, please see page 237.



Spiral Point Plug & Bottoming Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

SPIRAL POINT PLUG TAPS



SERIES 780
HIGH SPEED STEEL
METRIC
UNCOATED



SERIES 882
HIGH SPEED STEEL
METRIC
TIN COATED

SIZE	D-LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
M2 x 0.4	D3	2	1	TT93208	23.25
M2.5 x 0.45	D3	2	1	TT93214	16.67
M3 x 0.5	D3	2	1	TT93217	13.39
M3.5 x 0.6	D4	2	1	TT93220	11.55
M4 x 0.7	D4	2	1	TT93223	11.55
M4.5 x 0.75	D4	2	1	TT93226	11.55
M5 x 0.8	D4	2	1	TT93229	11.55
M6 x 1.0	D5	2	1	TT93232	11.55
M7 x 1.0	D5	2	1	TT93238	13.36
M8 x 1.25	D5	2	1	TT93244	13.36
M10 x 1.50	D6	3	1	TT93250	22.19
M12 x 1.75	D6	3	1	TT93256	27.78
M14 x 2.0	D7	3	1	TT93262	43.12
M16 x 2.0	D7	3	1	TT93268	48.84
M18 x 2.5	D7	3	1	TT93274	71.85
M20 x 2.5	D7	3	1	TT93277	94.82

SIZE	D-LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
M2 x 0.4	D3	2	1	TT93208TIN	32.05
M2.5 x 0.45	D3	2	1	TT93214TIN	22.98
M3 x 0.5	D3	2	1	TT93217TIN	18.50
M3.5 x 0.6	D4	2	1	TT93220TIN	15.93
M4 x 0.7	D4	2	1	TT93223TIN	15.93
M4.5 x 0.75	D4	2	1	TT93226TIN	15.93
M5 x 0.8	D4	2	1	TT93229TIN	15.93
M6 x 1.0	D5	2	1	TT93232TIN	15.93
M7 x 1.0	D5	2	1	TT93238TIN	18.39
M8 x 1.25	D5	2	1	TT93244TIN	18.39
M10 x 1.50	D6	3	1	TT93250TIN	30.56
M12 x 1.75	D6	3	1	TT93256TIN	38.30
M14 x 2.0	D7	3	1	TT93262TIN	59.40
M16 x 2.0	D7	3	1	TT93268TIN	67.31
M18 x 2.5	D7	3	1	TT93274TIN	98.99
M20 x 2.5	D7	3	1	TT93277TIN	130.68

SPIRAL POINT BOTTOMING TAPS



SERIES 754
HIGH SPEED STEEL
UNCOATED



SERIES 756
HIGH SPEED STEEL
TIN COATED

SIZE	H-LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0 - 80	H2	2	1	TT91201	38.66
2 - 56	H2	2	1	TT91207	29.63
3 - 48	H2	2	1	TT91211	23.77
4 - 40	H2	2	1	TT91215	19.08
5 - 40	H2	2	1	TT91220	19.08
6 - 32	H2	2	1	TT91223	16.04
6 - 32	H3	2	1	TT91224	16.04
6 - 40	H2	2	1	TT91227	18.25
8 - 32	H2	2	1	TT91229	16.04
8 - 32	H3	2	1	TT91230	16.04
10 - 24	H2	2	1	TT91235	18.25
10 - 24	H3	2	1	TT91236	16.04
10 - 32	H2	2	1	TT91239	16.04
10 - 32	H3	2	1	TT91240	16.04
12 - 24	H3	2	1	TT91243	18.25
1/4 - 20	H3	2	1	TT91247	16.04
1/4 - 28	H3	2	1	TT91254	16.04
5/16 - 18	H3	2	1	TT91259	17.31
5/16 - 24	H3	2	1	TT91266	17.31

SIZE	H-LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
0 - 80	H2	2	1	TT92202	52.19
2 - 56	H2	2	1	TT92209	39.99
3 - 48	H2	2	1	TT92212	32.09
4 - 40	H2	2	1	TT92216	25.75
5 - 40	H2	2	1	TT92221	25.75
6 - 32	H2	2	1	TT92224	21.66
6 - 32	H3	2	1	TT92225	21.66
6 - 40	H2	2	1	TT92228	24.63
8 - 32	H2	2	1	TT92230	21.66
8 - 32	H3	2	1	TT92231	21.66
10 - 24	H2	2	1	TT92236	24.63
10 - 24	H3	2	1	TT92237	21.66
10 - 32	H2	2	1	TT92240	21.66
10 - 32	H3	2	1	TT92241	21.66
12 - 24	H3	2	1	TT92244	24.63
1/4 - 20	H3	2	1	TT92248	21.66
1/4 - 28	H3	2	1	TT92255	21.66
5/16 - 18	H3	2	1	TT92260	23.36
5/16 - 24	H3	2	1	TT92267	23.36

SPIRAL POINT BOTTOMING TAPS ARE RECOMMENDED FOR USE WHERE CLOSE GAGING IS REQUIRED.

For coating information see page 6.

For technical information, please see page 237.

HP TAPS

TAPS

DIES

STI Taps • Oversize Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

STI - SPIRAL POINT PLUG



SERIES 770
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
4 - 40	H1	2	1	TT92315	25.29
5 - 40	H1	2	1	TT92320	25.29
6 - 32	H2	2	1	TT92324	25.47
6 - 40	H2	2	1	TT92327	25.47
8 - 32	H2	2	1	TT92330	25.72
10 - 24	H2	2	1	TT92336	26.19
10 - 32	H2	2	1	TT92340	26.66
12 - 24	H2	2	1	TT92343	26.66
1/4 - 20	H2	2	1	TT92347	26.66
1/4 - 28	H2	2	1	TT92354	27.10
5/16 - 18	H3	3	1	TT92360	34.25
5/16 - 24	H2	3	1	TT92368	34.68
3/8 - 16	H3	3	1	TT92371	42.16
3/8 - 24	H2	3	1	TT92375	42.67
7/16 - 14	H3	3	1	TT92378	46.24
7/16 - 20	H3	3	1	TT92381	46.24
1/2 - 13	H3	3	1	TT92385	51.48
1/2 - 20	H3	3	1	TT92389	51.48

STI - HAND PLUG & BOTTOMING



SERIES 783
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4 - 40	H1	3	1	TT78302	TT78303	22.54
5 - 40	H1	3	1	TT78304	TT78305	22.54
6 - 32	H2	3	1	TT78306	TT78307	22.94
6 - 40	H1	3	1	TT78308	TT78309	22.94
8 - 32	H2	3	1	TT78310	TT78311	23.48
10 - 24	H2	3	1	TT78312	TT78313	23.48
10 - 32	H2	3	1	TT78314	TT78315	24.42
12 - 24	H2	3	1	TT78316	TT78317	24.42
1/4 - 20	H2	3	1	TT78318	TT78319	24.53
1/4 - 28	H2	3	1	TT78320	TT78321	24.53
5/16 - 18	H3	4	1	TT78322	TT78323	26.48
5/16 - 24	H2	4	1	TT78324	TT78325	26.48
3/8 - 16	H3	4	1	TT78326	TT78327	28.76
3/8 - 24	H2	4	1	TT78328	TT78329	28.76
7/16 - 14	H3	4	1	TT78330	TT78331	39.56
7/16 - 20	H3	4	1	TT78332	TT78333	39.56
1/2 - 13	H3	4	1	TT78334	TT78335	44.40
1/2 - 20	H3	4	1	TT78336	TT78337	44.40

STI TAPS ARE OVERSIZE SO THAT THEY WILL PRODUCE THREADS THAT WILL ACCEPT HELICAL COIL WIRE SCREW THREAD INSERTS THAT HAVE THE SAME SIZE AND PITCH. MATERIALS: ALUMINUM AND NON-FERROUS MATERIALS

+ .005 OVERSIZE SPIRAL POINT PLUG



SERIES 764
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
6 - 32	H11	2	1	TT91732	13.08
8 - 32	H11	2	1	TT91734	13.08
10 - 24	H11	2	1	TT91736	14.23
10 - 32	H11	2	1	TT91738	14.23
1/4 - 20	H11	2	1	TT91749	16.22
5/16 - 18	H11	2	1	TT91761	18.64
3/8 - 16	H11	3	1	TT91772	21.17
7/16 - 14	H11	3	1	TT91779	31.79
1/2 - 13	H11	3	1	TT91786	38.69
5/8 - 11	H11	3	1	TT91794	65.93

+ .005 OVERSIZE HAND PLUG



SERIES 766
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
6 - 32	H11	3	1	TT90931	10.87
8 - 32	H11	4	1	TT90933	10.87
10 - 24	H11	4	1	TT90935	12.03
10 - 32	H11	4	1	TT90937	12.03
1/4 - 20	H11	4	1	TT90940	14.34
5/16 - 18	H11	4	1	TT90946	18.06
3/8 - 16	H11	4	1	TT90950	20.74
7/16 - 14	H11	4	1	TT90954	31.23
1/2 - 13	H11	4	1	TT90958	35.23
5/8 - 11	H11	4	1	TT90966	66.33

THESE OVERSIZE TAPS CAN BE USED ON A WIDE RANGE OF MATERIALS. PRIMARILY USED WHERE PARTS ARE GOING TO BE PLATED AFTER TAPPING.

For technical information, please see page 237.



Combination Drill & Tap

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 707
HIGH SPEED STEEL

SIZE	SHANK DIA.	OVERALL LENGTH	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	# OF FLUTES	PACKAGE QUANTITY	ITEM#	LIST PRICE
4-40	0.141	1-7/8	1/4	0.0910	3/8	2	1	TT70701	38.87
5-40	0.141	1-15/16	9/32	0.1040	13/32	2	1	TT70703	38.87
6-32	0.141	2	5/16	0.1115	7/16	2	1	TT70705	38.87
8-32	0.168	2-1/8	3/8	0.1375	1/2	2	1	TT70707	38.87
10-24	0.194	2-3/8	13/32	0.1545	5/8	2	1	TT70709	38.87
10-32	0.194	2-3/8	13/32	0.1635	5/8	2	1	TT70711	38.87
12-24	0.220	2-3/8	15/32	0.1805	21/32	2	1	TT70713	42.02
1/4-20	0.255	2-1/2	17/32	0.2080	25/32	2	1	TT70715	38.87
1/4-28	0.255	2-1/2	17/32	0.2200	25/32	2	1	TT70717	38.87
5/16-18	0.318	2-27/32	11/16	0.2660	15/16	2	1	TT70719	57.41
5/16-24	0.318	2-27/32	11/16	0.2770	15/16	2	1	TT70721	57.41
3/8-16	0.381	3-3/8	13/16	0.3225	1-1/16	2	1	TT70723	69.76
3/8-24	0.381	3-3/8	13/16	0.3395	1-1/16	2	1	TT70725	69.76
7/16-14	0.323	3-3/4	1	0.3770	1-1/4	2	1	TT70727	83.49
7/16-20	0.323	3-3/4	1	0.3955	1-1/4	2	1	TT70729	83.49
1/2-13	0.367	4-1/16	1-1/8	0.4350	1-3/8	2	1	TT70731	94.22
1/2-20	0.367	4-1/16	1-1/8	0.4580	1-3/8	2	1	TT70733	94.22

PITCH DIAMETER AND THREAD TOLERANCES ARE DESIGNED TO PRODUCE A CLASS 2B FIT.



SERIES 708
HIGH SPEED STEEL
METRIC

SIZE	SHANK DIA.	OVERALL LENGTH	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	# OF FLUTES	PACKAGE QUANTITY	ITEM#	LIST PRICE
M4 x 0.7	0.168	2-1/8	3/8	0.1340	1/2	2	1	TT70830	42.78
M5 x 0.8	0.194	2-3/8	13/32	0.1700	5/8	2	1	TT70832	42.78
M6 x 1.0	0.255	2-1/2	17/32	0.2030	25/32	2	1	TT70834	42.78
M8 x 1.25	0.318	2-27/32	11/16	0.2730	15/16	2	1	TT70836	77.50
M10 x 1.50	0.381	3.38	13/16	0.3440	0.69	2	1	TT70838	88.55
M12 x 1.75	0.367	4-1/16	1-1/8	0.4140	1-3/8	2	1	TT70840	88.55

PITCH DIAMETER AND THREAD TOLERANCES ARE DESIGNED TO PRODUCE A CLASS 6H FIT.

For technical information, please see page 237.

Puley Taps • Extension Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

PULLEY - PLUG



SERIES 747
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1/4 - 20	H3	4	6	1	TT92722	76.74
1/4 - 20	H3	4	8	1	TT92723	94.87
5/16 - 18	H3	4	6	1	TT92730	80.93
5/16 - 18	H3	4	8	1	TT92731	97.69
3/8 - 16	H3	4	6	1	TT92738	90.68
3/8 - 16	H3	4	8	1	TT92739	108.82
3/8 - 16	H3	4	10	1	TT92740	136.75
7/16 - 14	H3	4	6	1	TT92746	96.28
7/16 - 14	H3	4	8	1	TT92747	125.58
1/2 - 13	H3	4	6	1	TT92754	97.69

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1/2 - 13	H3	4	8	1	TT92755	128.37
1/2 - 13	H3	4	10	1	TT92756	157.67
1/2 - 13	H3	4	12	1	TT92757	193.94
5/8 - 11	H3	4	6	1	TT92762	129.77
5/8 - 11	H3	4	8	1	TT92763	168.83
5/8 - 11	H3	4	10	1	TT92764	212.11
5/8 - 11	H3	4	12	1	TT92765	248.38
3/4 - 10	H3	4	10	1	TT92772	248.38
3/4 - 10	H3	4	12	1	TT92773	295.82
-	-	-	-	-	-	-

SMALL SHANK EXTENSION - SPIRAL POINT PLUG



SERIES 749
HIGH SPEED STEEL

SIZE	H LIMIT	OVERALL LENGTH	NC/NF	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE	# OF FLUTES	PKG. QTY.	ITEM#	LIST PRICE
6 - 32	H3	6	NC	11/16	3/16	0.097	0.073	2	1	TT94101	77.86
8 - 32	H3	6	NC	3/4	1/4	0.123	0.092	2	1	TT94102	76.27
10 - 24	H3	6	NC	7/8	1/4	0.136	0.102	2	1	TT94103	71.50
10 - 32	H3	6	NF	7/8	1/4	0.136	0.102	2	1	TT94104	71.50
1/4 - 20	H3	6	NC	1	5/16	0.185	0.139	2	1	TT94105	97.55
1/4 - 28	H3	6	NF	1	5/16	0.185	0.139	2	1	TT94106	97.55
5/16 - 18	H3	6	NC	1-1/8	3/8	0.240	0.180	2	1	TT94107	102.39
5/16 - 24	H3	6	NF	1-1/8	3/8	0.240	0.180	2	1	TT94108	102.39
3/8 - 16	H3	6	NC	1-1/4	7/16	0.275	0.206	3	1	TT94109	110.30
3/8 - 24	H3	6	NF	1-1/4	7/16	0.275	0.206	3	1	TT94110	110.30
7/16 - 14	H3	6	NC	1-7/16	13/32	0.323	0.242	3	1	TT94111	126.45
7/16 - 20	H3	6	NF	1-7/16	13/32	0.323	0.242	3	1	TT94112	126.45
1/2 - 13	H3	6	NC	1-21/32	7/16	0.367	0.275	3	1	TT94113	132.74
1/2 - 20	H3	6	NF	1-21/32	7/16	0.367	0.275	3	1	TT94114	132.74
5/8 - 11	H3	6	NC	1-13/16	9/16	0.480	0.360	3	1	TT94115	171.50
5/8 - 18	H3	6	NF	1-13/16	9/16	0.480	0.360	3	1	TT94116	171.50
3/4 - 10	H3	6	NC	2	11/16	0.590	0.442	3	1	TT94117	222.73
3/4 - 16	H3	6	NF	2	11/16	0.590	0.442	3	1	TT94118	222.73

SMALL SHANK EXTENSIONS: LONG REACH SMALL SHANKS ALLOW FOR DEEPER TAPPING

For technical information, please see page 237.

HP TAPS
TAPS
DIES



Carbon Steel Dies

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



HEXAGON RETHREADING

SERIES 795
CARBON STEEL

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
1/4-20	19/32	1/4	TE80529	23.62
1/4-28	19/32	1/4	TE80532	23.62
5/16-18	11/16	5/16	TE80537	27.54
5/16-24	11/16	5/16	TE80540	27.54
3/8-16	25/32	3/8	TE80544	30.50
3/8-24	25/32	3/8	TE80547	30.50
7/16-14	7/8	7/16	TE80550	37.37
7/16-20	7/8	7/16	TE80553	37.37
1/2-13	1-1/16	1/2	TE80555	41.33
1/2-20	1-1/16	1/2	TE80557	41.33
9/16-12	1-1/16	1/2	TE80559	44.25
9/16-18	1-1/16	1/2	TE80561	44.25
5/8-11	1-1/4	5/8	TE80563	46.23
5/8-18	1-1/4	5/8	TE80566	46.23
11/16-11	1-7/16	3/4	TE80568	51.16
11/16-16	1-7/16	3/4	TE80569	51.16

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
3/4-10	1-7/16	3/4	TE80571	57.07
3/4-16	1-7/16	3/4	TE80573	57.07
7/8-9	1-5/8	7/8	TE80575	61.96
7/8-14	1-5/8	7/8	TE80577	61.96
1-8	1-13/16	1	TE80579	69.85
1-12	1-13/16	1	TE80581	69.85
1-14	1-13/16	1	TE80583	69.85
1-1/8-7	2	1	TE80584	80.65
1-1/8-12	2	1	TE80585	80.65
1-1/4-7	2-3/16	1	TE80586	88.53
1-1/4-12	2-3/16	1	TE80587	88.53
1-3/8-6	2-3/8	1	TE80588	167.24
1-3/8-12	2-3/8	1	TE80589	167.24
1-1/2-6	2-9/16	1	TE80590	186.90
1-1/2-12	2-9/16	1	TE80591	186.90
-	-	-	-	-



HEXAGON RETHREADING METRIC

SERIES 796
CARBON STEEL

SIZE	ACROSS THE FLATS	ITEM#	LIST PRICE
M3 x 0.5	1	TE80601	17.99
M4 x 0.7	1	TE80602	17.51
M5 x 0.8	1	TE80603	17.51
M6 x 1.0	1	TE80604	17.51
M7 x 1.0	1	TE80605	17.99
M8 x 1.25	1	TE80606	17.51
M10 x 1.25	1	TE80607	17.51
M10 x 1.50	1	TE80608	17.51
M12 x 1.25	1	TE80609	17.51

SIZE	ACROSS THE FLATS	ITEM#	LIST PRICE
M12 x 1.75	1	TE80610	17.51
M14 x 1.50	1-7/16	TE80611	27.16
M14 x 2.0	1-7/16	TE80612	27.16
M16 x 1.50	1-7/16	TE80613	27.16
M16 x 2.0	1-7/16	TE80614	27.16
M18 x 1.50	1-7/16	TE80615	27.16
M18 x 2.50	1-7/16	TE80616	27.16
M20 x 2.5	1-13/16	TE80617	56.72
M24 x 3.0	1-13/16	TE80618	56.72

HP TAPS

TAPS

DIES

Carbon Steel Dies

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



NPT HEXAGON RETHREADING

SERIES 797
CARBON STEEL

SIZE	ACROSS THE FLATS	THICKNESS	ITEM#	LIST PRICE
1/8-27 NPT	1-1/16	3/8	TE80701	32.65
1/4-18 NPT	1-1/4	5/8	TE80702	36.19
3/8-18 NPT	1-7/16	5/8	TE80703	50.05
1/2-14 NPT	1-5/8	3/4	TE80704	72.31
3/4-14 NPT	2	13/16	TE80705	89.40
1-11-1/2 NPT	2-3/8	1	TE80706	173.07



ADJUSTABLE ROUND SPLIT

SERIES 790
CARBON STEEL

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
6-32	1	TE80113	40.29
8-32	1	TE80116	40.29
10-24	1	TE80119	40.29
10-32	1	TE80121	40.29
1/4-20	1	TE80127	40.29
1/4-20	1-1/2	TE80128	65.92
1/4-28	1	TE80130	40.29
1/4-32	1	TE80134	40.29
5/16-18	1	TE80135	40.29
5/16-18	1-1/2	TE80136	65.92
5/16-24	1	TE80138	40.29
5/16-24	1-1/2	TE80139	65.92
5/16-32	1	TE80141	40.29

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
3/8-16	1	TE80142	40.29
3/8-16	1-1/2	TE80143	65.92
3/8-24	1	TE80145	40.29
3/8-24	1-1/2	TE80146	65.92
7/16-14	1	TE80148	40.29
7/16-14	1-1/2	TE80149	65.92
7/16-20	1	TE80151	40.29
1/2-13	1-1/2	TE80154	65.92
1/2-20	1-1/2	TE80156	65.92
9/16-12	1-1/2	TE80158	65.92
9/16-18	1-1/2	TE80160	65.92
5/8-11	1-1/2	TE80162	65.92
5/8-18	1-1/2	TE80165	65.92

HP TAPS

TAPS

DIES



HSS Dies • Die Stocks • Tap Wrenches

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

ADJUSTABLE ROUND SPLIT



SERIES 794
HIGH SPEED STEEL

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
4-40	1	TE80810	75.40
5-40	13/16	TE80811	51.16
5-44	13/16	TE80812	51.16
6-32	13/16	TE80813	51.16
6-32	1	TE80814	61.96
6-40	13/16	TE80815	51.16
8-32	13/16	TE80816	51.16
8-32	1	TE80817	61.96
10-24	13/16	TE80818	51.16
10-24	1	TE80819	61.96
10-32	13/16	TE80820	51.16
10-32	1	TE80821	61.96
12-24	13/16	TE80822	51.16
12-24	1	TE80823	61.96
12-28	13/16	TE80824	51.16
1/4-20	13/16	TE80825	51.16
1/4-20	1	TE80826	61.96

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
1/4-20	1-1/2	TE80827	101.32
1/4-28	13/16	TE80828	51.16
1/4-28	1	TE80829	61.96
1/4-28	1-1/2	TE80830	101.32
5/16-18	13/16	TE80831	51.16
5/16-18	1	TE80832	61.96
5/16-18	1-1/2	TE80833	101.32
5/16-24	13/16	TE80834	51.16
5/16-24	1	TE80835	61.96
5/16-24	1-1/2	TE80836	101.32
3/8-16	1	TE80837	61.96
3/8-16	1-1/2	TE80838	101.32
3/8-24	1	TE80839	61.96
3/8-24	1-1/2	TE80840	101.32
7/16-14	1	TE80841	61.96
7/16-14	1-1/2	TE80842	101.32
7/16-20	1	TE80843	61.96

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
7/16-20	1-1/2	TE80844	101.32
1/2-13	1	TE80845	61.96
1/2-13	1-1/2	TE80846	101.32
1/2-20	1	TE80847	61.96
1/2-20	1-1/2	TE80848	101.32
9/16-12	1-1/2	TE80849	101.32
9/16-18	1-1/2	TE80850	101.32
5/8-11	1-1/2	TE80851	101.32
5/8-11	2	TE80852	137.72
5/8-18	1-1/2	TE80853	101.32
5/8-18	2	TE80854	137.72
3/4-10	1-1/2	TE80855	101.32
3/4-10	2	TE80856	137.72
3/4-16	1-1/2	TE80857	101.32
3/4-16	2	TE80858	137.72
7/8-9	2	TE80859	137.72
7/8-14	2	TE80860	137.72

DIE STOCKS



SERIES 789

SIZE	ITEM#	LIST PRICE
1 OD	TE78909	46.13
1-1/2 OD	TE78910	75.54
2 OD	TE78911	132.99

T - HANDLE TAP WRENCHES



SERIES 801

SIZE	ITEM#	LIST PRICE
0-1/4	TE78701	14.94
1/4-1/2	TE78702	22.37

HP TAPS

TAPS

DIES

Drill Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



ITEM# MS99028

29 PC. JOBBER DRILL SET - BRIGHT FINISH
HIGH SPEED STEEL



ITEM# MS99030

29 PC. HEAVY DUTY DRILL SET - BLACK/GOLD
HIGH SPEED STEEL

HIGH SPEED STEEL - JOBBER DRILL SETS

DESCRIPTION	ITEM#	LIST PRICE
13Pc. • 1/16" - 1/4" by 64ths • 118° Point • Oxided	MS99010	39.45
13Pc. • 1/16" - 1/4" by 64ths • 118° Point • Bright	MS99011	39.45
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Oxided	MS99014	110.16
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Bright	MS99016	110.16
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Oxided	MS99017	121.50
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Oxided	MS99018	93.10
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Bright	MS99020	93.10
25Pc. • 1.0mm - 13.0mm by 0.5mm • 118° Point • Oxided	MS99050	212.62
26Pc. • A-Z • 118° Point • Oxided	MS99022	155.82
26Pc. • A-Z • 118° Point • Bright	MS99024	155.82
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Oxided	MS99026	151.38
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Bright	MS99028	151.38
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Oxided	MS99032	188.41
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • TIN Coated	MS99036	374.37
60Pc. • #1 - #60 • 118° Point • Oxided	MS99038	136.93
60Pc. • #1 - #60 • 118° Point • Bright	MS99040	136.93
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Oxided	MS99042	435.10
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Bright	MS99044	435.10

HIGH SPEED STEEL - BLACK & GOLD SETS

DESCRIPTION	ITEM#	LIST PRICE
13Pc. • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99012	49.21
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Black/Gold	MS99015	142.53
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99021	139.60
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99030	228.04
29Pc. • 1/16" - 1/2" by 64ths • H.D. • 135° SP/PT • Black/Gold • Plastic Case	MS99431	228.04
115Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99046	629.00

Note: sizes below 1/16" are not split point.

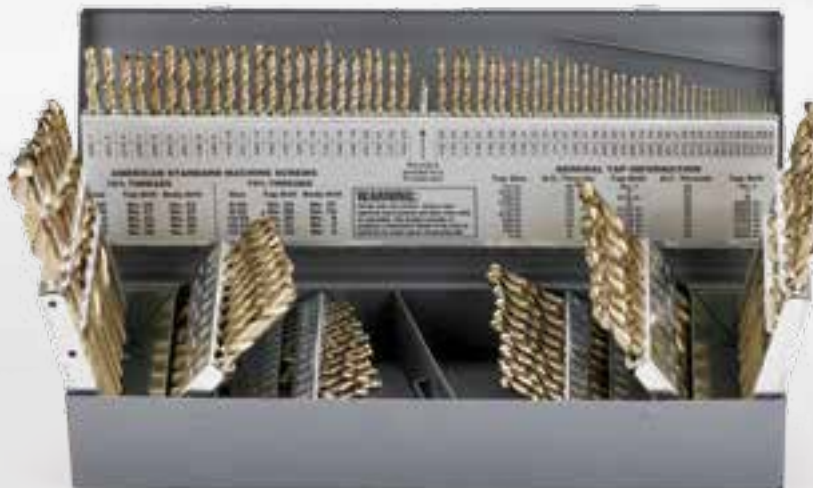
For coating information see page 6. For technical information, please see pages 238 & 239.



Drill Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



ITEM# MS99163

115 PC. JOBBER DRILL SET - M42 COBALT

M42 COBALT - JOBBER DRILL SETS

DESCRIPTION	ITEM#	LIST PRICE
13Pc. • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT	MS99151	53.18
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT	MS99153	179.45
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT	MS99155	195.46
26Pc. • A - Z • Heavy Duty • 135° SP/PT	MS99157	297.63
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT	MS99159	291.31
60Pc. • #1 - #60 • Heavy Duty • 135° SP/PT	MS99161	254.27
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	MS99163	1,072.37

M42 COBALT - SCREW MACHINE DRILL SETS

DESCRIPTION	ITEM#	LIST PRICE
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	MS99165	889.00

HIGH SPEED STEEL - TAP & DRILL SETS

DESCRIPTION	ITEM#	LIST PRICE
18Pc. • (6-32, #36), (8-32, #29), (10-24, #25), (10-32, #21), (1/4-20, #7) (5/16-18,"F"), (3/8-16, 5/16"), (7/16-14,"U"), (1/2-13, 27/64)	MS99201	202.97

DRILL INDEXES ONLY

DESCRIPTION	ITEM#	LIST PRICE
21Pc. • 1/16" - 3/8" by 64ths • Metal Case	MS99320	22.00
26Pc. • A - Z • Metal Case	MS99323	24.00
29Pc. • 1/16" - 1/2" by 64ths • Metal Case	MS99326	24.00
60Pc. • #1 - #60 • Metal Case	MS99329	24.00
115Pc. • 1/16" - 1/2" by 64ths, A - Z, #1 - #60 • Metal Case	MS99332	100.00

Note: sizes below 1/16" are not split point.
For technical information, please see pages 238 & 239.

HSS & COBALT DRILLS

Drill Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



ITEM# MS99302
8 PC. SILVER & DEMING DRILL SET
HIGH SPEED STEEL

SILVER & DEMING SETS - 1/2" SHANK

DESCRIPTION	ITEM#	LIST PRICE
8Pc. • HSS • 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1" • 118° Point • In Plastic Case	MS99302	367.90
8Pc. • HSS • Black & Gold • 118° Split Point • In Plastic Case	MS99313	467.22
8Pc. • M42 Cobalt • 118° Split Point • In Plastic Case	MS99310	759.00
33Pc. • HSS • 1/2" - 1" by 64ths • 118° Point • Metal Stand	MS99304	1,655.13

ITEM# MS99442
29 PC. MECHANICS LENGTH DRILL SET
HIGH SPEED STEEL - BLACK/GOLD



HIGH SPEED STEEL - MECHANICS LENGTH SETS

DESCRIPTION	ITEM#	LIST PRICE
15Pc. • 1/16" - 1/2" by 32ths • Black/Gold • Heavy Duty • 135° SP/PT • Metal Case	MS99425	134.15
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Metal Case	MS99405	247.55
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Plastic Case	MS99442	247.55

MECHANICS LENGTH: SIZES 3/16" TO 1/2" - HAVE 3 FLATS;
SIZES 27/64" AND HIGHER - HAVE 3/8" REDUCED FLATTED SHANKS

For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

JOBBER LENGTH - 118° POINT



SERIES 406
BRIGHT FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD40604	1.60	7/32	2-1/2	3-3/4	12	CD40614	2.59	3/8	3-5/8	5	6	CD40624	7.16
5/64	1	2	12	CD40605	1.60	15/64	2-5/8	3-7/8	12	CD40615	2.90	25/64	3-3/4	5-1/8	6	CD40625	7.74
3/32	1-1/4	2-1/4	12	CD40606	1.60	1/4	2-3/4	4	12	CD40616	2.97	13/32	3-7/8	5-1/4	6	CD40626	8.45
7/64	1-1/2	2-5/8	12	CD40607	1.60	17/64	2-7/8	4-1/8	6	CD40617	4.26	27/64	3-15/16	5-3/8	6	CD40627	9.00
1/8	1-5/8	2-3/4	12	CD40608	1.60	9/32	2-15/16	4-1/4	6	CD40618	4.53	7/16	4-1/16	5-1/2	6	CD40628	9.82
9/64	1-3/4	2-7/8	12	CD40609	1.70	19/64	3-1/16	4-3/8	6	CD40619	4.98	29/64	4-3/16	5-5/8	6	CD40629	10.46
5/32	2	3-1/8	12	CD40610	1.77	5/16	3-3/16	4-1/2	6	CD40620	5.18	15/32	4-5/16	5-3/4	6	CD40630	11.38
11/64	2-1/8	3-1/4	12	CD40611	1.91	21/64	3-5/16	4-5/8	6	CD40621	5.79	31/64	4-3/8	5-7/8	6	CD40631	12.03
3/16	2-5/16	3-1/2	12	CD40612	2.08	11/32	3-7/16	4-3/4	6	CD40622	6.20	1/2	4-1/2	6	6	CD40632	12.54
13/64	2-7/16	3-5/8	12	CD40613	2.35	23/64	3-1/2	4-7/8	6	CD40623	6.82	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD40901	2.90	J	2-7/8	4-1/8	6	CD40910	4.43	S	3-1/2	4-7/8	6	CD40919	6.82
B	2-3/4	4	12	CD40902	2.97	K	2-15/16	4-1/4	6	CD40911	4.53	T	3-1/2	4-7/8	6	CD40920	7.16
C	2-3/4	4	12	CD40903	2.97	L	2-15/16	4-1/4	6	CD40912	4.74	U	3-5/8	5	6	CD40921	7.74
D	2-3/4	4	12	CD40904	3.07	M	3-1/16	4-3/8	6	CD40913	5.01	V	3-5/8	5	6	CD40922	8.01
E	2-3/4	4	12	CD40905	3.10	N	3-1/16	4-3/8	6	CD40914	5.18	W	3-3/4	5-1/8	6	CD40923	8.52
F	2-7/8	4-1/8	6	CD40906	4.29	O	3-3/16	4-1/2	6	CD40915	5.62	X	3-3/4	5-1/8	6	CD40924	9.03
G	2-7/8	4-1/8	6	CD40907	4.12	P	3-5/16	4-5/8	6	CD40916	6.03	Y	3-7/8	5-1/4	6	CD40925	9.48
H	2-7/8	4-1/8	6	CD40908	4.19	Q	3-7/16	4-3/4	6	CD40917	6.27	Z	3-7/8	5-1/4	6	CD40926	9.68
I	2-7/8	4-1/8	6	CD40909	4.29	R	3-7/16	4-3/4	6	CD40918	6.51	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD40801	3.17	21	2-1/8	3-1/4	12	CD40821	2.01	41	1-3/8	2-3/8	12	CD40841	1.47
2	2-5/8	3-7/8	12	CD40802	3.17	22	2	3-1/8	12	CD40822	1.91	42	1-1/4	2-1/4	12	CD40842	1.47
3	2-1/2	3-3/4	12	CD40803	2.90	23	2	3-1/8	12	CD40823	1.91	43	1-1/4	2-1/4	12	CD40843	1.47
4	2-1/2	3-3/4	12	CD40804	2.90	24	2	3-1/8	12	CD40824	1.91	44	1-1/8	2-1/8	12	CD40844	1.47
5	2-1/2	3-3/4	12	CD40805	2.86	25	1-7/8	3	12	CD40825	1.67	45	1-1/8	2-1/8	12	CD40845	1.53
6	2-1/2	3-3/4	12	CD40806	2.86	26	1-7/8	3	12	CD40826	1.67	46	1-1/8	2-1/8	12	CD40846	1.53
7	2-7/16	3-5/8	12	CD40807	2.76	27	1-7/8	3	12	CD40827	1.67	47	1	2	12	CD40847	1.53
8	2-7/16	3-5/8	12	CD40808	2.76	28	1-3/4	2-7/8	12	CD40828	1.53	48	1	2	12	CD40848	1.53
9	2-7/16	3-5/8	12	CD40809	2.73	29	1-3/4	2-7/8	12	CD40829	1.53	49	1	2	12	CD40849	1.53
10	2-7/16	3-5/8	12	CD40810	2.49	30	1-5/8	2-3/4	12	CD40830	1.50	50	1	2	12	CD40850	1.53
11	2-5/16	3-1/2	12	CD40811	2.49	31	1-5/8	2-3/4	12	CD40831	1.47	51	1	2	12	CD40851	1.53
12	2-5/16	3-1/2	12	CD40812	2.49	32	1-5/8	2-3/4	12	CD40832	1.47	52	7/8	1-7/8	12	CD40852	1.53
13	2-5/16	3-1/2	12	CD40813	2.49	33	1-1/2	2-5/8	12	CD40833	1.47	53	7/8	1-7/8	12	CD40853	1.53
14	2-3/16	3-3/8	12	CD40814	2.35	34	1-1/2	2-5/8	12	CD40834	1.47	54	7/8	1-7/8	12	CD40854	1.64
15	2-3/16	3-3/8	12	CD40815	2.35	35	1-1/2	2-5/8	12	CD40835	1.47	55	7/8	1-7/8	12	CD40855	1.64
16	2-3/16	3-3/8	12	CD40816	2.35	36	1-7/16	2-1/2	12	CD40836	1.47	56	3/4	1-3/4	12	CD40856	1.64
17	2-3/16	3-3/8	12	CD40817	2.25	37	1-7/16	2-1/2	12	CD40837	1.47	57	3/4	1-3/4	12	CD40857	1.81
18	2-1/8	3-1/4	12	CD40818	2.25	38	1-7/16	2-1/2	12	CD40838	1.47	58	11/16	1-5/8	12	CD40858	1.81
19	2-1/8	3-1/4	12	CD40819	2.25	39	1-3/8	2-3/8	12	CD40839	1.47	59	11/16	1-5/8	12	CD40859	1.81
20	2-1/8	3-1/4	12	CD40820	2.01	40	1-3/8	2-3/8	12	CD40840	1.47	60	11/16	1-5/8	12	CD40860	1.81

For technical information, please see pages 238 & 239.

HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

JOBBER LENGTH - 118° POINT



SERIES 475
TIN COATED

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD47504	4.53	7/32	2-1/2	3-3/4	12	CD47514	8.40	3/8	3-5/8	5	6	CD47524	20.92
5/64	1	2	12	CD47505	4.53	15/64	2-5/8	3-7/8	12	CD47515	8.76	25/64	3-3/4	5-1/8	6	CD47525	25.89
3/32	1-1/4	2-1/4	12	CD47506	4.53	1/4	2-3/4	4	12	CD47516	8.98	13/32	3-7/8	5-1/4	6	CD47526	26.48
7/64	1-1/2	2-5/8	12	CD47507	4.60	17/64	2-7/8	4-1/8	6	CD47517	12.78	27/64	3-15/16	5-3/8	6	CD47527	27.40
1/8	1-5/8	2-3/4	12	CD47508	4.60	9/32	2-15/16	4-1/4	6	CD47518	14.18	7/16	4-1/16	5-1/2	6	CD47528	27.99
9/64	1-3/4	2-7/8	12	CD47509	4.82	19/64	3-1/16	4-3/8	6	CD47519	14.47	29/64	4-3/16	5-5/8	6	CD47529	30.75
5/32	2	3-1/8	12	CD47510	5.38	5/16	3-3/16	4-1/2	6	CD47520	15.28	15/32	4-5/16	5-3/4	6	CD47530	31.63
11/64	2-1/8	3-1/4	12	CD47511	5.45	21/64	3-5/16	4-5/8	6	CD47521	17.42	31/64	4-3/8	5-7/8	6	CD47531	31.89
3/16	2-5/16	3-1/2	12	CD47512	5.74	11/32	3-7/16	4-3/4	6	CD47522	18.34	1/2	4-1/2	6	6	CD47532	32.55
13/64	2-7/16	3-5/8	12	CD47513	8.17	23/64	3-1/2	4-7/8	6	CD47523	20.69	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD47601	9.13	J	2-7/8	4-1/8	6	CD47610	15.54	S	3-1/2	4-7/8	6	CD47619	23.35
B	2-3/4	4	12	CD47602	9.35	K	2-15/16	4-1/4	6	CD47611	16.72	T	3-1/2	4-7/8	6	CD47620	24.45
C	2-3/4	4	12	CD47603	9.35	L	2-15/16	4-1/4	6	CD47612	16.72	U	3-5/8	5	6	CD47621	24.45
D	2-3/4	4	12	CD47604	9.35	M	3-1/16	4-3/8	6	CD47613	17.01	V	3-5/8	5	6	CD47622	24.78
E	2-3/4	4	12	CD47605	8.98	N	3-1/16	4-3/8	6	CD47614	17.31	W	3-3/4	5-1/8	6	CD47623	28.69
F	2-7/8	4-1/8	6	CD47606	15.43	O	3-3/16	4-1/2	6	CD47615	17.31	X	3-3/4	5-1/8	6	CD47624	30.89
G	2-7/8	4-1/8	6	CD47607	15.43	P	3-5/16	4-5/8	6	CD47616	18.04	Y	3-7/8	5-1/4	6	CD47625	32.92
H	2-7/8	4-1/8	6	CD47608	15.43	Q	3-7/16	4-3/4	6	CD47617	18.04	Z	3-7/8	5-1/4	6	CD47626	33.29
I	2-7/8	4-1/8	6	CD47609	15.43	R	3-7/16	4-3/4	6	CD47618	18.52	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD47701	9.13	21	2-1/8	3-1/4	12	CD47721	5.89	41	1-3/8	2-3/8	12	CD47741	4.53
2	2-5/8	3-7/8	12	CD47702	9.13	22	2	3-1/8	12	CD47722	5.89	42	1-1/4	2-1/4	12	CD47742	4.53
3	2-1/2	3-3/4	12	CD47703	8.76	23	2	3-1/8	12	CD47723	5.82	43	1-1/4	2-1/4	12	CD47743	4.53
4	2-1/2	3-3/4	12	CD47704	8.76	24	2	3-1/8	12	CD47724	5.82	44	1-1/8	2-1/8	12	CD47744	4.53
5	2-1/2	3-3/4	12	CD47705	8.76	25	1-7/8	3	12	CD47725	5.71	45	1-1/8	2-1/8	12	CD47745	4.53
6	2-1/2	3-3/4	12	CD47706	8.76	26	1-7/8	3	12	CD47726	5.71	46	1-1/8	2-1/8	12	CD47746	4.53
7	2-7/16	3-5/8	12	CD47707	8.32	27	1-7/8	3	12	CD47727	5.71	47	1	2	12	CD47747	4.53
8	2-7/16	3-5/8	12	CD47708	8.32	28	1-3/4	2-7/8	12	CD47728	5.52	48	1	2	12	CD47748	4.53
9	2-7/16	3-5/8	12	CD47709	8.32	29	1-3/4	2-7/8	12	CD47729	5.52	49	1	2	12	CD47749	4.53
10	2-7/16	3-5/8	12	CD47710	8.32	30	1-5/8	2-3/4	12	CD47730	4.60	50	1	2	12	CD47750	4.53
11	2-5/16	3-1/2	12	CD47711	8.32	31	1-5/8	2-3/4	12	CD47731	4.60	51	1	2	12	CD47751	4.53
12	2-5/16	3-1/2	12	CD47712	6.81	32	1-5/8	2-3/4	12	CD47732	4.60	52	7/8	1-7/8	12	CD47752	4.53
13	2-5/16	3-1/2	12	CD47713	6.70	33	1-1/2	2-5/8	12	CD47733	4.60	53	7/8	1-7/8	12	CD47753	4.53
14	2-3/16	3-3/8	12	CD47714	6.70	34	1-1/2	2-5/8	12	CD47734	4.60	54	7/8	1-7/8	12	CD47754	4.53
15	2-3/16	3-3/8	12	CD47715	6.70	35	1-1/2	2-5/8	12	CD47735	4.60	55	7/8	1-7/8	12	CD47755	4.53
16	2-3/16	3-3/8	12	CD47716	6.70	36	1-7/16	2-1/2	12	CD47736	4.53	56	3/4	1-3/4	12	CD47756	4.53
17	2-3/16	3-3/8	12	CD47717	6.70	37	1-7/16	2-1/2	12	CD47737	4.53	57	3/4	1-3/4	12	CD47757	4.53
18	2-1/8	3-1/4	12	CD47718	5.97	38	1-7/16	2-1/2	12	CD47738	4.53	58	11/16	1-5/8	12	CD47758	4.53
19	2-1/8	3-1/4	12	CD47719	5.97	39	1-3/8	2-3/8	12	CD47739	4.53	59	11/16	1-5/8	12	CD47759	4.53
20	2-1/8	3-1/4	12	CD47720	5.97	40	1-3/8	2-3/8	12	CD47740	4.53	60	11/16	1-5/8	12	CD47760	4.53

For coating information see page 6. For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

JOBBER LENGTH - 118° POINT



SERIES 400
OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD40004	1.60	9/32	2-15/16	4-1/4	6	CD40018	4.53	1/2	4-1/2	6	6	CD40032	12.54
5/64	1	2	12	CD40005	1.60	19/64	3-1/16	4-3/8	6	CD40019	4.98	33/64	4-13/16	6-5/8	1	CD40033	29.96
3/32	1-1/4	2-1/4	12	CD40006	1.60	5/16	3-3/16	4-1/2	6	CD40020	5.18	17/32	4-13/16	6-5/8	1	CD40034	31.39
7/64	1-1/2	2-5/8	12	CD40007	1.60	21/64	3-5/16	4-5/8	6	CD40021	5.79	35/64	4-13/16	6-5/8	1	CD40035	33.98
1/8	1-5/8	2-3/4	12	CD40008	1.60	11/32	3-7/16	4-3/4	6	CD40022	6.20	9/16	4-13/16	6-5/8	1	CD40036	35.58
9/64	1-3/4	2-7/8	12	CD40009	1.70	23/64	3-1/2	4-7/8	6	CD40023	6.82	37/64	4-13/16	6-5/8	1	CD40037	35.69
5/32	2	3-1/8	12	CD40010	1.77	3/8	3-5/8	5	6	CD40024	7.16	19/32	5-3/16	7-1/8	1	CD40038	36.67
11/64	2-1/8	3-1/4	12	CD40011	1.91	25/64	3-3/4	5-1/8	6	CD40025	7.74	39/64	5-3/16	7-1/8	1	CD40039	40.29
3/16	2-5/16	3-1/2	12	CD40012	2.08	13/32	3-7/8	5-1/4	6	CD40026	8.45	5/8	5-3/16	7-1/8	1	CD40040	39.33
13/64	2-7/16	3-5/8	12	CD40013	2.35	27/64	3-15/16	5-3/8	6	CD40027	9.00	41/64	5-3/16	7-1/8	1	CD40041	43.01
7/32	2-1/2	3-3/4	12	CD40014	2.59	7/16	4-1/16	5-1/2	6	CD40028	9.82	21/32	5-3/16	7-1/8	1	CD40042	41.55
15/64	2-5/8	3-7/8	12	CD40015	2.90	29/64	4-3/16	5-5/8	6	CD40029	10.46	43/64	5-5/8	7-5/8	1	CD40043	48.84
1/4	2-3/4	4	12	CD40016	2.97	15/32	4-5/16	5-3/4	6	CD40030	11.38	11/16	5-5/8	7-5/8	1	CD40044	47.79
17/64	2-7/8	4-1/8	6	CD40017	4.26	31/64	4-3/8	5-7/8	6	CD40031	12.03	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD40301	2.90	J	2-7/8	4-1/8	6	CD40310	4.43	S	3-1/2	4-7/8	6	CD40319	6.82
B	2-3/4	4	12	CD40302	2.97	K	2-15/16	4-1/4	6	CD40311	4.53	T	3-1/2	4-7/8	6	CD40320	7.16
C	2-3/4	4	12	CD40303	2.97	L	2-15/16	4-1/4	6	CD40312	4.74	U	3-5/8	5	6	CD40321	7.74
D	2-3/4	4	12	CD40304	3.07	M	3-1/16	4-3/8	6	CD40313	5.01	V	3-5/8	5	6	CD40322	8.01
E	2-3/4	4	12	CD40305	3.10	N	3-1/16	4-3/8	6	CD40314	5.18	W	3-3/4	5-1/8	6	CD40323	8.52
F	2-7/8	4-1/8	6	CD40306	4.29	O	3-3/16	4-1/2	6	CD40315	5.62	X	3-3/4	5-1/8	6	CD40324	9.03
G	2-7/8	4-1/8	6	CD40307	4.12	P	3-5/16	4-5/8	6	CD40316	6.03	Y	3-7/8	5-1/4	6	CD40325	9.48
H	2-7/8	4-1/8	6	CD40308	4.19	Q	3-7/16	4-3/4	6	CD40317	6.27	Z	3-7/8	5-1/4	6	CD40326	9.68
I	2-7/8	4-1/8	6	CD40309	4.29	R	3-7/16	4-3/4	6	CD40318	6.51	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD40201	3.17	21	2-1/8	3-1/4	12	CD40221	2.01	41	1-3/8	2-3/8	12	CD40241	1.47
2	2-5/8	3-7/8	12	CD40202	3.17	22	2	3-1/8	12	CD40222	1.94	42	1-1/4	2-1/4	12	CD40242	1.47
3	2-1/2	3-3/4	12	CD40203	2.90	23	2	3-1/8	12	CD40223	1.94	43	1-1/4	2-1/4	12	CD40243	1.47
4	2-1/2	3-3/4	12	CD40204	2.90	24	2	3-1/8	12	CD40224	1.94	44	1-1/8	2-1/8	12	CD40244	1.47
5	2-1/2	3-3/4	12	CD40205	2.86	25	1-7/8	3	12	CD40225	1.67	45	1-1/8	2-1/8	12	CD40245	1.53
6	2-1/2	3-3/4	12	CD40206	2.86	26	1-7/8	3	12	CD40226	1.67	46	1-1/8	2-1/8	12	CD40246	1.53
7	2-7/16	3-5/8	12	CD40207	2.76	27	1-7/8	3	12	CD40227	1.67	47	1	2	12	CD40247	1.53
8	2-7/16	3-5/8	12	CD40208	2.76	28	1-3/4	2-7/8	12	CD40228	1.53	48	1	2	12	CD40248	1.53
9	2-7/16	3-5/8	12	CD40209	2.73	29	1-3/4	2-7/8	12	CD40229	1.53	49	1	2	12	CD40249	1.53
10	2-7/16	3-5/8	12	CD40210	2.49	30	1-5/8	2-3/4	12	CD40230	1.50	50	1	2	12	CD40250	1.53
11	2-5/16	3-1/2	12	CD40211	2.49	31	1-5/8	2-3/4	12	CD40231	1.47	51	1	2	12	CD40251	1.53
12	2-5/16	3-1/2	12	CD40212	2.49	32	1-5/8	2-3/4	12	CD40232	1.47	52	7/8	1-7/8	12	CD40252	1.53
13	2-5/16	3-1/2	12	CD40213	2.49	33	1-1/2	2-5/8	12	CD40233	1.47	53	7/8	1-7/8	12	CD40253	1.53
14	2-3/16	3-3/8	12	CD40214	2.35	34	1-1/2	2-5/8	12	CD40234	1.47	54	7/8	1-7/8	12	CD40254	1.64
15	2-3/16	3-3/8	12	CD40215	2.35	35	1-1/2	2-5/8	12	CD40235	1.47	55	7/8	1-7/8	12	CD40255	1.64
16	2-3/16	3-3/8	12	CD40216	2.35	36	1-7/16	2-1/2	12	CD40236	1.47	56	3/4	1-3/4	12	CD40256	1.64
17	2-3/16	3-3/8	12	CD40217	2.25	37	1-7/16	2-1/2	12	CD40237	1.47	57	3/4	1-3/4	12	CD40257	1.81
18	2-1/8	3-1/4	12	CD40218	2.25	38	1-7/16	2-1/2	12	CD40238	1.47	58	11/16	1-5/8	12	CD40258	1.81
19	2-1/8	3-1/4	12	CD40219	2.25	39	1-3/8	2-3/8	12	CD40239	1.47	59	11/16	1-5/8	12	CD40259	1.81
20	2-1/8	3-1/4	12	CD40220	2.01	40	1-3/8	2-3/8	12	CD40240	1.47	60	11/16	1-5/8	12	CD40260	1.81

For technical information, please see pages 238 & 239.

HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

JOBBER LENGTH - 118° POINT



SERIES 420
OXIDE FINISH

METRIC SIZES

SIZE (mm)	FLUTE LENGTH	OVERALL LENGTH	PKG. QTY.	ITEM#	LIST PRICE
1.00	17	41	12	CD42100	2.10
1.05	17	41	12	CD42105	2.31
1.10	19	44	12	CD42110	2.20
1.15	19	44	12	CD42115	2.24
1.20	22	48	12	CD42120	2.20
1.25	22	48	12	CD42125	2.24
1.30	22	48	12	CD42130	2.20
1.35	22	48	12	CD42135	2.31
1.40	22	48	12	CD42140	2.20
1.50	22	48	12	CD42150	2.20
1.60	22	48	12	CD42160	2.20
1.70	25	51	12	CD42170	2.24
1.80	25	51	12	CD42180	2.24
1.90	25	51	12	CD42190	2.24
2.00	25	51	12	CD42200	2.24
2.50	35	60	12	CD42250	2.35
3.00	41	70	12	CD42300	2.46
3.50	45	73	12	CD42350	2.57
4.00	54	83	12	CD42400	2.67
4.50	56	86	12	CD42450	3.00
5.00	62	92	12	CD42500	3.40
5.50	64	95	12	CD42550	3.83
6.00	70	102	12	CD42600	4.15
6.50	73	105	6	CD42650	5.31
7.00	73	105	6	CD42700	5.53
7.50	78	111	6	CD42750	6.58
8.00	81	114	6	CD42800	7.23
8.50	87	121	6	CD42850	8.27
9.00	89	124	6	CD42900	9.32
9.50	92	127	6	CD42950	9.75
10.00	95	130	6	CD43100	11.92
10.50	98	133	6	CD43105	11.92
11.00	103	140	6	CD43110	12.25
11.50	106	143	6	CD43115	13.77
12.00	111	149	6	CD43120	15.17
12.50	114	152	6	CD43125	15.50
13.00	114	152	6	CD43130	25.69

NOTE: ALL DIMENSIONS IN TABLE ARE METRIC (mm)

For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"



SERIES 440
OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD44004	1.60
5/64	1	2	12	CD44005	1.60
3/32	1-1/4	2-1/4	12	CD44006	1.60
7/64	1-1/2	2-5/8	12	CD44007	1.60
1/8	1-5/8	2-3/4	12	CD44008	1.60
9/64	1-3/4	2-7/8	12	CD44009	1.74
5/32	2	3-1/8	12	CD44010	2.11
11/64	2-1/8	3-1/4	12	CD44011	2.25
3/16	2-5/16	3-1/2	12	CD44012	2.56
13/64	2-7/16	3-5/8	12	CD44013	2.76

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
7/32	2-1/2	3-3/4	12	CD44014	3.03
15/64	2-5/8	3-7/8	12	CD44015	3.31
1/4	2-3/4	4	12	CD44016	3.51
17/64	2-7/8	4-1/8	6	CD44017	4.84
9/32	2-15/16	4-1/4	6	CD44018	5.25
19/64	3-1/16	4-3/8	6	CD44019	5.79
5/16	3-3/16	4-1/2	6	CD44020	5.96
21/64	3-5/16	4-5/8	6	CD44021	6.75
11/32	3-7/16	4-3/4	6	CD44022	7.16
23/64	3-1/2	4-7/8	6	CD44023	7.53

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
3/8	3-5/8	5	6	CD44024	8.21
25/64	3-3/4	5-1/8	6	CD44025	8.93
13/32	3-7/8	5-1/4	6	CD44026	9.68
27/64	3-15/16	5-3/8	6	CD44027	10.43
7/16	4-1/16	5-1/2	6	CD44028	11.32
29/64	4-3/16	5-5/8	6	CD44029	12.07
15/32	4-5/16	5-3/4	6	CD44030	13.12
31/64	4-3/8	5-7/8	6	CD44031	13.87
1/2	4-1/2	6	6	CD44032	14.59
-	-	-	-	-	-

LETTER SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD44301	3.78
B	2-3/4	4	12	CD44302	3.78
C	2-3/4	4	12	CD44303	3.78
D	2-3/4	4	12	CD44304	3.78
E	2-3/4	4	12	CD44305	3.78
F	2-7/8	4-1/8	6	CD44306	4.81
G	2-7/8	4-1/8	6	CD44307	4.81
H	2-7/8	4-1/8	6	CD44308	4.81
I	2-7/8	4-1/8	6	CD44309	4.81

LETTER SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
J	2-7/8	4-1/8	6	CD44310	5.83
K	2-15/16	4-1/4	6	CD44311	5.83
L	2-15/16	4-1/4	6	CD44312	5.83
M	3-1/16	4-3/8	6	CD44313	7.16
N	3-1/16	4-3/8	6	CD44314	7.16
O	3-3/16	4-1/2	6	CD44315	7.16
P	3-5/16	4-5/8	6	CD44316	8.08
Q	3-7/16	4-3/4	6	CD44317	8.08
R	3-7/16	4-3/4	6	CD44318	8.08

LETTER SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
S	3-1/2	4-7/8	6	CD44319	9.20
T	3-1/2	4-7/8	6	CD44320	9.20
U	3-5/8	5	6	CD44321	9.78
V	3-5/8	5	6	CD44322	9.78
W	3-3/4	5-1/8	6	CD44323	11.11
X	3-3/4	5-1/8	6	CD44324	11.11
Y	3-7/8	5-1/4	6	CD44325	12.10
Z	3-7/8	5-1/4	6	CD44326	12.10
-	-	-	-	-	-

WIRE SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD44201	3.27
2	2-5/8	3-7/8	12	CD44202	3.27
3	2-1/2	3-3/4	12	CD44203	3.03
4	2-1/2	3-3/4	12	CD44204	3.03
5	2-1/2	3-3/4	12	CD44205	3.03
6	2-1/2	3-3/4	12	CD44206	3.03
7	2-7/16	3-5/8	12	CD44207	2.86
8	2-7/16	3-5/8	12	CD44208	2.90
9	2-7/16	3-5/8	12	CD44209	2.90
10	2-7/16	3-5/8	12	CD44210	2.62
11	2-5/16	3-1/2	12	CD44211	2.62
12	2-5/16	3-1/2	12	CD44212	2.62
13	2-5/16	3-1/2	12	CD44213	2.90
14	2-3/16	3-3/8	12	CD44214	2.90
15	2-3/16	3-3/8	12	CD44215	2.90
16	2-3/16	3-3/8	12	CD44216	2.90
17	2-3/16	3-3/8	12	CD44217	2.90
18	2-1/8	3-1/4	12	CD44218	2.90
19	2-1/8	3-1/4	12	CD44219	2.76
20	2-1/8	3-1/4	12	CD44220	2.76

WIRE SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
21	2-1/8	3-1/4	12	CD44221	2.59
22	2	3-1/8	12	CD44222	2.59
23	2	3-1/8	12	CD44223	2.59
24	2	3-1/8	12	CD44224	2.59
25	1-7/8	3	12	CD44225	2.59
26	1-7/8	3	12	CD44226	2.59
27	1-7/8	3	12	CD44227	2.59
28	1-3/4	2-7/8	12	CD44228	2.59
29	1-3/4	2-7/8	12	CD44229	2.08
30	1-5/8	2-3/4	12	CD44230	2.08
31	1-5/8	2-3/4	12	CD44231	2.28
32	1-5/8	2-3/4	12	CD44232	2.28
33	1-1/2	2-5/8	12	CD44233	2.28
34	1-1/2	2-5/8	12	CD44234	2.28
35	1-1/2	2-5/8	12	CD44235	2.28
36	1-7/16	2-1/2	12	CD44236	2.28
37	1-7/16	2-1/2	12	CD44237	2.28
38	1-7/16	2-1/2	12	CD44238	2.28
39	1-3/8	2-3/8	12	CD44239	2.28
40	1-3/8	2-3/8	12	CD44240	2.28

WIRE SIZES

SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
41	1-3/8	2-3/8	12	CD44241	2.18
42	1-1/4	2-1/4	12	CD44242	2.18
43	1-1/4	2-1/4	12	CD44243	2.18
44	1-1/8	2-1/8	12	CD44244	2.18
45	1-1/8	2-1/8	12	CD44245	2.18
46	1-1/8	2-1/8	12	CD44246	2.18
47	1	2	12	CD44247	2.18
48	1	2	12	CD44248	2.18
49	1	2	12	CD44249	2.18
50	1	2	12	CD44250	2.18
51	1	2	12	CD44251	2.18
52	7/8	1-7/8	12	CD44252	2.18
53	7/8	1-7/8	12	CD44253	2.18
54	7/8	1-7/8	12	CD44254	2.18
55	7/8	1-7/8	12	CD44255	2.18
56	3/4	1-3/4	12	CD44256	2.18
57	3/4	1-3/4	12	CD44257	2.18
58	11/16	1-5/8	12	CD44258	2.18
59	11/16	1-5/8	12	CD44259	2.18
60	11/16	1-5/8	12	CD44260	2.18

Note: sizes below 1/16" are not split point.
For technical information, please see pages 238 & 239.

HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"



SERIES 445
BLACK & GOLD

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD44504	1.84	7/32	2-1/2	3-3/4	12	CD44514	3.68	3/8	3-5/8	5	6	CD44524	9.37
5/64	1	2	12	CD44505	2.01	15/64	2-5/8	3-7/8	12	CD44515	4.06	25/64	3-3/4	5-1/8	6	CD44525	10.19
3/32	1-1/4	2-1/4	12	CD44506	1.84	1/4	2-3/4	4	12	CD44516	4.26	13/32	3-7/8	5-1/4	6	CD44526	11.21
7/64	1-1/2	2-5/8	12	CD44507	1.91	17/64	2-7/8	4-1/8	6	CD44517	5.73	27/64	3-15/16	5-3/8	6	CD44527	11.96
1/8	1-5/8	2-3/4	12	CD44508	2.11	9/32	2-15/16	4-1/4	6	CD44518	6.17	7/16	4-1/16	5-1/2	6	CD44528	12.88
9/64	1-3/4	2-7/8	12	CD44509	2.22	19/64	3-1/16	4-3/8	6	CD44519	6.78	29/64	4-3/16	5-5/8	6	CD44529	13.70
5/32	2	3-1/8	12	CD44510	2.66	5/16	3-3/16	4-1/2	6	CD44520	7.02	15/32	4-5/16	5-3/4	6	CD44530	14.89
11/64	2-1/8	3-1/4	12	CD44511	2.79	21/64	3-5/16	4-5/8	6	CD44521	7.74	31/64	4-3/8	5-7/8	6	CD44531	15.71
3/16	2-5/16	3-1/2	12	CD44512	3.10	11/32	3-7/16	4-3/4	6	CD44522	8.28	1/2	4-1/2	6	6	CD44532	16.43
13/64	2-7/16	3-5/8	12	CD44513	3.37	23/64	3-1/2	4-7/8	6	CD44523	8.96	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD44801	5.97	J	2-7/8	4-1/8	6	CD44810	7.56	S	3-1/2	4-7/8	6	CD44819	11.61
B	2-3/4	4	12	CD44802	5.97	K	2-15/16	4-1/4	6	CD44811	8.43	T	3-1/2	4-7/8	6	CD44820	13.06
C	2-3/4	4	12	CD44803	5.97	L	2-15/16	4-1/4	6	CD44812	8.14	U	3-5/8	5	6	CD44821	13.06
D	2-3/4	4	12	CD44804	5.78	M	3-1/16	4-3/8	6	CD44813	8.96	V	3-5/8	5	6	CD44822	13.30
E	2-3/4	4	12	CD44805	4.82	N	3-1/16	4-3/8	6	CD44814	8.96	W	3-3/4	5-1/8	6	CD44823	16.28
F	2-7/8	4-1/8	6	CD44806	6.46	O	3-3/16	4-1/2	6	CD44815	8.96	X	3-3/4	5-1/8	6	CD44824	19.22
G	2-7/8	4-1/8	6	CD44807	6.99	P	3-5/16	4-5/8	6	CD44816	10.02	Y	3-7/8	5-1/4	6	CD44825	19.46
H	2-7/8	4-1/8	6	CD44808	7.13	Q	3-7/16	4-3/4	6	CD44817	10.31	Z	3-7/8	5-1/4	6	CD44826	19.90
I	2-7/8	4-1/8	6	CD44809	7.13	R	3-7/16	4-3/4	6	CD44818	10.74	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD44701	5.54	21	2-1/8	3-1/4	12	CD44721	3.44	41	1-3/8	2-3/8	12	CD44741	2.66
2	2-5/8	3-7/8	12	CD44702	5.54	22	2	3-1/8	12	CD44722	3.44	42	1-1/4	2-1/4	12	CD44742	2.66
3	2-1/2	3-3/4	12	CD44703	5.15	23	2	3-1/8	12	CD44723	3.34	43	1-1/4	2-1/4	12	CD44743	2.66
4	2-1/2	3-3/4	12	CD44704	5.15	24	2	3-1/8	12	CD44724	3.34	44	1-1/8	2-1/8	12	CD44744	2.66
5	2-1/2	3-3/4	12	CD44705	5.15	25	1-7/8	3	12	CD44725	3.34	45	1-1/8	2-1/8	12	CD44745	2.66
6	2-1/2	3-3/4	12	CD44706	5.15	26	1-7/8	3	12	CD44726	3.34	46	1-1/8	2-1/8	12	CD44746	2.66
7	2-7/16	3-5/8	12	CD44707	4.53	27	1-7/8	3	12	CD44727	3.24	47	1	2	12	CD44747	2.66
8	2-7/16	3-5/8	12	CD44708	4.53	28	1-3/4	2-7/8	12	CD44728	3.24	48	1	2	12	CD44748	2.66
9	2-7/16	3-5/8	12	CD44709	4.53	29	1-3/4	2-7/8	12	CD44729	3.17	49	1	2	12	CD44749	2.66
10	2-7/16	3-5/8	12	CD44710	4.43	30	1-5/8	2-3/4	12	CD44730	2.76	50	1	2	12	CD44750	2.66
11	2-5/16	3-1/2	12	CD44711	4.09	31	1-5/8	2-3/4	12	CD44731	2.76	51	1	2	12	CD44751	2.66
12	2-5/16	3-1/2	12	CD44712	4.09	32	1-5/8	2-3/4	12	CD44732	2.76	52	7/8	1-7/8	12	CD44752	2.49
13	2-5/16	3-1/2	12	CD44713	3.95	33	1-1/2	2-5/8	12	CD44733	2.76	53	7/8	1-7/8	12	CD44753	2.49
14	2-3/16	3-3/8	12	CD44714	3.95	34	1-1/2	2-5/8	12	CD44734	2.76	54	7/8	1-7/8	12	CD44754	2.49
15	2-3/16	3-3/8	12	CD44715	3.95	35	1-1/2	2-5/8	12	CD44735	2.76	55	7/8	1-7/8	12	CD44755	2.49
16	2-3/16	3-3/8	12	CD44716	3.95	36	1-7/16	2-1/2	12	CD44736	2.66	56	3/4	1-3/4	12	CD44756	2.49
17	2-3/16	3-3/8	12	CD44717	3.95	37	1-7/16	2-1/2	12	CD44737	2.66	57	3/4	1-3/4	12	CD44757	2.49
18	2-1/8	3-1/4	12	CD44718	3.47	38	1-7/16	2-1/2	12	CD44738	2.66	58	11/16	1-5/8	12	CD44758	2.49
19	2-1/8	3-1/4	12	CD44719	3.47	39	1-3/8	2-3/8	12	CD44739	2.66	59	11/16	1-5/8	12	CD44759	2.49
20	2-1/8	3-1/4	12	CD44720	3.47	40	1-3/8	2-3/8	12	CD44740	2.66	60	11/16	1-5/8	12	CD44760	2.49

Note: sizes below 1/16" are not split point.
For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

MECHANICS LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"



SERIES 455
BLACK & GOLD

FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OVERALL LENGTH	PACKAGE QUANTITY	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD45504	2.18
5/64	1	2	12	CD45505	2.35
3/32	1-1/4	2-1/4	12	CD45506	2.35
7/64	1-5/16	2-3/8	12	CD45507	2.42
1/8	1-7/16	2-1/2	12	CD45508	2.52
9/64	1-9/16	2-5/8	12	CD45509	2.59
5/32	1-11/16	2-3/4	12	CD45510	3.10
11/64	1-13/16	2-7/8	12	CD45511	3.17
3/16	1-7/8	3	12	CD45512	3.61
13/64	1-15/16	3-1/8	12	CD45513	3.92
7/32	2	3-1/4	12	CD45514	4.36
15/64	2-1/16	3-3/8	12	CD45515	4.67
1/4	2	3-1/2	12	CD45516	4.94
17/64	2-1/8	3-5/8	6	CD45517	6.20
9/32	2-1/4	3-3/4	6	CD45518	6.20
19/64	2-3/8	3-7/8	6	CD45519	7.36
5/16	2-1/2	4	6	CD45520	7.87
21/64	2-9/16	4-1/16	6	CD45521	8.38
11/32	2-5/8	4-1/8	6	CD45522	9.13
23/64	2-11/16	4-3/16	6	CD45523	9.71
3/8	2-11/16	4-1/4	6	CD45524	10.29
25/64	2-3/4	4-5/16	6	CD45525	10.94
13/32	2-13/16	4-3/8	6	CD45526	11.79
27/64	2-7/8	4-7/16	6	CD45527	13.29
7/16	2-15/16	4-1/2	6	CD45528	14.04
29/64	3	4-5/8	6	CD45529	15.30
15/32	3-1/8	4-3/4	6	CD45530	16.39
31/64	3-1/4	4-7/8	6	CD45531	16.74
1/2	3-3/8	5	6	CD45532	17.18

SIZES 3/16" TO 1/2" - HAVE 3 FLATS;
SIZES 27/64" AND HIGHER - HAVE 3/8" REDUCED FLATTED SHANKS

For technical information, please see pages 238 & 239.

HSS & COBALT DRILLS

HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

SCREW MACHINE LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "C"



SERIES 300
OXIDE FINISH

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	5/8	1-5/8	12	CD30004	1.87	7/32	1-1/4	2-3/8	12	CD30014	2.83	3/8	1-13/16	3-1/8	6	CD30024	6.27
5/64	11/16	1-11/16	12	CD30005	1.91	15/64	1-5/16	2-7/16	12	CD30015	3.27	25/64	1-7/8	3-1/4	6	CD30025	6.65
3/32	3/4	1-3/4	12	CD30006	1.91	1/4	1-3/8	2-1/2	12	CD30016	3.61	13/32	1-15/16	3-5/16	6	CD30026	7.29
7/64	13/16	1-13/16	12	CD30007	1.91	17/64	1-7/16	2-5/8	6	CD30017	3.72	27/64	2	3-3/8	6	CD30027	7.70
1/8	7/8	1-7/8	12	CD30008	1.91	9/32	1-1/2	2-11/16	6	CD30018	3.92	7/16	1-1/16	3-7/16	6	CD30028	8.42
9/64	15/16	1-15/16	12	CD30009	1.91	19/64	1-9/16	2-3/4	6	CD30019	4.26	29/64	2-1/8	3-9/16	6	CD30029	8.93
5/32	1	2-1/16	12	CD30010	2.08	5/16	1-5/8	2-13/16	6	CD30020	4.53	15/32	2-1/8	3-5/8	6	CD30030	9.82
11/64	1-1/16	2-1/8	12	CD30011	2.08	21/64	1-11/16	2-15/16	6	CD30021	5.08	31/64	2-3/16	3-11/16	6	CD30031	10.19
3/16	1-1/8	2-3/16	12	CD30012	2.42	11/32	1-11/16	3	6	CD30022	5.42	1/2	2-1/4	3-3/4	6	CD30032	10.74
13/64	1-3/16	2-1/4	12	CD30013	2.49	23/64	1-3/4	3-1/16	6	CD30023	5.76	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	1-5/16	2-7/16	12	CD30301	3.92	J	1-1/2	2-11/16	6	CD30310	6.07	S	1-3/4	3-1/16	6	CD30319	8.86
B	1-3/8	2-1/2	12	CD30302	4.12	K	1-1/2	2-11/16	6	CD30311	6.17	T	1-3/4	3-1/16	6	CD30320	9.07
C	1-3/8	2-1/2	12	CD30303	4.12	L	1-9/16	2-3/4	6	CD30312	6.31	U	1-13/16	3-1/8	6	CD30321	9.78
D	1-3/8	2-1/2	12	CD30304	4.16	M	1-9/16	2-3/4	6	CD30313	6.61	V	1-7/8	3-1/4	6	CD30322	10.40
E	1-3/8	2-1/2	12	CD30305	4.16	N	1-5/8	2-13/16	6	CD30314	6.88	W	1-7/8	3-1/4	6	CD30323	10.77
F	1-7/16	2-5/8	6	CD30306	5.35	O	1-11/16	2-15/16	6	CD30315	7.74	X	1-15/16	3-5/16	6	CD30324	11.42
G	1-7/16	2-5/8	6	CD30307	5.73	P	1-11/16	2-15/16	6	CD30316	7.94	Y	1-15/16	3-5/16	6	CD30325	11.66
H	1-1/2	2-11/16	6	CD30308	5.90	Q	1-11/16	3	6	CD30317	8.28	Z	2	3-3/8	6	CD30326	12.07
I	1-1/2	2-11/16	6	CD30309	5.93	R	1-11/16	3	6	CD30318	8.52	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	1-5/16	2-7/16	12	CD30201	3.27	21	1-1/16	2-1/8	12	CD30221	2.76	41	13/16	1-13/16	12	CD30241	2.11
2	1-5/16	2-7/16	12	CD30202	3.27	22	1-1/16	2-1/8	12	CD30222	2.69	42	3/4	1-3/4	12	CD30242	2.11
3	1-1/4	2-3/8	12	CD30203	3.37	23	1	2-1/16	12	CD30223	2.69	43	3/4	1-3/4	12	CD30243	2.11
4	1-1/4	2-3/8	12	CD30204	3.37	24	1	2-1/16	12	CD30224	2.69	44	3/4	1-3/4	12	CD30244	2.11
5	1-1/4	2-3/8	12	CD30205	3.37	25	1	2-1/16	12	CD30225	2.69	45	3/4	1-3/4	12	CD30245	2.11
6	1-1/4	2-3/8	12	CD30206	3.37	26	1	2-1/16	12	CD30226	2.69	46	3/4	1-3/4	12	CD30246	2.11
7	1-3/16	2-1/4	12	CD30207	2.90	27	1	2-1/16	12	CD30227	2.69	47	11/16	1-11/16	12	CD30247	2.11
8	1-3/16	2-1/4	12	CD30208	2.90	28	15/16	1-15/16	12	CD30228	2.69	48	11/16	1-11/16	12	CD30248	2.11
9	1-3/16	2-1/4	12	CD30209	2.90	29	15/16	1-15/16	12	CD30229	2.69	49	11/16	1-11/16	12	CD30249	2.11
10	1-3/16	2-1/4	12	CD30210	2.90	30	15/16	1-15/16	12	CD30230	2.11	50	11/16	1-11/16	12	CD30250	2.11
11	1-3/16	2-1/4	12	CD30211	2.90	31	7/8	1-7/8	12	CD30231	2.11	51	11/16	1-11/16	12	CD30251	2.11
12	1-3/16	2-1/4	12	CD30212	2.90	32	7/8	1-7/8	12	CD30232	2.11	52	11/16	1-11/16	12	CD30252	2.11
13	1-1/8	2-3/16	12	CD30213	2.90	33	7/8	1-7/8	12	CD30233	2.11	53	5/8	1-5/8	12	CD30253	2.11
14	1-1/8	2-3/16	12	CD30214	2.90	34	7/8	1-7/8	12	CD30234	2.11	54	5/8	1-5/8	12	CD30254	2.11
15	1-1/8	2-3/16	12	CD30215	2.90	35	7/8	1-7/8	12	CD30235	2.11	55	5/8	1-5/8	12	CD30255	2.11
16	1-1/8	2-3/16	12	CD30216	2.90	36	13/16	1-13/16	12	CD30236	2.11	56	1/2	1-3/8	12	CD30256	2.11
17	1-1/8	2-3/16	12	CD30217	2.90	37	13/16	1-13/16	12	CD30237	2.11	57	1/2	1-3/8	12	CD30257	2.11
18	1-1/16	2-1/8	12	CD30218	2.76	38	13/16	1-13/16	12	CD30238	2.11	58	1/2	1-3/8	12	CD30258	2.11
19	1-1/16	2-1/8	12	CD30219	2.76	39	13/16	1-13/16	12	CD30239	2.11	59	1/2	1-3/8	12	CD30259	2.11
20	1-1/16	2-1/8	12	CD30220	2.76	40	13/16	1-13/16	12	CD30240	2.11	60	1/2	1-3/8	12	CD30260	2.11

Note: sizes below 1/16" are not split point.
For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

TAPER LENGTH - 118° POINT



SERIES 525
OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
3/64	1-1/8	2-1/4	12	CD52503	10.52	13/32	4-3/8	7	6	CD52526	27.91	49/64	6	9-7/8	1	CD52549	98.98
1/16	1-3/4	3	12	CD52504	10.52	27/64	4-5/8	7-1/4	6	CD52527	29.61	25/32	6	9-7/8	1	CD52550	98.98
5/64	2	3-3/4	12	CD52505	10.52	7/16	4-5/8	7-1/4	6	CD52528	29.61	51/64	6-1/8	10	1	CD52551	106.86
3/32	2-1/4	4-1/4	12	CD52506	9.80	29/64	4-3/4	7-1/2	6	CD52529	33.69	13/16	6-1/8	10	1	CD52552	106.86
7/64	2-1/2	4-5/8	12	CD52507	10.24	15/32	4-3/4	7-1/2	6	CD52530	33.69	53/64	6-1/8	10	1	CD52553	112.53
1/8	2-3/4	5-1/8	12	CD52508	10.53	31/64	4-3/4	7-3/4	6	CD52531	35.65	27/32	6-1/8	10	1	CD52554	112.53
9/64	3	5-3/8	12	CD52509	14.07	1/2	4-3/4	7-3/4	6	CD52532	35.65	55/64	6-1/8	10	1	CD52555	118.09
5/32	3	5-3/8	12	CD52510	14.21	33/64	4-3/4	8	1	CD52533	47.35	7/8	6-1/8	10	1	CD52556	118.09
11/64	3-3/8	5-3/4	12	CD52511	14.91	17/32	4-3/4	8	1	CD52534	47.35	57/64	6-1/8	10	1	CD52557	123.10
3/16	3-3/8	5-3/4	12	CD52512	13.88	35/64	4-7/8	8-1/4	1	CD52535	49.75	29/32	6-1/8	10	1	CD52558	123.10
13/64	3-5/8	6	12	CD52513	16.94	9/16	4-7/8	8-1/4	1	CD52536	49.75	59/64	6-1/8	10-3/4	1	CD52559	133.82
7/32	3-5/8	6	12	CD52514	18.26	37/64	4-7/8	8-3/4	1	CD52537	58.22	15/16	6-1/8	10-3/4	1	CD52560	133.82
15/64	3-3/4	6-1/8	12	CD52515	18.26	19/32	4-7/8	8-3/4	1	CD52538	58.22	61/64	6-3/8	11	1	CD52561	147.70
1/4	3-3/4	6-1/8	12	CD52516	15.76	39/64	4-7/8	8-3/4	1	CD52539	60.32	31/32	6-3/8	11	1	CD52562	147.70
17/64	3-7/8	6-1/4	6	CD52517	19.11	5/8	4-7/8	8-3/4	1	CD52540	60.32	63/64	6-3/8	11	1	CD52563	153.96
9/32	3-7/8	6-1/4	6	CD52518	19.11	41/64	5-1/8	9	1	CD52541	68.68	1	6-3/8	11	1	CD52564	153.96
19/64	4	6-3/8	6	CD52519	20.81	21/32	5-1/8	9	1	CD52542	68.68	1-1/16	6-5/8	11-1/4	1	CD52568	190.78
5/16	4	6-3/8	6	CD52520	20.81	43/64	5-3/8	9-1/4	1	CD52543	81.23	1-1/8	7-1/8	11-3/4	1	CD52572	212.36
21/64	4-1/8	6-1/2	6	CD52521	20.81	11/16	5-3/8	9-1/4	1	CD52544	81.23	1-3/16	7-3/8	12	1	CD52576	248.89
11/32	4-1/8	6-1/2	6	CD52522	20.81	45/64	5-5/8	9-1/2	1	CD52545	84.95	1-1/4	7-7/8	12-1/2	1	CD52580	266.56
23/64	4-1/4	6-3/4	6	CD52523	24.52	23/32	5-5/8	9-1/2	1	CD52546	84.95	1-5/16	8-5/8	14-1/4	1	CD52584	318.08
3/8	4-1/4	6-3/4	6	CD52524	24.52	47/64	5-7/8	9-3/4	1	CD52547	91.36	1-3/8	8-7/8	14-1/2	1	CD52588	341.13
25/64	4-3/8	6-3/4	6	CD52525	27.91	3/4	5-7/8	9-3/4	1	CD52548	91.36	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	3-3/4	6-1/8	12	CD52701	19.15	15	3-3/8	5-3/4	12	CD52715	16.83	29	3	5-3/8	12	CD52729	16.83
2	3-3/4	6-1/8	12	CD52702	19.15	16	3-3/8	5-3/4	12	CD52716	16.83	30	3	5-3/8	12	CD52730	16.83
3	3-5/8	6	12	CD52703	18.52	17	3-3/8	5-3/4	12	CD52717	16.83	31	2-3/4	5-1/8	12	CD52731	16.50
4	3-5/8	6	12	CD52704	18.52	18	3-3/8	5-3/4	12	CD52718	16.83	32	2-3/4	5-1/8	12	CD52732	16.50
5	3-5/8	6	12	CD52705	18.52	19	3-3/8	5-3/4	12	CD52719	16.83	33	2-3/4	5-1/8	12	CD52733	16.50
6	3-5/8	6	12	CD52706	18.52	20	3-3/8	5-3/4	12	CD52720	16.83	34	2-3/4	5-1/8	12	CD52734	16.50
7	3-5/8	6	12	CD52707	18.52	21	3-3/8	5-3/4	12	CD52721	16.83	35	2-3/4	5-1/8	12	CD52735	16.50
8	3-5/8	6	12	CD52708	18.52	22	3-3/8	5-3/4	12	CD52722	16.83	36	2-1/2	4-5/8	12	CD52736	12.34
9	3-5/8	6	12	CD52709	18.52	23	3	5-3/8	12	CD52723	16.83	37	2-1/2	4-5/8	12	CD52737	12.34
10	3-5/8	6	12	CD52710	18.52	24	3	5-3/8	12	CD52724	16.83	38	2-1/2	4-5/8	12	CD52738	12.34
11	3-5/8	6	12	CD52711	18.52	25	3	5-3/8	12	CD52725	16.83	39	2-1/2	4-5/8	12	CD52739	10.83
12	3-5/8	6	12	CD52712	18.52	26	3	5-3/8	12	CD52726	16.83	40	2-1/2	4-5/8	12	CD52740	10.83
13	3-3/8	5-3/4	12	CD52713	16.83	27	3	5-3/8	12	CD52727	16.83	-	-	-	-	-	-
14	3-3/8	5-3/4	12	CD52714	16.83	28	3	5-3/8	12	CD52728	16.83	-	-	-	-	-	-

For technical information, please see pages 238 & 239.

HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

TAPER SHANK - 118° POINT



SERIES 550
OXIDE FINISH

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	MORSE TAPER #	FLUTE LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE	SIZE	MORSE TAPER #	FLUTE LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE
3/16	#1	2-1/2	5-3/4	CD55012	37.23	13/16	#3	6-1/8	10-3/4	CD55052	124.79
13/64	#1	2-3/4	6	CD55013	37.23	53/64	#3	6-1/8	10-3/4	CD55053	138.24
7/32	#1	2-3/4	6	CD55014	37.23	27/32	#3	6-1/8	10-3/4	CD55054	134.52
15/64	#1	2-7/8	6-1/8	CD55015	37.23	55/64	#3	6-1/8	10-3/4	CD55055	151.79
1/4	#1	2-7/8	6-1/8	CD55016	37.23	7/8	#3	6-1/8	10-3/4	CD55056	138.60
17/64	#1	3	6-1/4	CD55017	37.23	57/64	#3	6-1/8	10-3/4	CD55057	146.37
9/32	#1	3	6-1/4	CD55018	37.23	29/32	#3	6-1/8	10-3/4	CD55058	146.37
19/64	#1	3-1/8	6-3/8	CD55019	39.44	59/64	#3	6-1/8	10-3/4	CD55059	148.40
5/16	#1	3-1/8	6-3/8	CD55020	41.46	15/16	#3	6-1/8	10-3/4	CD55060	139.08
21/64	#1	3-1/4	6-1/2	CD55021	41.46	61/64	#3	6-3/8	11	CD55061	152.45
11/32	#1	3-1/4	6-1/2	CD55022	41.46	31/32	#3	6-3/8	11	CD55062	151.42
23/64	#1	3-1/2	6-3/4	CD55023	42.31	63/64	#3	6-3/8	11	CD55063	161.77
3/8	#1	3-1/2	6-3/4	CD55024	42.31	1	#3	6-3/8	11	CD55064	153.96
25/64	#1	3-5/8	7	CD55025	50.26	1-1/64	#3	6-1/2	11-1/8	CD55065	179.00
13/32	#1	3-5/8	7	CD55026	50.26	1-1/32	#3	6-1/2	11-1/8	CD55066	177.67
27/64	#1	3-7/8	7-1/4	CD55027	54.13	1-3/64	#3	6-5/8	11-1/4	CD55067	186.14
7/16	#1	3-7/8	7-1/4	CD55028	54.13	1-1/16	#3	6-5/8	11-1/4	CD55068	177.67
29/64	#1	4-1/8	7-1/2	CD55029	54.13	1-5/64	#4	6-7/8	12-1/2	CD55069	211.48
15/32	#1	4-1/8	7-1/2	CD55030	54.13	1-3/32	#4	6-7/8	12-1/2	CD55070	211.48
31/64	#2	4-3/8	8-1/4	CD55031	59.21	1-7/64	#4	7-1/8	12-3/4	CD55071	219.95
1/2	#2	4-3/8	8-1/4	CD55032	55.42	1-1/8	#4	7-1/8	12-3/4	CD55072	219.95
33/64	#2	4-5/8	8-1/2	CD55033	63.89	1-9/64	#4	7-1/4	12-7/8	CD55073	236.89
17/32	#2	4-5/8	8-1/2	CD55034	65.99	1-5/32	#4	7-1/4	12-7/8	CD55074	228.42
35/64	#2	4-7/8	8-3/4	CD55035	69.52	1-11/64	#4	7-3/8	13	CD55075	236.89
9/16	#2	4-7/8	8-3/4	CD55036	67.68	1-3/16	#4	7-3/8	13	CD55076	236.89
37/64	#2	4-7/8	8-3/4	CD55037	74.02	1-13/64	#4	7-1/2	13-1/8	CD55077	253.79
19/32	#2	4-7/8	8-3/4	CD55038	72.76	1-7/32	#4	7-1/2	13-1/8	CD55078	253.79
39/64	#2	4-7/8	8-3/4	CD55039	77.00	1-1/4	#4	7-7/8	13-1/2	CD55080	265.64
5/8	#2	4-7/8	8-3/4	CD55040	73.61	1-5/16	#4	8-5/8	14-1/4	CD55084	326.55
41/64	#2	5-1/8	9	CD55041	84.62	1-3/8	#4	8-7/8	14-1/2	CD55088	348.53
21/32	#2	5-1/8	9	CD55042	82.93	1-7/16	#4	9-1/8	14-3/4	CD55092	382.37
43/64	#2	5-3/8	9-1/4	CD55043	91.36	1-1/2	#4	9-3/8	15	CD55096	401.01
11/16	#2	5-3/8	9-1/4	CD55044	86.28	1-9/16	#5	9-5/8	16-5/8	CD55102	488.98
45/64	#2	5-5/8	9-1/2	CD55045	94.75	1-5/8	#5	10	17	CD55106	527.90
23/32	#2	5-5/8	9-1/2	CD55046	91.54	1-11/16	#5	10-1/8	17-1/8	CD55110	582.07
47/64	#2	5-7/8	9-3/4	CD55047	101.52	1-3/4	#5	10-1/8	17-1/8	CD55114	619.30
3/4	#2	5-7/8	9-3/4	CD55048	100.68	1-13/16	#5	10-1/8	17-1/8	CD55118	664.96
49/64	#2	6	9-7/8	CD55049	121.33	1-7/8	#5	10-3/8	17-3/8	CD55122	693.72
25/32	#2	6	9-7/8	CD55050	120.63	1-15/16	#5	10-3/8	17-3/8	CD55126	747.88
51/64	#3	6-1/8	10-3/4	CD55051	132.82	2	#5	10-3/8	17-3/8	CD55130	774.95

Taper shank drills sold individually.

For technical information, please see pages 238 & 239.



M42 Cobalt Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "J"



SERIES 500
NAS 907 - M42 COBALT

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD50004	2.69	7/32	2-1/2	3-3/4	12	CD50014	6.03	3/8	3-5/8	5	6	CD50024	14.72
5/64	1	2	12	CD50005	2.69	15/64	2-5/8	3-7/8	12	CD50015	6.41	25/64	3-3/4	5-1/8	6	CD50025	16.74
3/32	1-1/4	2-1/4	12	CD50006	2.69	1/4	2-3/4	4	12	CD50016	6.85	13/32	3-7/8	5-1/4	6	CD50026	17.45
7/64	1-1/2	2-5/8	12	CD50007	2.83	17/64	2-7/8	4-1/8	6	CD50017	7.77	27/64	3-15/16	5-3/8	6	CD50027	19.29
1/8	1-5/8	2-3/4	12	CD50008	3.48	9/32	2-15/16	4-1/4	6	CD50018	8.15	7/16	4-1/16	5-1/2	6	CD50028	19.73
9/64	1-3/4	2-7/8	12	CD50009	3.48	19/64	3-1/16	4-3/8	6	CD50019	9.92	29/64	4-3/16	5-5/8	6	CD50029	23.69
5/32	2	3-1/8	12	CD50010	3.89	5/16	3-3/16	4-1/2	6	CD50020	10.57	15/32	4-5/16	5-3/4	6	CD50030	24.13
11/64	2-1/8	3-1/4	12	CD50011	4.09	21/64	3-5/16	4-5/8	6	CD50021	11.69	31/64	4-3/8	5-7/8	6	CD50031	24.27
3/16	2-5/16	3-1/2	12	CD50012	4.60	11/32	3-7/16	4-3/4	6	CD50022	12.85	1/2	4-1/2	6	6	CD50032	24.27
13/64	2-7/16	3-5/8	12	CD50013	5.52	23/64	3-1/2	4-7/8	6	CD50023	14.72	-	-	-	-	-	-

LETTER SIZES						LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
A	2-5/8	3-7/8	12	CD50301	7.26	J	2-7/8	4-1/8	6	CD50310	9.44	S	3-1/2	4-7/8	6	CD50319	16.94
B	2-3/4	4	12	CD50302	8.38	K	2-15/16	4-1/4	6	CD50311	9.44	T	3-1/2	4-7/8	6	CD50320	16.94
C	2-3/4	4	12	CD50303	8.38	L	2-15/16	4-1/4	6	CD50312	10.70	U	3-5/8	5	6	CD50321	16.94
D	2-3/4	4	12	CD50304	9.44	M	3-1/16	4-3/8	6	CD50313	11.35	V	3-5/8	5	6	CD50322	18.68
E	2-3/4	4	12	CD50305	6.85	N	3-1/16	4-3/8	6	CD50314	11.35	W	3-3/4	5-1/8	6	CD50323	18.68
F	2-7/8	4-1/8	6	CD50306	8.38	O	3-3/16	4-1/2	6	CD50315	12.54	X	3-3/4	5-1/8	6	CD50324	18.68
G	2-7/8	4-1/8	6	CD50307	8.38	P	3-5/16	4-5/8	6	CD50316	13.33	Y	3-7/8	5-1/4	6	CD50325	19.80
H	2-7/8	4-1/8	6	CD50308	9.44	Q	3-7/16	4-3/4	6	CD50317	13.84	Z	3-7/8	5-1/4	6	CD50326	21.54
I	2-7/8	4-1/8	6	CD50309	9.44	R	3-7/16	4-3/4	6	CD50318	13.84	-	-	-	-	-	-

WIRE SIZES						WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	O.A.L.	PKG. QTY.	ITEM#	LIST PRICE
1	2-5/8	3-7/8	12	CD50201	7.33	21	2-1/8	3-1/4	12	CD50221	4.12	41	1-3/8	2-3/8	12	CD50241	2.69
2	2-5/8	3-7/8	12	CD50202	7.33	22	2	3-1/8	12	CD50222	4.12	42	1-1/4	2-1/4	12	CD50242	2.66
3	2-1/2	3-3/4	12	CD50203	6.85	23	2	3-1/8	12	CD50223	4.12	43	1-1/4	2-1/4	12	CD50243	2.66
4	2-1/2	3-3/4	12	CD50204	6.85	24	2	3-1/8	12	CD50224	4.12	44	1-1/8	2-1/8	12	CD50244	2.66
5	2-1/2	3-3/4	12	CD50205	6.85	25	1-7/8	3	12	CD50225	3.78	45	1-1/8	2-1/8	12	CD50245	2.66
6	2-1/2	3-3/4	12	CD50206	6.85	26	1-7/8	3	12	CD50226	3.72	46	1-1/8	2-1/8	12	CD50246	2.66
7	2-7/16	3-5/8	12	CD50207	5.35	27	1-7/8	3	12	CD50227	3.72	47	1	2	12	CD50247	2.66
8	2-7/16	3-5/8	12	CD50208	5.35	28	1-3/4	2-7/8	12	CD50228	3.48	48	1	2	12	CD50248	2.66
9	2-7/16	3-5/8	12	CD50209	5.35	29	1-3/4	2-7/8	12	CD50229	3.37	49	1	2	12	CD50249	2.66
10	2-7/16	3-5/8	12	CD50210	5.35	30	1-5/8	2-3/4	12	CD50230	3.20	50	1	2	12	CD50250	2.66
11	2-5/16	3-1/2	12	CD50211	5.35	31	1-5/8	2-3/4	12	CD50231	3.10	51	1	2	12	CD50251	2.66
12	2-5/16	3-1/2	12	CD50212	5.35	32	1-5/8	2-3/4	12	CD50232	3.07	52	7/8	1-7/8	12	CD50252	2.66
13	2-5/16	3-1/2	12	CD50213	5.25	33	1-1/2	2-5/8	12	CD50233	2.97	53	7/8	1-7/8	12	CD50253	2.97
14	2-3/16	3-3/8	12	CD50214	5.25	34	1-1/2	2-5/8	12	CD50234	2.97	54	7/8	1-7/8	12	CD50254	2.97
15	2-3/16	3-3/8	12	CD50215	5.25	35	1-1/2	2-5/8	12	CD50235	2.97	55	7/8	1-7/8	12	CD50255	2.97
16	2-3/16	3-3/8	12	CD50216	4.77	36	1-7/16	2-1/2	12	CD50236	2.93	56	3/4	1-3/4	12	CD50256	3.34
17	2-3/16	3-3/8	12	CD50217	4.67	37	1-7/16	2-1/2	12	CD50237	2.93	57	3/4	1-3/4	12	CD50257	3.34
18	2-1/8	3-1/4	12	CD50218	4.26	38	1-7/16	2-1/2	12	CD50238	2.73	58	11/16	1-5/8	12	CD50258	3.34
19	2-1/8	3-1/4	12	CD50219	4.16	39	1-3/8	2-3/8	12	CD50239	2.73	59	11/16	1-5/8	12	CD50259	3.34
20	2-1/8	3-1/4	12	CD50220	4.16	40	1-3/8	2-3/8	12	CD50240	2.73	60	11/16	1-5/8	12	CD50260	3.34

Note: sizes below 1/16" are not split point. All cobalt drills have identification ring on shank. For technical information, please see pages 238 & 239.



Silver & Deming Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



SERIES 625
HIGH SPEED STEEL
1/2" ROUND SHANK - 118° POINT



SERIES 620
HIGH SPEED STEEL
1/2" SHANK - 3 FLATS - 118° POINT

HSS & COBALT DRILLS

SIZE	OVERALL LENGTH	ITEM#	LIST PRICE
33/64	6	SD91433	30.68
17/32	6	SD91434	30.68
35/64	6	SD91435	32.38
9/16	6	SD91436	32.38
37/64	6	SD91437	34.77
19/32	6	SD91438	34.77
39/64	6	SD91439	36.54
5/8	6	SD91440	36.54
41/64	6	SD91441	38.28
21/32	6	SD91442	38.28
43/64	6	SD91443	40.70
11/16	6	SD91444	40.70
45/64	6	SD91445	40.87
23/32	6	SD91446	40.87
47/64	6	SD91447	44.58
3/4	6	SD91448	44.72
49/64	6	SD91449	47.41
25/32	6	SD91450	47.41
51/64	6	SD91451	49.83
13/16	6	SD91452	49.83
53/64	6	SD91453	51.77
27/32	6	SD91454	51.77
55/64	6	SD91455	53.48
7/8	6	SD91456	53.48
57/64	6	SD91457	55.66
29/32	6	SD91458	55.66
59/64	6	SD91459	60.60
15/16	6	SD91460	60.60
61/64	6	SD91461	63.53
31/32	6	SD91462	63.53
63/64	6	SD91463	70.83
1	6	SD91464	70.83
1-1/32	6	SD91466	95.03
1-1/16	6	SD91468	95.03
1-3/32	6	SD91470	101.33
1-1/8	6	SD91472	108.25
1-5/32	6	SD91474	108.25
1-3/16	6	SD91476	119.84
1-7/32	6	SD91478	132.62
1-1/4	6	SD91480	132.62
1-5/16	6	SD91484	140.29
1-3/8	6	SD91488	161.59
1-7/16	6	SD91492	177.68
1-1/2	6	SD91496	195.23

SIZE	OVERALL LENGTH	ITEM#	LIST PRICE
33/64	6	SD92533	33.44
17/32	6	SD92534	33.44
35/64	6	SD92535	35.55
9/16	6	SD92536	35.55
37/64	6	SD92537	38.21
19/32	6	SD92538	38.21
39/64	6	SD92539	39.98
5/8	6	SD92540	39.98
41/64	6	SD92541	42.64
21/32	6	SD92542	42.64
43/64	6	SD92543	44.34
11/16	6	SD92544	44.34
45/64	6	SD92545	44.92
23/32	6	SD92546	44.92
47/64	6	SD92547	48.94
3/4	6	SD92548	48.94
49/64	6	SD92549	52.22
25/32	6	SD92550	52.22
51/64	6	SD92551	57.23
13/16	6	SD92552	57.23
53/64	6	SD92553	59.61
27/32	6	SD92554	59.61
55/64	6	SD92555	63.60
7/8	6	SD92556	63.60
57/64	6	SD92557	65.99
29/32	6	SD92558	65.99
59/64	6	SD92559	67.55
15/16	6	SD92560	67.55
61/64	6	SD92561	70.72
31/32	6	SD92562	70.72
63/64	6	SD92563	77.51
1	6	SD92564	77.51

For technical information, please see pages 238 & 239.

Silver & Deming Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SERIES 623

HIGH SPEED STEEL - BLACK & GOLD
1/2" SHANK - 3 FLATS - 118° SPLIT POINT



SERIES 622

M42 COBALT
1/2" ROUND SHANK - 118° SPLIT POINT

SIZE	OVERALL LENGTH	ITEM#	LIST PRICE
33/64	6	SD94733	39.16
17/32	6	SD94734	39.16
35/64	6	SD94735	41.48
9/16	6	SD94736	41.48
37/64	6	SD94737	44.04
19/32	6	SD94738	44.04
39/64	6	SD94739	45.77
5/8	6	SD94740	45.77
41/64	6	SD94741	48.57
21/32	6	SD94742	48.57
43/64	6	SD94743	50.65
11/16	6	SD94744	50.65
45/64	6	SD94745	52.76
23/32	6	SD94746	52.76
47/64	6	SD94747	55.05
3/4	6	SD94748	55.05
49/64	6	SD94749	58.11
25/32	6	SD94750	58.11
51/64	6	SD94751	61.83
13/16	6	SD94752	61.83
53/64	6	SD94753	64.52
27/32	6	SD94754	64.52
55/64	6	SD94755	66.26
7/8	6	SD94756	66.26
57/64	6	SD94757	69.16
29/32	6	SD94758	69.16
59/64	6	SD94759	74.34
15/16	6	SD94760	74.34
61/64	6	SD94761	80.06
31/32	6	SD94762	80.06
63/64	6	SD94763	84.08
1	6	SD94764	84.08

SIZE	OVERALL LENGTH	ITEM#	LIST PRICE
33/64	6	SD93633	61.01
17/32	6	SD93634	61.01
35/64	6	SD93635	73.42
9/16	6	SD93636	73.42
37/64	6	SD93637	75.90
19/32	6	SD93638	75.90
39/64	6	SD93639	77.85
5/8	6	SD93640	77.85
41/64	6	SD93641	81.66
21/32	6	SD93642	81.66
43/64	6	SD93643	83.33
11/16	6	SD93644	83.33
45/64	6	SD93645	87.90
23/32	6	SD93646	87.90
47/64	6	SD93647	91.72
3/4	6	SD93648	91.72
49/64	6	SD93649	95.91
25/32	6	SD93650	95.91
51/64	6	SD93651	98.47
13/16	6	SD93652	98.47
53/64	6	SD93653	106.41
27/32	6	SD93654	106.41
55/64	6	SD93655	106.41
7/8	6	SD93656	106.41
57/64	6	SD93657	110.47
29/32	6	SD93658	110.47
59/64	6	SD93659	115.24
15/16	6	SD93660	115.24
61/64	6	SD93661	121.61
31/32	6	SD93662	121.61
63/64	6	SD93663	138.00
1	6	SD93664	138.00

HSS & COBALT DRILLS

For technical information, please see pages 238 & 239.



Aircraft Extension Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

6" OVERALL LENGTH - 135° SPLIT POINT



SERIES 675

HIGH SPEED STEEL - NAS 907 - TYPE "B"
OXIDE FINISH



SERIES 677

M42 COBALT - NAS 907 - TYPE "J"

HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
3/32	6	1-1/4	12	CD67506	6.80	CD67706	11.25
7/64	6	1-1/2	12	CD67507	6.78	CD67707	12.75
1/8	6	1-5/8	12	CD67508	6.67	CD67708	10.46
9/64	6	1-3/4	12	CD67509	7.95	CD67709	14.30
5/32	6	2	12	CD67510	8.80	CD67710	14.30
11/64	6	2-1/8	12	CD67511	9.70	CD67711	15.75
3/16	6	2-5/16	12	CD67512	9.60	CD67712	13.25
13/64	6	2-7/16	12	CD67513	11.70	CD67713	19.50
7/32	6	2-1/2	12	CD67514	11.70	CD67714	20.00
15/64	6	2-5/8	12	CD67515	13.00	CD67715	21.25
1/4	6	2-3/4	12	CD67516	11.56	CD67716	20.75
17/64	6	2-7/8	6	CD67517	29.50	-	-
9/32	6	2-15/16	6	CD67518	30.50	-	-
19/64	6	3-1/16	6	CD67519	36.00	-	-
5/16	6	3-3/16	6	CD67520	39.00	-	-
21/64	6	3-5/16	6	CD67521	42.00	-	-
11/32	6	3-7/16	6	CD67522	42.00	-	-
23/64	6	3-1/2	6	CD67523	46.75	-	-
3/8	6	3-5/8	6	CD67524	47.50	-	-

WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1	6	2-5/8	12	CD67601	13.50	CD67801	22.25
2	6	2-5/8	12	CD67602	13.50	CD67802	22.25
10	6	2-7/16	12	CD67610	10.50	CD67810	15.17
11	6	2-5/16	12	CD67611	10.50	CD67811	14.58
20	6	2-1/8	12	CD67620	8.75	CD67820	13.80
21	6	2-1/8	12	CD67621	9.20	CD67821	13.80
29	6	1-3/4	12	CD67629	9.75	CD67829	15.25
30	6	1-5/8	12	CD67630	7.50	CD67830	10.50
40	6	1-5/8	12	CD67640	6.15	CD67840	9.54

For technical information, please see pages 238 & 239.

Aircraft Extension Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

12" OVERALL LENGTH - 135° SPLIT POINT



SERIES 680

HIGH SPEED STEEL - NAS 907 - TYPE "B"
OXIDE FINISH



SERIES 688

M42 COBALT - NAS 907 - TYPE "J"

HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1/8	12	1-5/8	12	CD68008	19.30	CD68808	32.00
9/64	12	1-3/4	12	CD68009	19.48	CD68809	35.25
5/32	12	2	12	CD68010	19.48	CD68810	32.50
11/64	12	2-1/8	12	CD68011	21.95	CD68811	35.00
3/16	12	2-5/16	12	CD68012	21.73	CD68812	34.00
13/64	12	2-7/16	12	CD68013	24.93	CD68813	44.50
7/32	12	2-1/2	12	CD68014	24.67	CD68814	40.50
15/64	12	2-5/8	12	CD68015	27.80	CD68815	43.00
1/4	12	2-3/4	12	CD68016	30.25	CD68816	39.33
17/64	12	2-7/8	6	CD68017	35.00	-	-
9/32	12	2-15/16	6	CD68018	34.75	-	-
19/64	12	3-1/16	6	CD68019	38.89	-	-
5/16	12	3-3/16	6	CD68020	42.57	-	-
21/64	12	3-5/16	6	CD68021	46.25	-	-
11/32	12	3-7/16	6	CD68022	45.73	-	-
23/64	12	3-1/2	6	CD68023	51.81	-	-
3/8	12	3-5/8	6	CD68024	52.29	-	-
25/64	12	3-3/4	6	CD68025	58.33	-	-
13/32	12	3-7/8	6	CD68026	56.23	-	-
27/64	12	3-15/16	6	CD68027	62.01	-	-
7/16	12	4-1/16	6	CD68028	62.12	-	-
29/64	12	4-3/16	6	CD68029	70.08	-	-
15/32	12	4-5/16	6	CD68030	72.62	-	-
31/64	12	4-3/8	6	CD68031	75.30	-	-
1/2	12	4-1/2	6	CD68032	74.49	-	-

WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1	12	2-5/8	12	CD68101	30.27	CD68901	48.00
10	12	2-7/16	12	CD68110	24.34	CD68910	37.00
11	12	2-5/16	12	CD68111	24.56	CD68911	35.75
20	12	2-1/8	12	CD68120	22.09	CD68920	33.00
21	12	2-1/8	12	CD68121	21.69	CD68921	33.00
29	12	1-3/4	12	CD68129	22.98	CD68929	34.25
30	12	1-5/8	12	CD68130	21.69	CD68930	31.26
40	12	1-3/8	12	CD68140	21.69	CD68940	34.25

For technical information, please see pages 238 & 239.



HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

EXTRA LENGTH DRILL - STRAIGHT SHANK - 118° POINT - 12" O.A.L.
HIGH SPEED STEEL



SERIES 686 - BRIGHT FINISH

FRACTIONAL SIZES				
SIZE	FLUTE LENGTH	O.A.L.	ITEM#	LIST PRICE
1/8	9	12	CD68608	41.58
9/64	9	12	CD68609	60.26
5/32	9	12	CD68610	54.80
11/64	9	12	CD68611	46.73
3/16	9	12	CD68612	46.73
13/64	9	12	CD68613	56.63
7/32	9	12	CD68614	50.71
15/64	9	12	CD68615	50.71
1/4	9	12	CD68616	52.43
17/64	9	12	CD68617	54.26
9/32	9	12	CD68618	54.26
19/64	9	12	CD68619	56.25
5/16	9	12	CD68620	56.25
21/64	9	12	CD68621	60.26
11/32	9	12	CD68622	60.26
23/64	9	12	CD68623	60.26

FRACTIONAL SIZES				
SIZE	FLUTE LENGTH	O.A.L.	ITEM#	LIST PRICE
3/8	9	12	CD68624	55.52
25/64	9	12	CD68625	84.03
13/32	9	12	CD68626	84.03
27/64	9	12	CD68627	84.03
7/16	9	12	CD68628	71.76
29/64	9	12	CD68629	87.70
15/32	9	12	CD68630	78.91
31/64	9	12	CD68631	80.74
1/2	9	12	CD68632	80.74
17/32	9	12	CD68634	102.30
9/16	9	12	CD68636	102.30
19/32	9	12	CD68638	127.86
5/8	9	12	CD68640	124.23
11/16	9	12	CD68644	131.53
3/4	9	12	CD68648	148.15
-	-	-	-	-

SCREW EXTRACTORS

HIGH SPEED STEEL



SERIES 531

SIZE	FOR SCREW & BOLT SIZES	PIPE SIZE	PKG. QTY.	ITEM#	LIST PRICE
1	3/16 - 1/4	-	1	CD53101	6.92
2	1/4 - 5/16	-	1	CD53102	7.38
3	5/16 - 7/16	-	1	CD53103	8.94
4	7/16 - 9/16	1/8	1	CD53104	9.48
5	9/16 - 3/4	1/4	1	CD53105	11.85
6	3/4 - 1	3/8	1	CD53106	26.02
7	1 - 1-3/8	1/2	1	CD53107	41.88
8	1-3/8 - 1-3/4	3/4	1	CD53108	56.98
9	1-3/4 - 2-1/8	1	1	CD53109	99.09
10	2-1/8 - 2-1/2	1-1/4	1	CD53110	257.14
SET	SIZES 1-5	-	1	CD53113	44.52

For technical information, please see pages 238 & 239.

HSS & COBALT DRILLS

Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
#80	.0135	3/8	2	3/4	.0135	TR96001	35.00	TR96310	38.74
#79	.0145	3/8	2	3/4	.0145	TR96002	35.00	TR96311	38.74
1/64	.0156	3/8	2	3/4	.0156	TR96003	35.00	TR96312	38.74
#78	.0160	3/8	2	7/8	.0160	TR96004	35.00	TR96313	38.74
#77	.0180	3/8	2	7/8	.0180	TR96005	35.00	TR96314	38.74
#76	.0200	3/8	2	7/8	.0200	TR96006	35.00	TR96315	38.74
#75	.0210	1/2	3	1	.0210	TR96007	35.00	TR96316	38.74
#74	.0225	1/2	3	1	.0225	TR96008	35.00	TR96317	38.74
#73	.0240	1/2	3	1-1/8	.0240	TR96009	35.00	TR96318	38.74
#72	.0250	1/2	3	1-1/8	.0250	TR96010	35.00	TR96319	38.74
#71	.0260	1/2	3	1-1/4	.0260	TR96011	35.00	TR96320	38.74
#70	.0280	1/2	3	1-1/4	.0280	TR96012	35.00	TR96321	38.74
#69	.0292	1/2	3	1-3/8	.0292	TR96013	35.00	TR96322	38.74
#68	.0310	1/2	3	1-3/8	.0310	TR96014	35.00	TR96323	38.74
1/32	.0312	1/2	3	1-3/8	.0312	TR96015	27.59	TR96324	31.88
#67	.0320	1/2	3	1-3/8	.0320	TR96016	29.31	TR96325	31.88
#66	.0330	1/2	3	1-3/8	.0330	TR96017	29.31	TR96326	31.88
#65	.0350	1/2	3	1-1/2	.0350	TR96018	29.31	TR96327	31.88
#64	.0360	1/2	3	1-1/2	.0360	TR96019	29.31	TR96328	31.88
#63	.0370	1/2	3	1-1/2	.0370	TR96020	29.31	TR96329	31.88
#62	.0380	1/2	3	1-1/2	.0380	TR96021	29.31	TR96330	31.88
#61	.0390	1/2	3	1-1/2	.0390	TR96022	29.31	TR96331	31.88
1.0mm	.0394	1/2	4	2-1/2	.0394	TR96023	29.31	TR96332	31.38
#60	.0400	1/2	4	2-1/2	.0390	TR96024	29.31	TR96333	31.38
#59	.0410	1/2	4	2-1/2	.0390	TR96025	29.31	TR96334	31.38
#58	.0420	1/2	4	2-1/2	.0390	TR96026	29.31	TR96335	31.38
#57	.0430	1/2	4	2-1/2	.0390	TR96027	29.31	TR96336	31.38
#56	.0465	1/2	4	2-1/2	.0455	TR96028	29.31	TR96337	31.38
3/64	.0469	1/2	4	2-1/2	.0455	TR96029	29.31	TR96338	31.38
#55	.0520	1/2	4	2-1/2	.0510	TR96030	29.31	TR96339	31.38
#54	.0550	1/2	4	2-1/2	.0510	TR96031	29.31	TR96340	31.38
1.5mm	.0591	1/2	4	2-1/2	.0510	TR96032	29.31	TR96341	31.38
#53	.0595	1/2	4	2-1/2	.0585	TR96033	29.31	TR96342	31.38
1/16	.0625	1/2	4	2-1/2	.0585	TR96034	26.35	TR96343	31.38
#52	.0635	1/2	4	2-1/2	.0585	TR96035	26.35	TR96344	31.38
#51	.0670	3/4	4	3	.0660	TR96036	23.58	TR96345	25.26
#50	.0700	3/4	4	3	.0660	TR96037	23.58	TR96346	25.26
#49	.0730	3/4	4	3	.0660	TR96038	23.58	TR96347	25.26
#48	.0760	3/4	4	3	.0720	TR96039	23.58	TR96348	25.26
5/64	.0781	3/4	4	3	.0720	TR96040	23.58	TR96349	25.26

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

HSS & COBALT REAMERS



Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
#47	.0785	3/4	4	3	.0720	TR96041	23.58	TR96350	25.26
2.0mm	.0787	3/4	4	3	.0720	TR96042	23.58	TR96351	25.26
#46	.0810	3/4	4	3	.0771	TR96043	23.58	TR96352	25.26
#45	.0820	3/4	4	3	.0771	TR96044	23.58	TR96353	25.26
#44	.0860	3/4	4	3	.0810	TR96045	23.58	TR96354	25.26
#43	.0890	3/4	4	3	.0810	TR96046	23.58	TR96355	25.26
#42	.0935	3/4	4	3	.0880	TR96047	23.58	TR96356	25.26
3/32	.0938	3/4	4	3	.0880	TR96048	21.20	TR96357	25.26
#41	.0960	7/8	4	3-1/2	.0928	TR96049	23.81	TR96358	25.45
#40	.0980	7/8	4	3-1/2	.0928	TR96050	23.81	TR96359	25.45
2.5mm	.0984	7/8	4	3-1/2	.0928	TR96051	23.81	TR96360	25.45
#39	.0995	7/8	4	3-1/2	.0928	TR96052	23.81	TR96361	25.45
#38	.1015	7/8	4	3-1/2	.0950	TR96053	23.81	TR96362	25.45
#37	.1040	7/8	4	3-1/2	.0950	TR96054	23.81	TR96363	25.45
#36	.1065	7/8	4	3-1/2	.1030	TR96055	23.81	TR96364	25.45
7/64	.1094	7/8	4	3-1/2	.1030	TR96056	24.55	TR96365	26.23
#35	.1100	7/8	4	3-1/2	.1030	TR96057	24.55	TR96366	26.23
#34	.1110	7/8	4	3-1/2	.1055	TR96058	24.55	TR96367	26.23
#33	.1130	7/8	4	3-1/2	.1055	TR96059	24.55	TR96368	26.23
#32	.1160	7/8	4	3-1/2	.1120	TR96060	24.55	TR96369	26.23
3.0mm	.1181	7/8	4	3-1/2	.1120	TR96061	24.55	TR96370	26.23
#31	.1200	7/8	4	3-1/2	.1120	TR96062	24.55	TR96371	26.23
o/u	.1240	7/8	4	3-1/2	.1190	TR96063	24.55	TR96372	26.23
1/8	.1250	7/8	4	3-1/2	.1190	TR96064	19.57	TR96373	20.97
o/u	.1260	7/8	4	3-1/2	.1190	TR96065	24.55	TR96374	26.23
#30	.1285	7/8	4	3-1/2	.1190	TR96066	24.55	TR96375	26.23
#29	.1360	1	4	4	.1275	TR96067	29.31	TR96376	31.38
3.5mm	.1378	1	4	4	.1350	TR96068	29.31	TR96377	31.38
#28	.1405	1	4	4	.1350	TR96069	29.31	TR96378	31.38
9/64	.1406	1	4	4	.1350	TR96070	29.31	TR96379	31.38
#27	.1440	1	4	4	.1350	TR96071	29.31	TR96380	31.38
#26	.1470	1	4	4	.1430	TR96072	29.31	TR96381	31.38
#25	.1495	1	4	4	.1430	TR96073	29.31	TR96382	31.38
#24	.1520	1	4	4	.1460	TR96074	29.31	TR96383	31.38
#23	.1540	1	4	4	.1460	TR96075	29.31	TR96384	31.38
5/32	.1562	1	4	4	.1510	TR96076	29.31	TR96385	31.38
#22	.1570	1	6	4	.1510	TR96077	29.31	TR96386	31.38
4.0mm	.1575	1	6	4	.1510	TR96078	29.31	TR96387	31.38
#21	.1590	1-1/8	6	4-1/2	.1530	TR96079	31.30	TR96388	33.48
#20	.1610	1-1/8	6	4-1/2	.1530	TR96080	31.30	TR96389	33.48

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

Reamers

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CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
#19	.1660	1-1/8	6	4-1/2	.1595	TR96081	31.30	TR96390	33.48
#18	.1695	1-1/8	6	4-1/2	.1595	TR96082	31.30	TR96391	33.48
11/64	.1719	1-1/8	6	4-1/2	.1645	TR96083	31.30	TR96392	33.48
#17	.1730	1-1/8	6	4-1/2	.1645	TR96084	31.30	TR96393	33.48
#16	.1770	1-1/8	6	4-1/2	.1704	TR96085	31.30	TR96394	33.48
4.5mm	.1772	1-1/8	6	4-1/2	.1704	TR96086	31.30	TR96395	33.48
#15	.1800	1-1/8	6	4-1/2	.1755	TR96087	31.30	TR96396	33.48
#14	.1820	1-1/8	6	4-1/2	.1755	TR96088	31.30	TR96397	33.48
#13	.1850	1-1/8	6	4-1/2	.1805	TR96089	31.30	TR96398	33.48
o/u	.1865	1-1/8	6	4-1/2	.1805	TR96090	31.30	TR96399	33.48
3/16	.1875	1-1/8	6	4-1/2	.1805	TR96091	28.14	TR96400	32.35
o/u	.1885	1-1/8	6	4-1/2	.1805	TR96092	31.30	TR96401	33.48
#12	.1890	1-1/8	6	4-1/2	.1805	TR96093	31.30	TR96402	33.48
#11	.1910	1-1/4	6	5	.1860	TR96094	35.04	TR96403	40.46
#10	.1935	1-1/4	6	5	.1860	TR96095	35.04	TR96404	40.46
#9	.1960	1-1/4	6	5	.1895	TR96096	35.04	TR96405	40.46
5.0mm	.1969	1-1/4	6	5	.1895	TR96097	35.04	TR96406	40.46
#8	.1990	1-1/4	6	5	.1895	TR96098	35.04	TR96407	40.46
#7	.2010	1-1/4	6	5	.1895	TR96099	35.04	TR96408	40.46
13/64	.2031	1-1/4	6	5	.1945	TR96100	35.04	TR96409	40.46
#6	.2040	1-1/4	6	5	.1945	TR96101	35.04	TR96410	40.46
#5	.2055	1-1/4	6	5	.2016	TR96102	35.04	TR96411	40.46
#4	.2090	1-1/4	6	5	.2016	TR96103	35.04	TR96412	40.46
#3	.2130	1-1/4	6	5	.2075	TR96104	35.04	TR96413	40.46
5.5mm	.2165	1-1/4	6	5	.2075	TR96105	35.04	TR96414	40.46
7/32	.2188	1-1/4	6	5	.2075	TR96106	35.04	TR96415	40.46
#2	.2210	1-1/2	6	6	.2173	TR96107	36.01	TR96416	41.63
#1	.2280	1-1/2	6	6	.2173	TR96108	36.01	TR96417	41.63
A	.2340	1-1/2	6	6	.2265	TR96109	36.01	TR96418	41.63
15/64	.2344	1-1/2	6	6	.2265	TR96110	36.01	TR96419	41.63
6.0mm	.2362	1-1/2	6	6	.2265	TR96111	37.96	TR96420	41.82
B	.2380	1-1/2	6	6	.2329	TR96112	37.96	TR96421	41.82
C	.2420	1-1/2	6	6	.2329	TR96113	37.96	TR96422	41.82
D	.2460	1-1/2	6	6	.2329	TR96114	37.96	TR96423	38.00
o/u	.2490	1-1/2	6	6	.2405	TR96115	34.18	TR96424	37.61
1/4	.2500	1-1/2	6	6	.2405	TR96116	32.23	TR96425	35.55
o/u	.2510	1-1/2	6	6	.2405	TR96117	34.18	TR96426	37.65
6.5mm	.2559	1-1/2	6	6	.2405	TR96118	37.96	TR96427	41.82
F	.2570	1-1/2	6	6	.2485	TR96119	37.96	TR96428	41.82
G	.2610	1-1/2	6	6	.2485	TR96120	37.96	TR96429	41.82

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

HSS & COBALT REAMERS



Reamers

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CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
17/64	.2656	1-1/2	6	6	.2485	TR96121	42.29	TR96430	56.71
H	.2660	1-1/2	6	6	.2485	TR96122	42.29	TR96431	56.71
I	.2720	1-1/2	6	6	.2485	TR96123	42.29	TR96432	56.71
7.0mm	.2756	1-1/2	6	6	.2485	TR96124	42.29	TR96433	56.71
J	.2770	1-1/2	6	6	.2485	TR96125	42.29	TR96434	56.71
K	.2810	1-1/2	6	6	.2485	TR96126	42.29	TR96435	56.71
9/32	.2812	1-1/2	6	6	.2485	TR96127	40.14	TR96436	53.86
L	.2900	1-1/2	6	6	.2792	TR96128	42.29	TR96437	56.71
M	.2950	1-1/2	6	6	.2792	TR96129	42.29	TR96438	56.71
7.5mm	.2953	1-1/2	6	6	.2792	TR96130	42.29	TR96439	56.71
19/64	.2969	1-1/2	6	6	.2792	TR96131	42.29	TR96440	56.71
N	.3020	1-1/2	6	6	.2792	TR96132	42.29	TR96441	56.71
o/u	.3115	1-1/2	6	6	.2792	TR96133	40.14	TR96442	53.86
5/16	.3125	1-1/2	6	6	.2792	TR96134	38.12	TR96443	51.02
o/u	.3135	1-1/2	6	6	.2792	TR96135	40.14	TR96444	53.86
8.0mm	.3150	1-1/2	6	6	.2792	TR96136	42.29	TR96445	56.71
O	.3160	1-1/2	6	6	.2792	TR96137	42.29	TR96446	56.71
P	.3230	1-1/2	6	6	.2792	TR96138	45.21	TR96447	61.11
21/64	.3281	1-1/2	6	6	.2792	TR96139	45.21	TR96448	61.11
Q	.3320	1-1/2	6	6	.2792	TR96140	45.21	TR96449	61.11
8.5mm	.3346	1-1/2	6	6	.2792	TR96141	45.21	TR96450	61.11
R	.3390	1-1/2	6	6	.2792	TR96142	45.21	TR96451	61.11
11/32	.3438	1-1/2	6	6	.2792	TR96143	45.21	TR96452	61.11
S	.3480	1-3/4	6	7	.3105	TR96144	45.68	TR96453	62.13
9.0mm	.3543	1-3/4	6	7	.3105	TR96145	45.68	TR96454	62.13
T	.3580	1-3/4	6	7	.3105	TR96146	45.68	TR96455	62.13
23/64	.3594	1-3/4	6	7	.3105	TR96147	45.68	TR96456	62.13
U	.3680	1-3/4	6	7	.3105	TR96148	45.68	TR96457	62.13
9.5mm-o/u	.3740	1-3/4	6	7	.3105	TR96149	43.38	TR96458	58.97
3/8	.3750	1-3/4	6	7	.3105	TR96150	41.04	TR96459	55.89
o/u	.3760	1-3/4	6	7	.3105	TR96151	43.38	TR96460	58.97
V	.3770	1-3/4	6	7	.3105	TR96152	49.65	TR96461	75.73
W	.3860	1-3/4	6	7	.3105	TR96153	49.65	TR96462	75.73
25/64	.3906	1-3/4	6	7	.3105	TR96154	49.65	TR96463	75.73
10.0mm	.3937	1-3/4	6	7	.3105	TR96155	49.65	TR96464	75.73
X	.3970	1-3/4	6	7	.3105	TR96156	49.65	TR96465	75.73
Y	.4040	1-3/4	6	7	.3105	TR96157	51.53	TR96466	75.73
13/32	.4062	1-3/4	6	7	.3105	TR96158	51.53	TR96467	75.73
Z	.4130	1-3/4	6	7	.3730	TR96159	51.53	TR96468	75.73
10.5mm	.4134	1-3/4	6	7	.3730	TR96160	52.03	TR96469	75.73

For technical information, please see page 240.

CONTINUED ON NEXT PAGE

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
27/64	.4219	1-3/4	6	7	.3730	TR96161	51.53	TR96470	75.73
11.0mm	.4331	1-3/4	6	7	.3730	TR96162	51.53	TR96471	75.73
o/u	.4365	1-3/4	6	7	.3730	TR96163	48.95	TR96472	75.73
7/16	.4375	1-3/4	6	7	.3730	TR96164	48.95	TR96473	75.73
o/u	.4385	1-3/4	6	7	.3730	TR96165	48.95	TR96474	75.73
11.5mm	.4528	1-3/4	6	7	.3730	TR96166	56.12	TR96475	86.80
29/64	.4531	1-3/4	6	7	.3730	TR96167	56.12	TR96476	86.80
15/32	.4688	1-3/4	6	7	.3730	TR96168	56.12	TR96477	86.80
12.0mm	.4724	2	6	8	.4355	TR96169	56.12	TR96478	86.80
31/64	.4844	2	6	8	.4355	TR96170	56.12	TR96479	86.80
12.5mm	.4921	2	6	8	.4355	TR96171	56.12	TR96480	86.80
o/u	.4990	2	6	8	.4355	TR96172	53.28	TR96481	86.80
1/2	.5000	2	6	8	.4355	TR96173	53.28	TR96482	86.80
o/u	.5010	2	6	8	.4355	TR96174	53.28	TR96483	86.80
13.0mm	.5118	2	6	8	.4355	TR96175	69.53	-	-
33/64	.5156	2	6	8	.4355	TR96176	69.53	-	-
17/32	.5312	2	6	8	.4355	TR96177	66.22	TR96484	97.36
13.5mm	.5315	2	6	8	.4355	TR96178	69.53	-	-
35/64	.5469	2	8	8	.4355	TR96179	69.53	-	-
14.0mm	.5512	2	8	8	.4355	TR96180	69.53	-	-
o/u	.5615	2	8	8	.4355	TR96181	69.53	-	-
9/16	.5625	2	8	8	.4355	TR96182	66.22	TR96485	97.36
o/u	.5635	2	8	8	.4355	TR96183	69.53	-	-
14.5mm	.5709	2	8	8	.4355	TR96184	69.53	-	-
37/64	.5781	2	8	8	.4355	TR96185	69.53	-	-
15.0mm	.5906	2	8	8	.4355	TR96186	69.53	-	-
19/32	.5938	2	8	8	.4355	TR96187	66.22	TR96486	97.36
39/64	.6094	2-1/4	8	9	.5615	TR96188	81.15	-	-
15.5mm	.6102	2-1/4	8	9	.5615	TR96189	81.15	-	-
o/u	.6240	2-1/4	8	9	.5615	TR96190	81.15	-	-
5/8	.6250	2-1/4	8	9	.5615	TR96191	77.56	TR96487	113.61
o/u	.6260	2-1/4	8	9	.5615	TR96192	81.15	-	-
16.0mm	.6299	2-1/4	8	9	.5615	TR96193	81.15	-	-
41/64	.6406	2-1/4	8	9	.5615	TR96194	81.15	-	-
16.5mm	.6496	2-1/4	8	9	.5615	TR96195	81.15	-	-
21/32	.6562	2-1/4	8	9	.5615	TR96196	87.38	TR96488	128.42
17.0mm	.6693	2-1/4	8	9	.5615	TR96197	91.71	-	-
43/64	.6719	2-1/4	8	9	.5615	TR96198	91.71	-	-
o/u	.6865	2-1/4	8	9	.5615	TR96199	91.71	-	-
11/16	.6875	2-1/4	8	9	.5615	TR96200	87.38	TR96489	128.42

For technical information, please see page 240.

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THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006



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CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
o/u	.6885	2-1/4	8	9	.5615	TR96201	98.45	-	-
17.5mm	.6890	2-1/4	8	9	.5615	TR96202	98.45	-	-
45/64	.7031	2-1/4	8	9	.5615	TR96203	98.45	-	-
18.0mm	.7087	2-1/4	8	9	.5615	TR96204	98.45	-	-
23/32	.7188	2-1/4	8	9	.5615	TR96205	97.52	TR96490	143.35
18.5mm	.7283	2-1/2	8	9-1/2	.6240	TR96206	102.35	-	-
47/64	.7344	2-1/2	8	9-1/2	.6240	TR96207	113.38	-	-
19.0mm	.7480	2-1/2	8	9-1/2	.6240	TR96208	113.38	-	-
o/u	.7490	2-1/2	8	9-1/2	.6240	TR96209	113.38	-	-
3/4	.7500	2-1/2	8	9-1/2	.6240	TR96210	98.10	TR96491	144.17
o/u	.7510	2-1/2	8	9-1/2	.6240	TR96211	109.13	-	-
49/64	.7656	2-1/2	8	9-1/2	.6240	TR96212	109.13	-	-
19.5mm	.7677	2-1/2	8	9-1/2	.6240	TR96213	109.13	-	-
25/32	.7812	2-1/2	8	9-1/2	.6240	TR96214	105.78	TR96492	155.47
20.0mm	.7874	2-1/2	8	9-1/2	.6240	TR96215	116.85	-	-
51/64	.7969	2-1/2	8	9-1/2	.6240	TR96216	116.85	-	-
20.5mm	.8071	2-1/2	8	9-1/2	.6240	TR96217	116.85	-	-
o/u	.8115	2-1/2	8	9-1/2	.6240	TR96218	116.85	-	-
13/16	.8125	2-1/2	8	9-1/2	.6240	TR96219	105.78	TR96493	155.47
o/u	.8135	2-1/2	8	9-1/2	.6240	TR96220	116.85	-	-
21.0mm	.8268	2-1/2	8	9-1/2	.6240	TR96221	116.85	-	-
53/64	.8281	2-1/2	8	9-1/2	.6240	TR96222	116.85	-	-
27/32	.8438	2-1/2	8	9-1/2	.6240	TR96223	125.15	TR96494	183.96
21.5mm	.8465	2-5/8	8	10	.7490	TR96224	136.22	-	-
55/64	.8594	2-5/8	8	10	.7490	TR96225	136.22	-	-
22.0mm	.8661	2-5/8	8	10	.7490	TR96226	136.22	-	-
o/u	.8740	2-5/8	8	10	.7490	TR96227	136.22	-	-
7/8	.8750	2-5/8	8	10	.7490	TR96228	128.03	TR96495	188.25
o/u	.8760	2-5/8	8	10	.7490	TR96229	139.14	-	-
22.5mm	.8858	2-5/8	8	10	.7490	TR96230	139.14	-	-
57/64	.8906	2-5/8	8	10	.7490	TR96231	139.14	-	-
23.0mm	.9055	2-5/8	8	10	.7490	TR96232	139.14	-	-
29/32	.9062	2-5/8	8	10	.7490	TR96233	138.01	TR96496	202.83
59/64	.9219	2-5/8	8	10	.7490	TR96234	149.00	-	-
23.5mm	.9252	2-5/8	8	10	.7490	TR96235	149.00	-	-
o/u	.9365	2-5/8	8	10	.7490	TR96236	149.00	-	-
15/16	.9375	2-5/8	8	10	.7490	TR96237	138.01	TR96497	202.83
o/u	.9385	2-5/8	8	10	.7490	TR96238	149.00	-	-
24.0mm	.9449	2-5/8	8	10	.7490	TR96239	149.00	-	-
61/64	.9531	2-5/8	8	10	.7490	TR96240	149.00	-	-

For technical information, please see page 240.

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THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

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CHUCKING

STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SERIES 933		SERIES 1933	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
24.5mm	.9646	2-5/8	8	10	.7490	TR96241	149.00	-	-
31/32	.9688	2-5/8	8	10	.7490	TR96242	154.58	TR96498	227.15
25.0mm	.9843	2-3/4	8	10-1/2	.8740	TR96243	158.20	-	-
63/64	.9844	2-3/4	8	10-1/2	.8740	TR96244	158.20	-	-
o/u	.9990	2-3/4	8	10-1/2	.8740	TR96245	158.20	-	-
1	1.0000	2-3/4	8	10-1/2	.8740	TR96246	156.02	TR96499	229.29
o/u	1.0010	2-3/4	8	10-1/2	.8740	TR96247	167.05	-	-
1-1/32	1.0312	2-3/4	8	10-1/2	.8740	TR96248	217.05	-	-
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	TR96249	172.93	TR96500	254.20
1-3/32	1.0938	2-7/8	8	11	.8740	TR96250	227.97	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	TR96251	183.81	TR96501	270.14
1-5/32	1.1562	2-7/8	10	11	.9990	TR96252	259.38	-	-
1-3/16	1.1875	2-7/8	10	11	.9990	TR96253	215.26	TR96502	316.44
1-7/32	1.2188	3	10	11-1/2	.9990	TR96254	272.28	-	-
1-1/4	1.2500	3	10	11-1/2	.9990	TR96255	228.12	TR96503	335.30
1-9/32	1.2812	3	10	11-1/2	.9990	TR96256	310.28	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	TR96257	266.08	TR96504	391.08
1-11/32	1.3438	3-1/4	10	12	.9990	TR96258	323.77	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	TR96259	279.61	TR96505	411.03
1-13/32	1.4062	3-1/4	10	12	1.2490	TR96260	344.00	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	TR96261	299.84	TR96506	440.85
1-15/32	1.4688	3-1/2	10	12-1/2	1.2490	TR96262	367.07	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	TR96263	322.87	TR96507	474.64
1-9/16	1.5625	3-1/2	12	13	1.2490	TR96910	457.10	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	TR96911	457.10	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	TR96912	524.96	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	TR96913	524.96	-	-
1-13/16	1.8125	4	12	14	1.4990	TR96914	604.62	-	-
1-7/8	1.8750	4	12	14	1.4990	TR96915	604.62	-	-
1-15/16	1.9375	4	12	14	1.4990	TR96916	709.04	-	-
2	2.0000	4	12	14	1.4990	TR96917	709.04	-	-

For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006



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CHUCKING

STOCKED INTERMEDIATE SIZES - HIGH SPEED STEEL - SERIES 933

HSS & COBALT REAMERS

DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE
0.0140	TR94007	43.57	0.0490	TR94054	34.30	0.0770	TR94101	30.75	0.1060	TR94148	30.75	0.1340	TR94195	36.05
0.0150	TR94008	43.57	0.0495	TR94055	34.30	0.0775	TR94102	30.75	0.1070	TR94149	30.75	0.1345	TR94196	36.05
0.0155	TR94009	43.57	0.0500	TR94056	34.30	0.0780	TR94103	30.75	0.1075	TR94150	30.75	0.1350	TR94197	36.05
0.0165	TR94010	43.57	0.0505	TR94057	34.30	0.0790	TR94104	30.75	0.1080	TR94151	30.75	0.1355	TR94198	36.05
0.0170	TR94011	43.57	0.0510	TR94058	34.30	0.0795	TR94105	30.75	0.1085	TR94152	30.75	0.1365	TR94199	36.05
0.0175	TR94012	43.57	0.0515	TR94059	34.30	0.0800	TR94106	30.75	0.1090	TR94153	30.75	0.1370	TR94200	36.05
0.0185	TR94013	43.57	0.0525	TR94060	34.30	0.0805	TR94107	30.75	0.1095	TR94154	26.58	0.1375	TR94201	36.05
0.0190	TR94014	43.57	0.0530	TR94061	34.30	0.0815	TR94108	30.75	0.1105	TR94155	26.58	0.1380	TR94202	36.05
0.0195	TR94015	43.57	0.0535	TR94062	34.30	0.0825	TR94109	30.75	0.1115	TR94156	26.58	0.1385	TR94203	36.05
0.0205	TR94016	39.68	0.0540	TR94063	34.30	0.0830	TR94110	30.75	0.1120	TR94157	26.58	0.1390	TR94204	36.05
0.0215	TR94017	39.68	0.0545	TR94064	34.30	0.0835	TR94111	30.75	0.1125	TR94158	26.58	0.1395	TR94205	36.05
0.0220	TR94018	39.68	0.0555	TR94065	34.30	0.0840	TR94112	30.75	0.1135	TR94159	26.58	0.1400	TR94206	36.05
0.0230	TR94019	39.68	0.0560	TR94066	34.30	0.0845	TR94113	30.75	0.1140	TR94160	26.58	0.1410	TR94207	34.30
0.0235	TR94020	39.68	0.0565	TR94067	34.30	0.0850	TR94114	30.75	0.1145	TR94161	26.58	0.1415	TR94208	34.30
0.0245	TR94021	39.68	0.0570	TR94068	34.30	0.0855	TR94115	30.75	0.1150	TR94162	26.58	0.1420	TR94209	34.30
0.0255	TR94022	39.68	0.0575	TR94069	34.30	0.0865	TR94116	30.75	0.1155	TR94163	26.58	0.1425	TR94210	34.30
0.0265	TR94023	39.68	0.0580	TR94070	34.30	0.0870	TR94117	30.75	0.1165	TR94164	26.58	0.1430	TR94211	34.30
0.0270	TR94024	39.68	0.0585	TR94071	34.30	0.0875	TR94118	30.75	0.1170	TR94165	26.58	0.1435	TR94212	34.30
0.0275	TR94025	39.68	0.0590	TR94072	34.30	0.0880	TR94119	30.75	0.1175	TR94166	26.58	0.1445	TR94213	34.30
0.0285	TR94026	39.68	0.0600	TR94073	34.30	0.0885	TR94120	30.75	0.1180	TR94167	26.58	0.1450	TR94214	34.30
0.0290	TR94027	39.68	0.0605	TR94074	34.30	0.0895	TR94121	30.75	0.1185	TR94168	26.58	0.1455	TR94215	34.30
0.0295	TR94028	36.05	0.0610	TR94075	34.30	0.0900	TR94122	30.75	0.1190	TR94169	26.58	0.1460	TR94216	34.30
0.0300	TR94029	36.05	0.0615	TR94076	34.30	0.0905	TR94123	30.75	0.1195	TR94170	26.58	0.1465	TR94217	34.30
0.0305	TR94030	36.05	0.0620	TR94077	34.30	0.0910	TR94124	30.75	0.1205	TR94171	26.58	0.1475	TR94218	34.30
0.0315	TR94031	36.05	0.0630	TR94078	30.75	0.0915	TR94125	30.75	0.1210	TR94172	26.58	0.1480	TR94219	34.30
0.0325	TR94032	36.05	0.0640	TR94079	30.75	0.0920	TR94126	30.75	0.1215	TR94173	26.58	0.1485	TR94220	34.30
0.0335	TR94033	36.05	0.0645	TR94080	30.75	0.0925	TR94127	30.75	0.1220	TR94174	26.58	0.1490	TR94221	34.30
0.0340	TR94034	36.05	0.0650	TR94081	30.75	0.0930	TR94128	30.75	0.1225	TR94175	26.58	0.1500	TR94222	34.30
0.0345	TR94035	36.05	0.0655	TR94082	30.75	0.0940	TR94129	30.75	0.1230	TR94176	26.58	0.1505	TR94223	34.30
0.0355	TR94036	36.05	0.0660	TR94083	30.75	0.0945	TR94130	30.75	0.1235	TR94177	26.58	0.1510	TR94224	34.30
0.0365	TR94037	36.05	0.0665	TR94084	30.75	0.0950	TR94131	30.75	0.1245	TR94178	26.58	0.1515	TR94225	34.30
0.0375	TR94038	36.05	0.0675	TR94085	30.75	0.0955	TR94132	30.75	0.1247	TR94179	26.58	0.1525	TR94226	34.30
0.0385	TR94039	36.05	0.0680	TR94086	30.75	0.0965	TR94133	30.75	0.1255	TR94180	36.05	0.1530	TR94227	34.30
0.0395	TR94040	34.30	0.0685	TR94087	30.75	0.0970	TR94134	30.75	0.1265	TR94181	36.05	0.1535	TR94228	34.30
0.0405	TR94041	34.30	0.0690	TR94088	30.75	0.0975	TR94135	30.75	0.1270	TR94182	36.05	0.1545	TR94229	34.30
0.0415	TR94042	34.30	0.0695	TR94089	30.75	0.0985	TR94136	30.75	0.1275	TR94183	36.05	0.1550	TR94230	34.30
0.0425	TR94043	34.30	0.0705	TR94090	30.75	0.0990	TR94137	30.75	0.1280	TR94184	36.05	0.1555	TR94231	34.30
0.0435	TR94044	34.30	0.0710	TR94091	30.75	0.1000	TR94138	30.75	0.1290	TR94185	36.05	0.1560	TR94232	34.30
0.0440	TR94045	34.30	0.0715	TR94092	30.75	0.1005	TR94139	30.75	0.1295	TR94186	36.05	0.1565	TR94233	36.05
0.0445	TR94046	34.30	0.0720	TR94093	30.75	0.1010	TR94140	30.75	0.1300	TR94187	36.05	0.1580	TR94234	36.05
0.0450	TR94047	34.30	0.0725	TR94094	30.75	0.1020	TR94141	30.75	0.1305	TR94188	36.05	0.1585	TR94235	36.05
0.0455	TR94048	34.30	0.0735	TR94095	30.75	0.1025	TR94142	30.75	0.1310	TR94189	36.05	0.1595	TR94236	36.05
0.0460	TR94049	34.30	0.0740	TR94096	30.75	0.1030	TR94143	30.75	0.1315	TR94190	36.05	0.1600	TR94237	36.05
0.0470	TR94050	34.30	0.0745	TR94097	30.75	0.1035	TR94144	30.75	0.1320	TR94191	36.05	0.1605	TR94238	36.05
0.0475	TR94051	34.30	0.0750	TR94098	30.75	0.1045	TR94145	30.75	0.1325	TR94192	36.05	0.1615	TR94239	36.05
0.0480	TR94052	34.30	0.0755	TR94099	30.75	0.1050	TR94146	30.75	0.1330	TR94193	36.05	0.1620	TR94240	36.05
0.0485	TR94053	34.30	0.0765	TR94100	30.75	0.1055	TR94147	30.75	0.1335	TR94194	36.05	0.1625	TR94241	36.05

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DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE
0.1630	TR94242	36.05	0.1925	TR94289	42.76	0.2205	TR94336	42.37	0.2470	TR94383	38.20	0.2740	TR94430	48.72
0.1635	TR94243	36.05	0.1930	TR94290	42.76	0.2215	TR94337	42.37	0.2475	TR94384	38.20	0.2745	TR94431	48.72
0.1640	TR94244	36.05	0.1940	TR94291	42.76	0.2220	TR94338	42.37	0.2480	TR94385	38.20	0.2750	TR94432	48.72
0.1645	TR94245	36.05	0.1945	TR94292	42.76	0.2225	TR94339	42.37	0.2485	TR94386	38.20	0.2755	TR94433	48.72
0.1650	TR94246	36.05	0.1950	TR94293	42.76	0.2230	TR94340	42.37	0.2495	TR94387	38.20	0.2760	TR94434	48.72
0.1655	TR94247	36.05	0.1955	TR94294	42.76	0.2235	TR94341	42.37	0.2505	TR94388	48.72	0.2765	TR94435	48.72
0.1665	TR94248	36.05	0.1965	TR94295	42.76	0.2240	TR94342	42.37	0.2515	TR94389	48.72	0.2775	TR94436	48.72
0.1670	TR94249	36.05	0.1970	TR94296	42.76	0.2245	TR94343	42.37	0.2520	TR94390	48.72	0.2780	TR94437	48.72
0.1675	TR94250	36.05	0.1975	TR94297	42.76	0.2250	TR94344	42.37	0.2525	TR94391	48.72	0.2785	TR94438	48.72
0.1680	TR94251	36.05	0.1980	TR94298	42.76	0.2255	TR94345	42.37	0.2530	TR94392	48.72	0.2790	TR94439	48.72
0.1685	TR94252	36.05	0.1985	TR94299	42.76	0.2260	TR94346	42.37	0.2535	TR94393	48.72	0.2795	TR94440	48.72
0.1690	TR94253	36.05	0.1995	TR94300	42.76	0.2265	TR94347	42.37	0.2540	TR94394	48.72	0.2800	TR94441	48.72
0.1700	TR94254	36.05	0.2000	TR94301	42.76	0.2270	TR94348	42.37	0.2545	TR94395	48.72	0.2805	TR94442	48.72
0.1705	TR94255	36.05	0.2005	TR94302	42.76	0.2275	TR94349	42.37	0.2550	TR94396	48.72	0.2815	TR94443	48.72
0.1710	TR94256	36.05	0.2015	TR94303	42.76	0.2285	TR94350	42.37	0.2555	TR94397	48.72	0.2820	TR94444	48.72
0.1715	TR94257	36.05	0.2020	TR94304	42.76	0.2290	TR94351	42.37	0.2560	TR94398	48.72	0.2825	TR94445	48.72
0.1720	TR94258	33.87	0.2025	TR94305	42.76	0.2295	TR94352	42.37	0.2565	TR94399	48.72	0.2830	TR94446	48.72
0.1725	TR94259	33.87	0.2030	TR94306	42.76	0.2300	TR94353	42.37	0.2575	TR94400	48.72	0.2835	TR94447	48.72
0.1735	TR94260	33.87	0.2035	TR94307	41.66	0.2305	TR94354	42.37	0.2580	TR94401	48.72	0.2840	TR94448	48.72
0.1740	TR94261	33.87	0.2045	TR94308	41.66	0.2310	TR94355	42.37	0.2585	TR94402	48.72	0.2845	TR94449	48.72
0.1745	TR94262	33.87	0.2050	TR94309	41.66	0.2315	TR94356	42.37	0.2590	TR94403	48.72	0.2850	TR94450	48.72
0.1750	TR94263	33.87	0.2060	TR94310	41.66	0.2320	TR94357	42.37	0.2595	TR94404	48.72	0.2855	TR94451	48.72
0.1755	TR94264	33.87	0.2065	TR94311	41.66	0.2325	TR94358	42.37	0.2600	TR94405	48.72	0.2860	TR94452	48.72
0.1760	TR94265	33.87	0.2070	TR94312	41.66	0.2330	TR94359	42.37	0.2605	TR94406	48.72	0.2865	TR94453	48.72
0.1765	TR94266	33.87	0.2075	TR94313	41.66	0.2335	TR94360	42.37	0.2615	TR94407	48.72	0.2870	TR94454	48.72
0.1775	TR94267	33.87	0.2080	TR94314	41.66	0.2345	TR94361	38.20	0.2620	TR94408	48.72	0.2875	TR94455	48.72
0.1780	TR94268	33.87	0.2085	TR94315	41.66	0.2350	TR94362	38.20	0.2625	TR94409	48.72	0.2880	TR94456	48.72
0.1785	TR94269	33.87	0.2095	TR94316	41.66	0.2355	TR94363	38.20	0.2630	TR94410	48.72	0.2885	TR94457	48.72
0.1790	TR94270	33.87	0.2100	TR94317	41.66	0.2360	TR94364	38.20	0.2635	TR94411	48.72	0.2890	TR94458	48.72
0.1795	TR94271	33.87	0.2105	TR94318	41.66	0.2365	TR94365	38.20	0.2640	TR94412	48.72	0.2895	TR94459	48.72
0.1805	TR94272	33.87	0.2110	TR94319	41.66	0.2370	TR94366	38.20	0.2645	TR94413	48.72	0.2905	TR94460	48.72
0.1810	TR94273	33.87	0.2115	TR94320	41.66	0.2375	TR94367	38.20	0.2650	TR94414	48.72	0.2910	TR94461	48.72
0.1815	TR94274	33.87	0.2120	TR94321	41.66	0.2385	TR94368	38.20	0.2655	TR94415	48.72	0.2915	TR94462	48.72
0.1825	TR94275	33.87	0.2125	TR94322	41.66	0.2390	TR94369	38.20	0.2665	TR94416	48.72	0.2920	TR94463	48.72
0.1830	TR94276	33.87	0.2135	TR94323	41.66	0.2395	TR94370	38.20	0.2670	TR94417	48.72	0.2925	TR94464	48.72
0.1835	TR94277	33.87	0.2140	TR94324	41.66	0.2400	TR94371	38.20	0.2675	TR94418	48.72	0.2930	TR94465	48.72
0.1840	TR94278	33.87	0.2145	TR94325	41.66	0.2405	TR94372	38.20	0.2680	TR94419	48.72	0.2935	TR94466	48.72
0.1845	TR94279	33.87	0.2150	TR94326	41.66	0.2410	TR94373	38.20	0.2685	TR94420	48.72	0.2940	TR94467	48.72
0.1855	TR94280	33.87	0.2155	TR94327	41.66	0.2415	TR94374	38.20	0.2690	TR94421	48.72	0.2945	TR94468	48.72
0.1860	TR94281	33.87	0.2160	TR94328	41.66	0.2425	TR94375	38.20	0.2695	TR94422	48.72	0.2955	TR94469	48.72
0.1870	TR94282	33.87	0.2170	TR94329	41.66	0.2430	TR94376	38.20	0.2700	TR94423	48.72	0.2960	TR94470	48.72
0.1880	TR94283	42.76	0.2175	TR94330	41.66	0.2435	TR94377	38.20	0.2705	TR94424	48.72	0.2965	TR94471	48.72
0.1895	TR94284	42.76	0.2180	TR94331	41.66	0.2440	TR94378	38.20	0.2710	TR94425	48.72	0.2970	TR94472	43.61
0.1900	TR94285	42.76	0.2185	TR94332	41.66	0.2445	TR94379	38.20	0.2715	TR94426	48.72	0.2975	TR94473	43.61
0.1905	TR94286	42.76	0.2190	TR94333	42.37	0.2450	TR94380	38.20	0.2725	TR94427	48.72	0.2980	TR94474	43.61
0.1915	TR94287	42.76	0.2195	TR94334	42.37	0.2455	TR94381	38.20	0.2730	TR94428	48.72	0.2985	TR94475	43.61
0.1920	TR94288	42.76	0.2200	TR94335	42.37	0.2465	TR94382	38.20	0.2735	TR94429	48.72	0.2990	TR94476	43.61

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HSS & COBALT REAMERS

DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE
0.2995	TR94477	43.61	0.3265	TR94524	51.37	0.3515	TR94571	52.11	0.3780	TR94618	56.20	0.4025	TR94665	57.64
0.3000	TR94478	43.61	0.3270	TR94525	51.37	0.3520	TR94572	52.11	0.3785	TR94619	56.20	0.4030	TR94666	57.64
0.3005	TR94479	43.61	0.3275	TR94526	51.37	0.3525	TR94573	52.11	0.3790	TR94620	56.20	0.4035	TR94667	57.64
0.3010	TR94480	43.61	0.3280	TR94527	51.37	0.3530	TR94574	52.11	0.3795	TR94621	56.20	0.4045	TR94668	57.64
0.3015	TR94481	43.61	0.3285	TR94528	51.37	0.3535	TR94575	52.11	0.3800	TR94622	56.20	0.4050	TR94669	57.64
0.3025	TR94482	43.61	0.3290	TR94529	51.37	0.3540	TR94576	52.11	0.3805	TR94623	56.20	0.4055	TR94670	57.64
0.3030	TR94483	43.61	0.3295	TR94530	51.37	0.3545	TR94577	52.11	0.3810	TR94624	56.20	0.4060	TR94671	57.64
0.3035	TR94484	43.61	0.3300	TR94531	51.37	0.3550	TR94578	52.11	0.3815	TR94625	56.20	0.4065	TR94672	57.64
0.3040	TR94485	43.61	0.3305	TR94532	51.37	0.3555	TR94579	52.11	0.3820	TR94626	56.20	0.4070	TR94673	57.64
0.3045	TR94486	43.61	0.3310	TR94533	51.37	0.3560	TR94580	52.11	0.3825	TR94627	56.20	0.4075	TR94674	57.64
0.3050	TR94487	43.61	0.3315	TR94534	51.37	0.3565	TR94581	52.11	0.3830	TR94628	56.20	0.4080	TR94675	57.64
0.3055	TR94488	43.61	0.3325	TR94535	51.37	0.3570	TR94582	52.11	0.3835	TR94629	56.20	0.4085	TR94676	57.64
0.3060	TR94489	43.61	0.3330	TR94536	51.37	0.3575	TR94583	52.11	0.3840	TR94630	56.20	0.4090	TR94677	57.64
0.3065	TR94490	43.61	0.3335	TR94537	51.37	0.3585	TR94584	52.11	0.3845	TR94631	56.20	0.4095	TR94678	57.64
0.3070	TR94491	43.61	0.3340	TR94538	51.37	0.3590	TR94585	52.11	0.3850	TR94632	56.20	0.4100	TR94679	57.64
0.3075	TR94492	43.61	0.3345	TR94539	51.37	0.3595	TR94586	46.69	0.3855	TR94633	56.20	0.4105	TR94680	57.64
0.3080	TR94493	43.61	0.3350	TR94540	51.37	0.3600	TR94587	46.69	0.3865	TR94634	56.20	0.4110	TR94681	57.64
0.3085	TR94494	43.61	0.3355	TR94541	51.37	0.3605	TR94588	46.69	0.3870	TR94635	56.20	0.4115	TR94682	57.64
0.3090	TR94495	43.61	0.3360	TR94542	51.37	0.3610	TR94589	46.69	0.3875	TR94636	56.20	0.4120	TR94683	57.64
0.3095	TR94496	43.61	0.3365	TR94543	51.37	0.3615	TR94590	46.69	0.3880	TR94637	56.20	0.4125	TR94684	57.64
0.3100	TR94497	43.61	0.3370	TR94544	51.37	0.3620	TR94591	46.69	0.3885	TR94638	56.20	0.4135	TR94685	57.64
0.3105	TR94498	43.61	0.3375	TR94545	51.37	0.3625	TR94592	46.69	0.3890	TR94639	56.20	0.4140	TR94686	57.64
0.3110	TR94499	43.61	0.3380	TR94546	51.37	0.3630	TR94593	46.69	0.3895	TR94640	56.20	0.4145	TR94687	57.64
0.3120	TR94500	43.61	0.3385	TR94547	51.37	0.3635	TR94594	46.69	0.3900	TR94641	56.20	0.4150	TR94688	57.64
0.3130	TR94501	51.37	0.3395	TR94548	51.37	0.3640	TR94595	46.69	0.3905	TR94642	56.20	0.4155	TR94689	57.64
0.3140	TR94502	51.37	0.3400	TR94549	51.37	0.3645	TR94596	46.69	0.3910	TR94643	57.64	0.4160	TR94690	57.64
0.3145	TR94503	51.37	0.3405	TR94550	51.37	0.3650	TR94597	46.69	0.3915	TR94644	57.64	0.4165	TR94691	57.64
0.3155	TR94504	51.37	0.3410	TR94551	51.37	0.3655	TR94598	46.69	0.3920	TR94645	57.64	0.4170	TR94692	57.64
0.3165	TR94505	51.37	0.3415	TR94552	51.37	0.3660	TR94599	46.69	0.3925	TR94646	57.64	0.4175	TR94693	57.64
0.3170	TR94506	51.37	0.3420	TR94553	51.37	0.3665	TR94600	46.69	0.3930	TR94647	57.64	0.4180	TR94694	57.64
0.3175	TR94507	51.37	0.3425	TR94554	51.37	0.3670	TR94601	46.69	0.3935	TR94648	57.64	0.4185	TR94695	57.64
0.3180	TR94508	51.37	0.3430	TR94555	51.37	0.3675	TR94602	46.69	0.3940	TR94649	57.64	0.4190	TR94696	57.64
0.3185	TR94509	51.37	0.3435	TR94556	51.37	0.3685	TR94603	46.69	0.3945	TR94650	57.64	0.4195	TR94697	57.64
0.3190	TR94510	51.37	0.3440	TR94557	52.11	0.3690	TR94604	46.69	0.3950	TR94651	57.64	0.4200	TR94698	57.64
0.3195	TR94511	51.37	0.3445	TR94558	52.11	0.3695	TR94605	46.69	0.3955	TR94652	57.64	0.4205	TR94699	57.64
0.3200	TR94512	51.37	0.3450	TR94559	52.11	0.3700	TR94606	46.69	0.3960	TR94653	57.64	0.4210	TR94700	57.64
0.3205	TR94513	51.37	0.3455	TR94560	52.11	0.3705	TR94607	46.69	0.3965	TR94654	57.64	0.4215	TR94701	57.64
0.3210	TR94514	51.37	0.3460	TR94561	52.11	0.3710	TR94608	46.69	0.3975	TR94655	57.64	0.4220	TR94702	54.06
0.3215	TR94515	51.37	0.3465	TR94562	52.11	0.3715	TR94609	46.69	0.3980	TR94656	57.64	0.4225	TR94703	54.06
0.3220	TR94516	51.37	0.3470	TR94563	52.11	0.3720	TR94610	46.69	0.3985	TR94657	57.64	0.4230	TR94704	54.06
0.3225	TR94517	51.37	0.3475	TR94564	52.11	0.3725	TR94611	46.69	0.3990	TR94658	57.64	0.4235	TR94705	54.06
0.3235	TR94518	51.37	0.3485	TR94565	52.11	0.3730	TR94612	46.69	0.3995	TR94659	57.64	0.4240	TR94706	54.06
0.3240	TR94519	51.37	0.3490	TR94566	52.11	0.3735	TR94613	46.69	0.4000	TR94660	57.64	0.4245	TR94707	54.06
0.3245	TR94520	51.37	0.3495	TR94567	52.11	0.3745	TR94614	46.69	0.4005	TR94661	57.64	0.4250	TR94708	54.06
0.3250	TR94521	51.37	0.3500	TR94568	52.11	0.3755	TR94615	56.20	0.4010	TR94662	57.64	0.4255	TR94709	54.06
0.3255	TR94522	51.37	0.3505	TR94569	52.11	0.3765	TR94616	56.20	0.4015	TR94663	57.64	0.4260	TR94710	54.06
0.3260	TR94523	51.37	0.3510	TR94570	52.11	0.3775	TR94617	56.20	0.4020	TR94664	57.64	0.4265	TR94711	54.06

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DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE	DEC. SIZE	ITEM#	LIST PRICE
0.4270	TR94712	54.06	0.4525	TR94760	61.31	0.4765	TR94808	61.31	0.5020	TR94856	77.56	0.7525	TR94903	124.41
0.4275	TR94713	54.06	0.4530	TR94761	61.31	0.4770	TR94809	61.31	0.5025	TR94857	77.56	0.7530	TR94904	124.41
0.4280	TR94714	54.06	0.4535	TR94762	61.31	0.4775	TR94810	61.31	0.5030	TR94858	77.56	0.7540	TR94905	124.41
0.4285	TR94715	54.06	0.4540	TR94763	61.31	0.4780	TR94811	61.31	0.5035	TR94859	77.56	0.7550	TR94906	124.41
0.4290	TR94716	54.06	0.4545	TR94764	61.31	0.4785	TR94812	61.31	0.5040	TR94860	77.56	0.8095	TR94907	124.41
0.4295	TR94717	54.06	0.4550	TR94765	61.31	0.4790	TR94813	61.31	0.5045	TR94861	77.56	0.8100	TR94908	124.41
0.4300	TR94718	54.06	0.4555	TR94766	61.31	0.4795	TR94814	61.31	0.5050	TR94862	77.56	0.8105	TR94909	124.41
0.4305	TR94719	54.06	0.4560	TR94767	61.31	0.4800	TR94815	61.31	0.5060	TR94863	77.56	0.8110	TR94910	124.41
0.4310	TR94720	54.06	0.4565	TR94768	61.31	0.4805	TR94816	61.31	0.5070	TR94864	77.56	0.8120	TR94911	124.41
0.4315	TR94721	54.06	0.4570	TR94769	61.31	0.4810	TR94817	61.31	0.5080	TR94865	77.56	0.8130	TR94912	137.00
0.4320	TR94722	54.06	0.4575	TR94770	61.31	0.4815	TR94818	61.31	0.5090	TR94866	77.56	0.8140	TR94913	137.00
0.4325	TR94723	54.06	0.4580	TR94771	61.31	0.4820	TR94819	61.31	0.5100	TR94867	77.56	0.8145	TR94914	137.00
0.4330	TR94724	54.06	0.4585	TR94772	61.31	0.4825	TR94820	61.31	0.5600	TR94868	75.96	0.8150	TR94915	137.00
0.4335	TR94725	54.06	0.4590	TR94773	61.31	0.4830	TR94821	61.31	0.5605	TR94869	75.96	0.8155	TR94916	137.00
0.4340	TR94726	54.06	0.4595	TR94774	61.31	0.4835	TR94822	61.31	0.5610	TR94870	75.96	0.8720	TR94917	140.54
0.4345	TR94727	54.06	0.4600	TR94775	61.31	0.4840	TR94823	61.31	0.5620	TR94871	75.96	0.8725	TR94918	140.54
0.4350	TR94728	54.06	0.4605	TR94776	61.31	0.4845	TR94824	57.64	0.5630	TR94872	87.23	0.8730	TR94919	140.54
0.4355	TR94729	54.06	0.4610	TR94777	61.31	0.4850	TR94825	57.64	0.5640	TR94873	87.23	0.8735	TR94920	140.54
0.4360	TR94730	54.06	0.4615	TR94778	61.31	0.4855	TR94826	57.64	0.5645	TR94874	87.23	0.8745	TR94921	140.54
0.4370	TR94731	54.06	0.4620	TR94779	61.31	0.4860	TR94827	57.64	0.5650	TR94875	87.23	0.8755	TR94922	153.13
0.4380	TR94732	61.31	0.4625	TR94780	61.31	0.4865	TR94828	57.64	0.5655	TR94876	87.23	0.8765	TR94923	153.13
0.4390	TR94733	61.31	0.4630	TR94781	61.31	0.4870	TR94829	57.64	0.6220	TR94877	87.62	0.8770	TR94924	153.13
0.4395	TR94734	61.31	0.4635	TR94782	61.31	0.4875	TR94830	57.64	0.6225	TR94878	87.62	0.8775	TR94925	153.13
0.4400	TR94735	61.31	0.4640	TR94783	61.31	0.4880	TR94831	57.64	0.6230	TR94879	87.62	0.8780	TR94926	153.13
0.4405	TR94736	61.31	0.4645	TR94784	61.31	0.4885	TR94832	57.64	0.6235	TR94880	87.62	0.9340	TR94927	153.13
0.4410	TR94737	61.31	0.4650	TR94785	61.31	0.4890	TR94833	57.64	0.6245	TR94881	87.62	0.9345	TR94928	153.13
0.4415	TR94738	61.31	0.4655	TR94786	61.31	0.4895	TR94834	57.64	0.6255	TR94882	97.87	0.9350	TR94929	153.13
0.4420	TR94739	61.31	0.4660	TR94787	61.31	0.4900	TR94835	57.64	0.6265	TR94883	97.87	0.9355	TR94930	153.13
0.4425	TR94740	61.31	0.4665	TR94788	61.31	0.4905	TR94836	57.64	0.6270	TR94884	97.87	0.9360	TR94931	153.13
0.4430	TR94741	61.31	0.4670	TR94789	61.31	0.4910	TR94837	57.64	0.6275	TR94885	97.87	0.9370	TR94932	153.13
0.4435	TR94742	61.31	0.4675	TR94790	61.31	0.4915	TR94838	57.64	0.6280	TR94886	97.87	0.9380	TR94933	168.10
0.4440	TR94743	61.31	0.4680	TR94791	61.31	0.4920	TR94839	57.64	0.6300	TR94949	97.87	0.9390	TR94934	168.10
0.4445	TR94744	61.31	0.4685	TR94792	61.31	0.4925	TR94840	57.64	0.6845	TR94887	97.87	0.9395	TR94935	168.10
0.4450	TR94745	61.31	0.4690	TR94793	61.31	0.4930	TR94841	57.64	0.6850	TR94888	97.87	0.9400	TR94936	168.10
0.4455	TR94746	61.31	0.4695	TR94794	61.31	0.4935	TR94842	57.64	0.6855	TR94889	97.87	0.9405	TR94937	168.10
0.4460	TR94747	61.31	0.4700	TR94795	61.31	0.4940	TR94843	57.64	0.6860	TR94890	97.87	0.9970	TR94938	171.34
0.4465	TR94748	61.31	0.4705	TR94796	61.31	0.4945	TR94844	57.64	0.6870	TR94891	97.87	0.9975	TR94939	171.34
0.4470	TR94749	61.31	0.4710	TR94797	61.31	0.4950	TR94845	57.64	0.6880	TR94892	107.88	0.9980	TR94940	171.34
0.4475	TR94750	61.31	0.4715	TR94798	61.31	0.4955	TR94846	57.64	0.6895	TR94893	107.88	0.9985	TR94941	171.34
0.4480	TR94751	61.31	0.4720	TR94799	61.31	0.4960	TR94847	57.64	0.6900	TR94894	107.88	0.9995	TR94942	171.34
0.4485	TR94752	61.31	0.4725	TR94800	61.31	0.4965	TR94848	57.64	0.6905	TR94895	107.88	1.0005	TR94943	237.98
0.4490	TR94753	61.31	0.4730	TR94801	61.31	0.4970	TR94849	57.64	0.7470	TR94896	114.63	1.0015	TR94944	237.98
0.4495	TR94754	61.31	0.4735	TR94802	61.31	0.4975	TR94850	57.64	0.7475	TR94897	114.63	1.0020	TR94945	237.98
0.4500	TR94755	61.31	0.4740	TR94803	61.31	0.4980	TR94851	57.64	0.7485	TR94898	114.63	1.0025	TR94946	237.98
0.4505	TR94756	61.31	0.4745	TR94804	61.31	0.4985	TR94852	57.64	0.7495	TR94899	114.63	1.0030	TR94947	237.98
0.4510	TR94757	61.31	0.4750	TR94805	61.31	0.4995	TR94853	57.64	0.7505	TR94900	124.41	-	-	-
0.4515	TR94758	61.31	0.4755	TR94806	61.31	0.5005	TR94854	77.56	0.7515	TR94901	124.41	-	-	-
0.4520	TR94759	61.31	0.4760	TR94807	61.31	0.5015	TR94855	77.56	0.7520	TR94902	124.41	-	-	-

For technical information, please see page 240.

HSS & COBALT REAMERS



Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES
CHUCKING
 STRAIGHT SHANK - STRAIGHT FLUTE



SERIES 933
 HIGH SPEED STEEL

SPECIAL SIZES - QUANTITY PRICING

SIZE RANGE	1	2	3-5	6-7	8-11	12-17	18-23	24-35	36-47	48-59	60-71	72-95	96+
.0135 - .0195	209.86	137.14	102.19	67.44	60.92	51.78	46.85	43.58	42.44	38.89	37.71	37.22	36.34
.0196 - .0290	190.80	124.68	92.97	61.30	55.36	48.53	42.58	39.68	36.79	35.31	35.16	35.10	34.98
.0291 - .0390	173.44	113.15	84.48	55.68	50.31	44.16	38.75	36.05	33.41	32.12	31.21	30.77	30.04
.0391 - .0624	156.77	104.37	84.48	53.71	48.42	41.96	36.92	34.30	31.64	29.69	29.23	29.12	28.93
.0626 - .1093	165.06	105.66	81.48	50.77	44.50	36.90	33.41	30.75	28.17	26.58	25.94	25.47	24.60
.1095 - .1249	162.88	103.38	76.59	44.37	38.96	35.65	29.23	26.58	26.20	25.77	25.34	24.87	24.68
.1251 - .1405	173.44	113.15	76.39	55.68	52.44	44.16	38.75	36.05	33.41	32.12	31.30	30.77	29.74
.1407 - .1561	170.81	111.36	84.57	53.99	48.42	42.29	36.92	34.30	32.38	31.64	30.92	30.19	29.43
.1563 - .1718	173.44	108.24	84.08	55.68	50.43	44.16	38.75	36.05	33.41	32.89	32.38	32.12	31.49
.1720 - .1874	166.34	103.83	84.03	51.87	46.61	41.66	36.65	33.87	33.51	33.00	32.53	31.70	31.30
.1876 - .2030	178.11	118.66	93.12	62.33	57.02	50.68	45.33	42.75	39.84	37.71	36.90	36.65	36.35
.2032 - .2187	178.11	118.66	92.12	61.37	56.08	49.64	44.23	41.67	38.96	36.65	36.19	35.76	35.58
.2189 - .2343	178.83	119.60	92.87	62.15	56.81	50.43	45.03	42.36	39.74	38.14	37.57	37.22	36.92
.2345 - .2499	178.83	119.60	88.40	57.67	52.29	46.13	40.86	38.19	35.36	35.16	34.69	34.32	34.18
.2501 - .2968	185.73	126.27	99.47	68.75	63.47	56.70	51.37	48.72	45.90	43.51	43.09	42.71	42.29
.2970 - .3124	180.57	121.16	94.35	63.51	58.18	51.78	46.33	43.61	43.43	43.05	42.84	42.55	42.29
.3126 - .3437	189.69	129.31	102.36	66.30	64.28	59.31	54.14	51.37	48.48	46.37	45.90	45.59	45.22
.3439 - .3593	189.42	130.01	103.13	72.36	66.99	62.88	54.14	52.11	49.46	47.09	46.61	46.24	45.90
.3595 - .3749	183.98	124.39	97.59	66.64	61.37	54.88	49.58	46.69	46.44	46.37	46.05	45.82	45.66
.3751 - .3905	192.58	133.22	106.58	75.52	70.20	64.35	58.87	56.20	53.60	50.77	50.49	50.07	49.64
.3907 - .4218	195.00	135.52	108.64	77.89	72.57	65.56	60.26	57.65	54.92	52.52	52.02	51.78	51.64
.4220 - .4374	191.32	131.97	104.96	74.32	69.03	62.15	56.70	54.05	53.60	53.42	53.19	52.09	51.52
.4376 - .4843	200.18	140.67	113.86	83.12	77.79	70.50	62.57	61.30	59.96	58.09	57.67	57.02	56.51
.4845 - .4999	195.47	136.01	109.15	78.28	73.09	65.85	57.82	57.65	57.18	56.96	56.51	56.31	56.13
.5001 - .5311	283.65	176.18	140.45	104.48	95.64	86.58	80.68	77.56	74.57	73.20	72.26	71.67	70.97
.5313 - .5624	282.06	174.53	138.73	102.82	93.98	84.90	79.08	75.98	72.91	71.43	70.54	69.88	69.56
.5626 - .5937	293.16	185.62	149.75	113.86	107.04	96.03	92.90	87.22	84.03	82.67	81.70	81.10	80.27
.5939 - .6249	293.57	185.92	150.09	114.21	105.37	96.41	90.45	87.61	84.38	83.03	82.02	81.48	81.13
.6251 - .6874	304.04	196.51	160.65	124.77	115.82	111.16	100.85	97.87	94.93	93.39	92.49	91.99	91.70
.6876 - .7187	313.88	206.44	170.54	134.23	125.48	116.71	110.80	107.89	104.93	103.38	102.40	101.68	101.10
.7189 - .7499	317.84	210.32	174.66	138.65	129.87	120.84	114.78	114.63	114.50	114.40	113.98	113.75	113.37
.7501 - .8124	330.37	222.92	187.22	151.25	142.34	133.41	127.42	124.41	121.43	119.95	119.08	118.39	117.59
.8126 - .8437	343.04	235.45	199.79	163.86	154.90	146.07	139.99	137.00	134.07	132.51	131.54	131.02	130.27
.8439 - .8749	346.22	238.71	202.80	166.91	158.00	149.09	143.02	140.54	139.23	135.52	134.56	133.99	131.45
.8751 - .9374	359.23	251.69	215.86	179.97	171.09	162.25	156.12	153.14	150.24	149.78	149.52	149.30	149.02
.9376 - .9687	374.15	265.03	230.81	195.00	186.06	177.12	171.09	168.09	165.15	163.77	162.66	162.31	161.41
.9689 - .9999	377.25	269.76	233.95	198.00	189.17	180.19	174.27	171.34	168.20	166.79	165.82	165.15	164.48
1.0001 - 1.0624	404.86	302.42	291.71	281.01	270.19	259.48	248.73	237.98	227.30	225.89	220.72	218.91	217.06
1.0626 - 1.1249	427.54	325.64	313.88	302.07	290.27	278.49	266.76	254.99	243.22	231.47	230.38	229.23	227.93
1.1251 - 1.1874	456.57	356.15	343.93	332.25	320.53	308.84	297.49	285.47	275.91	262.03	250.32	238.67	226.94
1.1876 - 1.2499	481.96	380.10	367.33	354.69	342.03	329.39	316.70	304.04	291.39	278.75	266.08	253.40	240.77
1.2501 - 1.3749	548.22	441.54	427.76	414.28	400.83	385.33	373.89	360.50	346.95	333.48	330.02	326.58	323.76
1.3751 - 1.4999	606.44	503.20	488.16	473.19	458.14	443.10	428.17	413.09	398.13	383.06	378.98	373.42	367.05

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004

HSS & COBALT REAMERS

Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES
 CHUCKING
 STRAIGHT SHANK - STRAIGHT FLUTE



SERIES 1933
 M42 COBALT

SPECIAL SIZES - QUANTITY PRICING

SIZE RANGE	1	2	3-5	6-7	8-11	12-17	18-23	24-35	36-47	48-59	60-71	72-95	96+
.0135 - .0195	303.15	160.26	118.79	77.53	67.19	56.79	49.94	46.47	43.02	41.32	40.31	38.89	38.75
.0196 - .0290	275.63	145.61	107.99	70.48	61.08	51.64	45.33	42.23	39.14	38.96	38.91	38.89	38.75
.0291 - .0390	250.59	132.47	98.21	64.01	55.48	49.63	41.23	38.43	35.58	34.18	33.34	32.72	31.96
.0391 - .0624	228.14	130.46	96.25	62.00	53.45	44.91	39.26	36.40	33.54	32.13	31.94	31.68	31.40
.0626 - .1093	229.71	127.54	93.33	59.10	50.62	41.97	36.34	33.47	30.61	29.23	29.06	28.93	28.69
.1095 - .1249	224.46	122.22	88.10	53.87	45.32	36.81	31.11	29.42	27.75	27.27	26.88	26.53	26.22
.1251 - .1405	234.61	132.41	97.81	64.01	55.48	46.96	41.23	38.43	35.58	34.18	33.34	32.72	31.96
.1407 - .1561	232.67	130.46	96.25	62.00	53.45	44.91	39.26	36.40	33.54	32.13	31.70	31.59	31.36
.1563 - .1718	234.82	132.51	98.31	64.18	55.65	47.09	41.43	38.56	35.68	34.24	33.99	33.75	33.47
.1720 - .1874	233.10	130.96	96.69	62.57	55.47	45.48	39.75	36.92	34.06	33.99	33.79	33.54	33.53
.1876 - .2030	242.66	140.45	106.16	72.02	63.50	54.88	49.27	46.39	43.52	42.09	41.23	40.70	40.48
.2032 - .2343	241.63	139.47	105.28	71.05	62.57	54.05	48.29	46.80	45.29	44.81	44.53	44.16	43.47
.2345 - .2499	237.48	135.52	101.34	67.19	58.59	50.05	44.37	44.11	43.82	43.47	43.06	42.29	41.75
.2501 - .2968	258.65	156.48	122.16	88.10	79.50	70.99	65.15	62.38	59.57	58.14	57.71	56.87	56.70
.2970 - .3124	252.14	149.86	115.67	81.48	72.87	64.37	58.74	58.37	58.01	57.74	57.25	57.17	56.77
.3126 - .3437	261.86	159.57	125.35	91.20	82.67	74.07	68.42	65.55	62.65	62.41	62.06	61.47	61.14
.3439 - .3593	262.32	160.14	125.92	91.74	83.22	74.72	68.94	66.17	63.37	62.92	62.55	62.41	62.00
.3595 - .3749	256.33	154.09	119.90	85.65	77.12	68.57	62.88	62.72	62.55	62.33	61.30	62.19	61.94
.3751 - .3905	279.98	177.81	143.63	109.43	100.85	92.34	86.39	83.67	80.94	79.50	78.62	78.10	77.37
.3907 - .4218	283.56	181.45	147.17	112.99	104.49	95.91	90.21	87.38	84.55	83.22	82.17	81.66	80.94
.4220 - .4374	278.00	175.79	141.61	107.40	98.91	90.33	84.59	81.78	78.91	77.56	76.66	76.11	75.41
.4376 - .4843	291.50	189.35	155.13	120.96	112.43	103.85	98.27	95.41	92.54	91.08	90.21	89.67	88.92
.4845 - .4999	284.15	181.90	147.74	113.53	104.93	96.44	90.78	89.24	87.68	87.44	87.13	86.95	86.80
.5001 - .5311	299.83	196.15	162.31	125.34	121.86	118.60	115.38	112.15	108.90	105.67	102.40	99.17	95.98
.5313 - .5624	302.07	199.45	166.78	129.35	125.54	121.86	118.22	114.58	110.93	107.30	103.65	100.01	96.35
.5626 - .5937	307.80	204.59	170.95	133.32	129.16	125.09	121.04	127.27	112.96	108.90	104.85	100.79	96.71
.5939 - .6249	317.53	214.85	182.20	144.46	140.58	137.00	133.41	129.82	126.24	122.56	118.99	115.38	111.79
.6251 - .6874	327.63	224.55	193.58	155.64	152.13	148.83	145.53	142.22	138.89	135.63	133.60	128.94	125.71
.6876 - .7187	337.58	234.37	201.34	163.21	160.38	157.72	154.90	152.32	149.75	147.13	144.46	143.63	143.37
.7189 - .7499	349.50	247.41	216.64	178.20	174.04	169.92	165.86	161.81	157.72	153.63	149.52	145.46	141.33
.7501 - .8124	367.95	265.02	232.90	195.76	183.51	179.59	175.63	171.71	167.81	163.86	159.89	155.98	152.06
.8126 - .8437	386.47	284.66	250.96	216.31	206.05	202.52	199.15	195.76	192.32	188.86	185.44	182.06	178.65
.8439 - .8749	406.56	303.54	270.46	233.99	220.36	215.71	211.17	206.63	202.06	197.52	192.92	188.43	183.86
.8751 - .9374	422.78	319.36	286.65	248.46	234.61	229.95	225.38	220.76	216.16	211.58	206.93	204.92	202.79
.9376 - .9687	444.45	338.87	306.56	269.35	263.73	258.73	253.40	248.17	242.84	237.52	232.26	229.61	227.13
.9689 - .9999	459.91	357.01	325.34	288.95	281.73	274.62	267.56	260.55	253.54	246.55	239.52	232.45	225.42
1.0001 - 1.0624	494.88	391.84	358.40	321.21	313.32	306.06	297.45	289.58	281.69	273.76	265.85	257.88	250.06
1.0626 - 1.1249	530.16	427.53	394.75	358.42	348.01	337.97	327.85	317.79	307.66	297.65	287.56	277.48	267.42
1.1251 - 1.1874	564.35	459.91	430.10	390.18	381.13	372.25	363.44	354.55	345.71	336.80	327.90	319.10	310.17
1.1876 - 1.2499	600.12	499.04	466.82	427.91	416.41	405.62	394.76	384.02	373.28	362.48	351.71	340.89	330.18
1.2501 - 1.3749	636.16	531.33	496.71	461.41	454.41	440.51	440.40	433.43	426.43	419.43	412.44	411.99	411.04
1.3751 - 1.4999	671.46	568.21	536.01	498.65	493.72	489.11	484.46	481.51	478.56	477.55	476.72	475.57	474.62

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004



Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

CHUCKING

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



HSS & COBALT REAMERS

SERIES 935R

SERIES 1935R

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	SERIES 935R		SERIES 1935R	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
1.0mm	.0394	1/2	4	2-1/2	.0394	TR96550	33.71	TR96726	36.87
#60	.0400	1/2	4	2-1/2	.0390	TR96551	33.71	TR96727	36.87
#59	.0410	1/2	4	2-1/2	.0390	TR96552	33.71	TR96728	36.87
#58	.0420	1/2	4	2-1/2	.0390	TR96553	33.71	TR96729	36.87
#57	.0430	1/2	4	2-1/2	.0390	TR96554	33.71	TR96730	36.87
#56	.0465	1/2	4	2-1/2	.0455	TR96555	33.71	TR96731	36.87
3/64	.0469	1/2	4	2-1/2	.0455	TR96556	33.71	TR96732	36.87
#55	.0520	1/2	4	2-1/2	.0510	TR96557	33.71	TR96733	36.87
#54	.0550	1/2	4	2-1/2	.0510	TR96558	33.71	TR96734	36.87
1.5mm	.0591	1/2	4	2-1/2	.0510	TR96559	33.71	TR96735	36.87
#53	.0595	1/2	4	2-1/2	.0585	TR96560	33.71	TR96736	36.87
1/16	.0625	1/2	4	2-1/2	.0585	TR96561	33.71	TR96737	36.87
#52	.0635	1/2	4	2-1/2	.0585	TR96562	33.71	TR96738	36.87
#51	.0670	3/4	4	3	.0660	TR96563	27.13	TR96739	29.70
#50	.0700	3/4	4	3	.0660	TR96564	27.13	TR96740	29.70
#49	.0730	3/4	4	3	.0660	TR96565	27.13	TR96741	29.70
#48	.0760	3/4	4	3	.0720	TR96566	27.13	TR96742	29.70
5/64	.0781	3/4	4	3	.0720	TR96567	27.13	TR96743	29.70
#47	.0785	3/4	4	3	.0720	TR96568	27.13	TR96744	29.70
2.0mm	.0787	3/4	4	3	.0720	TR96569	27.13	TR96745	29.70
#46	.0810	3/4	4	3	.0771	TR96570	27.13	TR96746	29.70
#45	.0820	3/4	4	3	.0771	TR96571	27.13	TR96747	29.70
#44	.0860	3/4	4	3	.0810	TR96572	27.13	TR96748	29.70
#43	.0890	3/4	4	3	.0810	TR96573	27.13	TR96749	29.70
#42	.0935	3/4	4	3	.0880	TR96574	27.13	TR96750	29.70
3/32	.0938	3/4	4	3	.0880	TR96575	26.89	TR96751	29.70
#41	.0960	7/8	4	3-1/2	.0928	TR96576	27.32	TR96752	29.97
#40	.0980	7/8	4	3-1/2	.0928	TR96577	27.32	TR96753	29.97
2.5mm	.0984	7/8	4	3-1/2	.0928	TR96578	27.32	TR96754	29.97
#39	.0995	7/8	4	3-1/2	.0928	TR96579	27.32	TR96755	29.97
#38	.1015	7/8	4	3-1/2	.0950	TR96580	27.32	TR96756	29.97
#37	.1040	7/8	4	3-1/2	.0950	TR96581	27.32	TR96757	29.97
#36	.1065	7/8	4	3-1/2	.1030	TR96582	27.32	TR96758	29.97
7/64	.1094	7/8	4	3-1/2	.1030	TR96583	28.14	TR96759	30.91
#35	.1100	7/8	4	3-1/2	.1030	TR96584	28.14	TR96760	30.91
#34	.1110	7/8	4	3-1/2	.1055	TR96585	28.14	TR96761	30.91
#33	.1130	7/8	4	3-1/2	.1055	TR96586	28.14	TR96762	30.91
#32	.1160	7/8	4	3-1/2	.1120	TR96587	28.14	TR96763	30.91
3.0mm	.1181	7/8	4	3-1/2	.1120	TR96588	28.14	TR96764	30.91
#31	.1200	7/8	4	3-1/2	.1120	TR96589	28.14	TR96765	30.91
o/u	.1240	7/8	4	3-1/2	.1190	TR96590	28.14	TR96766	30.91
1/8	.1250	7/8	4	3-1/2	.1190	TR96591	25.37	TR96767	27.79
o/u	.1260	7/8	4	3-1/2	.1190	TR96592	28.14	TR96768	30.91
#30	.1285	7/8	4	3-1/2	.1190	TR96593	28.14	TR96769	30.91
#29	.1360	1	4	4	.1275	TR96594	33.71	TR96770	36.91
3.5mm	.1378	1	4	4	.1350	TR96595	33.71	TR96771	36.91

CONTINUED ON NEXT PAGE

For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

Reamers

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STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



SERIES 935R

SERIES 1935R

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	SERIES 935R		SERIES 1935R	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
#28	.1405	1	4	4	.1350	TR96596	33.71	TR96772	36.91
9/64	.1406	1	4	4	.1350	TR96597	33.71	TR96773	36.91
#27	.1440	1	4	4	.1350	TR96598	33.71	TR96774	36.91
#26	.1470	1	4	4	.1430	TR96599	33.71	TR96775	36.91
#25	.1495	1	4	4	.1430	TR96600	33.71	TR96776	36.91
#24	.1520	1	4	4	.1460	TR96601	35.08	TR96777	36.91
#23	.1540	1	4	4	.1460	TR96602	35.08	TR96778	36.91
5/32	.1562	1	4	4	.1510	TR96603	35.08	TR96779	36.91
#22	.1570	1	6	4	.1510	TR96604	35.08	TR96780	36.91
4.0mm	.1575	1	6	4	.1510	TR96605	35.08	TR96781	36.91
#21	.1590	1-1/8	6	4-1/2	.1530	TR96606	35.97	TR96782	39.40
#20	.1610	1-1/8	6	4-1/2	.1530	TR96607	35.97	TR96783	39.40
#19	.1660	1-1/8	6	4-1/2	.1595	TR96608	35.97	TR96784	39.40
#18	.1695	1-1/8	6	4-1/2	.1595	TR96609	35.97	TR96785	39.40
11/64	.1719	1-1/8	6	4-1/2	.1645	TR96610	35.97	TR96786	39.40
#17	.1730	1-1/8	6	4-1/2	.1645	TR96611	35.97	TR96787	39.40
#16	.1770	1-1/8	6	4-1/2	.1704	TR96612	35.97	TR96788	39.40
4.5mm	.1772	1-1/8	6	4-1/2	.1704	TR96613	35.97	TR96789	39.40
#15	.1800	1-1/8	6	4-1/2	.1755	TR96614	35.97	TR96790	39.40
#14	.1820	1-1/8	6	4-1/2	.1755	TR96615	35.97	TR96791	39.40
#13	.1850	1-1/8	6	4-1/2	.1805	TR96616	35.97	TR96792	39.40
o/u	.1865	1-1/8	6	4-1/2	.1805	TR96617	35.97	TR96793	39.40
3/16	.1875	1-1/8	6	4-1/2	.1805	TR96618	34.18	TR96794	37.42
o/u	.1885	1-1/8	6	4-1/2	.1805	TR96619	35.97	TR96795	39.40
#12	.1890	1-1/8	6	4-1/2	.1805	TR96620	35.97	TR96796	39.40
#11	.1910	1-1/4	6	5	.1860	TR96621	40.30	TR96797	44.16
#10	.1935	1-1/4	6	5	.1860	TR96622	40.30	TR96798	44.16
#9	.1960	1-1/4	6	5	.1895	TR96623	40.30	TR96799	44.16
5.0mm	.1969	1-1/4	6	5	.1895	TR96624	40.30	TR96800	44.16
#8	.1990	1-1/4	6	5	.1895	TR96625	40.30	TR96801	44.16
#7	.2010	1-1/4	6	5	.1895	TR96626	40.30	TR96802	44.16
13/64	.2031	1-1/4	6	5	.1945	TR96627	40.30	TR96803	44.16
#6	.2040	1-1/4	6	5	.1945	TR96628	40.30	TR96804	44.16
#5	.2055	1-1/4	6	5	.2016	TR96629	40.30	TR96805	44.16
#4	.2090	1-1/4	6	5	.2016	TR96630	40.30	TR96806	44.16
#3	.2130	1-1/4	6	5	.2075	TR96631	40.30	TR96807	44.16
5.5mm	.2165	1-1/4	6	5	.2075	TR96632	40.30	TR96808	44.16
7/32	.2188	1-1/4	6	5	.2075	TR96633	40.30	TR96809	44.16
#2	.2210	1-1/2	6	6	.2173	TR96634	41.43	TR96810	45.41
#1	.2280	1-1/2	6	6	.2173	TR96635	41.43	TR96811	45.41
A	.2340	1-1/2	6	6	.2265	TR96636	41.43	TR96812	45.41
15/64	.2344	1-1/2	6	6	.2265	TR96637	41.43	TR96813	45.41
6.0mm	.2362	1-1/2	6	6	.2265	TR96638	41.70	TR96814	47.78
B	.2380	1-1/2	6	6	.2329	TR96639	41.70	TR96815	47.78
C	.2420	1-1/2	6	6	.2329	TR96640	41.70	TR96816	47.78
D	.2460	1-1/2	6	6	.2329	TR96641	41.70	TR96817	43.46

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For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

HSS & COBALT REAMERS



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HSS & COBALT REAMERS

SERIES 935R

SERIES 1935R

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	LIST PRICE	M42 COBALT	LIST PRICE
o/u	.2490	1-1/2	6	6	.2405	TR96642	44.51	TR96818	51.17
1/4	.2500	1-1/2	6	6	.2405	TR96643	35.51	TR96819	40.61
o/u	.2510	1-1/2	6	6	.2405	TR96644	44.51	TR96820	51.17
6.5mm	.2559	1-1/2	6	6	.2405	TR96645	41.70	TR96821	47.78
F	.2570	1-1/2	6	6	.2485	TR96646	41.70	TR96822	47.78
G	.2610	1-1/2	6	6	.2485	TR96647	41.70	TR96823	47.78
17/64	.2656	1-1/2	6	6	.2485	TR96648	46.54	TR96824	59.01
H	.2660	1-1/2	6	6	.2485	TR96649	46.54	TR96825	59.01
I	.2720	1-1/2	6	6	.2485	TR96650	46.54	TR96826	59.01
7.0mm	.2756	1-1/2	6	6	.2485	TR96651	46.54	TR96827	59.01
J	.2770	1-1/2	6	6	.2485	TR96652	46.54	TR96828	59.01
K	.2810	1-1/2	6	6	.2485	TR96653	46.54	TR96829	59.01
9/32	.2812	1-1/2	6	6	.2485	TR96654	44.16	TR96830	56.09
L	.2900	1-1/2	6	6	.2792	TR96655	46.54	TR96831	59.01
M	.2950	1-1/2	6	6	.2792	TR96656	46.54	TR96832	59.01
7.5mm	.2953	1-1/2	6	6	.2792	TR96657	46.54	TR96833	59.01
19/64	.2969	1-1/2	6	6	.2792	TR96658	46.54	TR96834	59.01
N	.3020	1-1/2	6	6	.2792	TR96659	46.54	TR96835	59.01
o/u	.3115	1-1/2	6	6	.2792	TR96660	44.16	TR96836	56.09
5/16	.3125	1-1/2	6	6	.2792	TR96661	41.86	TR96837	53.12
o/u	.3135	1-1/2	6	6	.2792	TR96662	44.16	TR96838	56.09
8.0mm	.3150	1-1/2	6	6	.2792	TR96663	46.54	TR96839	59.01
O	.3160	1-1/2	6	6	.2792	TR96664	46.54	TR96840	59.01
P	.3230	1-1/2	6	6	.2792	TR96665	49.77	TR96841	63.57
21/64	.3281	1-1/2	6	6	.2792	TR96666	49.77	TR96842	63.57
Q	.3320	1-1/2	6	6	.2792	TR96667	49.77	TR96843	63.57
8.5mm	.3346	1-1/2	6	6	.2792	TR96668	49.77	TR96844	63.57
R	.3390	1-1/2	6	6	.2792	TR96669	49.77	TR96845	63.57
11/32	.3438	1-1/2	6	6	.2792	TR96670	49.77	TR96846	63.57
S	.3480	1-3/4	6	6	.3105	TR96671	50.20	TR96847	64.43
9.0mm	.3543	1-3/4	6	7	.3105	TR96672	50.20	TR96848	64.43
T	.3580	1-3/4	6	7	.3105	TR96673	50.20	TR96849	64.43
23/64	.3594	1-3/4	6	7	.3105	TR96674	50.20	TR96850	64.43
U	.3680	1-3/4	6	7	.3105	TR96675	50.20	TR96851	64.43
9.5mm-o/u	.3740	1-3/4	6	7	.3105	TR96676	47.71	TR96852	61.15
3/8	.3750	1-3/4	6	7	.3105	TR96677	45.21	TR96853	58.00
o/u	.3760	1-3/4	6	7	.3105	TR96678	47.71	TR96854	61.15
V	.3770	1-3/4	6	7	.3105	TR96679	54.64	TR96855	81.15
W	.3860	1-3/4	6	7	.3105	TR96680	54.64	TR96856	81.15
25/64	.3906	1-3/4	6	7	.3105	TR96681	54.64	TR96857	81.15
10.0mm	.3937	1-3/4	6	7	.3105	TR96682	54.64	TR96858	81.15
X	.3970	1-3/4	6	7	.3105	TR96683	54.64	TR96859	81.15
Y	.4040	1-3/4	6	7	.3105	TR96684	56.67	TR96860	81.15
13/32	.4062	1-3/4	6	7	.3105	TR96685	56.67	TR96861	81.15
Z	.4130	1-3/4	6	7	.3730	TR96686	56.67	TR96862	81.15
10.5mm	.4134	1-3/4	6	7	.3730	TR96687	56.67	TR96863	81.15

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For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

Reamers

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CHUCKING

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



SERIES 935R

SERIES 1935R

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	LIST PRICE	M42 COBALT	LIST PRICE
27/64	.4219	1-3/4	6	7	.3730	TR96688	56.67	TR96864	81.15
11.0mm	.4331	1-3/4	6	7	.3730	TR96689	56.67	TR96865	81.15
o/u	.4365	1-3/4	6	7	.3730	TR96690	56.67	TR96866	81.15
7/16	.4375	1-3/4	6	7	.3730	TR96691	53.82	TR96867	77.05
o/u	.4385	1-3/4	6	7	.3730	TR96692	56.67	TR96868	81.15
11.5mm	.4528	1-3/4	6	7	.3730	TR96693	61.78	TR96869	92.99
29/64	.4531	1-3/4	6	7	.3730	TR96694	61.78	TR96870	92.99
15/32	.4688	1-3/4	6	7	.3730	TR96695	61.78	TR96871	92.99
12.0mm	.4724	2	6	8	.4355	TR96696	61.78	TR96872	92.99
31/64	.4844	2	6	8	.4355	TR96697	61.78	TR96873	92.99
12.5mm	.4921	2	6	8	.4355	TR96698	61.78	TR96874	92.99
o/u	.4990	2	6	8	.4355	TR96699	61.78	TR96875	92.99
1/2	.5000	2	6	8	.4355	TR96700	58.58	TR96876	88.32
o/u	.5010	2	6	8	.4355	TR96701	61.78	TR96877	92.99
17/32	.5312	2	6	8	.4355	TR96702	72.84	TR96878	104.34
9/16	.5625	2	8	8	.4355	TR96703	72.84	TR96880	104.34
19/32	.5938	2	8	8	.4355	TR96704	72.84	TR96881	104.34
5/8	.6250	2-1/4	8	9	.5615	TR96705	85.01	TR96882	121.72
21/32	.6562	2-1/4	8	9	.5615	TR96706	89.41	TR96883	137.62
11/16	.6875	2-1/4	8	9	.5615	TR96707	96.11	TR96884	137.62
23/32	.7188	2-1/4	8	9	.5615	TR96708	107.30	TR96885	153.56
3/4	.7500	2-1/2	8	9-1/2	.6240	TR96709	107.30	TR96886	154.42
25/32	.7812	2-1/2	8	9-1/2	.6240	TR96710	116.30	TR96887	166.62
13/16	.8125	2-1/2	8	9-1/2	.6240	TR96711	116.30	TR96888	166.62
27/32	.8438	2-1/2	8	9-1/2	.6240	TR96712	137.66	TR96889	197.14
7/8	.8750	2-5/8	8	10	.7490	TR96713	140.82	TR96890	201.70
29/32	.9062	2-5/8	8	10	.7490	TR96714	151.81	TR96891	217.33
15/16	.9375	2-5/8	8	10	.7490	TR96715	151.81	TR96892	217.33
31/32	.9688	2-5/8	8	10	.7490	TR96716	169.97	TR96893	243.40
1	1.0000	2-3/4	8	10-1/2	.8740	TR96717	171.61	TR96894	245.35
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	TR96718	190.24	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	TR96719	202.16	-	-
1-3/16	1.1875	2-7/8	8	11	.9990	TR96720	236.74	-	-
1-1/4	1.2500	3	8	11-1/2	.9990	TR96721	250.92	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	TR96722	292.70	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	TR96723	307.63	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	TR96724	329.85	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	TR96725	355.10	-	-
1-9/16	1.5625	3-1/2	12	13	1.2490	TR96900	502.94	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	TR96901	502.94	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	TR96902	577.50	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	TR96903	577.50	-	-
1-13/16	1.8125	4	12	14	1.4990	TR96904	665.11	-	-
1-7/8	1.8750	4	12	14	1.4990	TR96905	665.11	-	-
1-15/16	1.9375	4	12	14	1.4990	TR96906	778.65	-	-
2	2.0000	4	12	14	1.4990	TR96907	778.65	-	-

For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006

HSS & COBALT REAMERS



Reamers

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TAKE 55% OFF LIST PRICES

DOWEL PIN

STRAIGHT SHANK - STRAIGHT FLUTE



SERIES 9700
HIGH SPEED STEEL

SERIES 1970
M42 COBALT

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



SERIES 9750
HIGH SPEED STEEL

SERIES 1975
M42 COBALT

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	9700-ITEM#	LIST PRICE	1970-ITEM#	LIST PRICE	9750-ITEM#	LIST PRICE	1975-ITEM#	LIST PRICE
.1230	7/8	4	3-1/2	.1190	TR96264	24.55	TR96508	25.41	TR96950	28.14	TR96970	29.35
.1247	7/8	4	3-1/2	.1190	TR96265	24.55	TR96509	25.41	TR96951	28.14	TR96971	29.35
.1855	1-1/8	6	4-1/2	.1805	TR96266	31.34	TR96510	31.92	TR96952	35.97	TR96972	37.73
.1870	1-1/8	6	4-1/2	.1805	TR96267	31.34	TR96511	31.92	TR96953	35.97	TR96973	37.73
.2480	1-1/2	6	6	.2405	TR96268	34.18	TR96512	35.82	TR96954	37.57	TR96974	40.96
.2495	1-1/2	6	6	.2405	TR96269	34.18	TR96513	35.82	TR96955	37.57	TR96975	40.96
.3105	1-1/2	6	6	.2792	TR96270	40.14	TR96514	51.29	TR96956	44.20	TR96976	53.20
.3120	1-1/2	6	6	.2792	TR96271	40.14	TR96515	51.29	TR96957	44.20	TR96977	53.20
.3730	1-3/4	6	7	.3105	TR96272	43.34	TR96516	56.20	TR96958	47.71	TR96978	58.27
.3745	1-3/4	6	7	.3105	TR96273	43.34	TR96517	56.20	TR96959	47.71	TR96979	58.27
.4355	1-3/4	6	7	.3730	TR96274	48.91	TR96518	72.10	TR96960	56.67	TR96980	77.29
.4370	1-3/4	6	7	.3730	TR96275	48.91	TR96519	72.10	TR96961	56.67	TR96981	77.29
.4980	2	6	8	.4355	TR96276	53.28	TR96520	82.71	TR96962	61.74	TR96982	88.59
.4995	2	6	8	.4355	TR96277	53.28	TR96521	82.71	TR96963	61.74	TR96983	88.59

DIAMETER TOLERANCES FOR DOWEL PIN SIZES

+0.000, -.0002

TAPER SHANK - STRAIGHT FLUTE



SERIES 936
HIGH SPEED STEEL

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE
1/4	.2500	1-1/2	6	6	1	TR97801	57.53
9/32	.2812	1-1/2	6	6	1	TR97802	60.22
5/16	.3125	1-1/2	6	6	1	TR97803	59.20
11/32	.3438	1-1/2	6	6	1	TR97804	64.15
3/8	.3750	1-3/4	6	7	1	TR97805	66.18
13/32	.4062	1-3/4	6	7	1	TR97806	67.35
7/16	.4375	1-3/4	6	7	1	TR97807	67.66
15/32	.4688	1-3/4	6	7	1	TR97808	73.08
1/2	.5000	2	6	8	1	TR97809	74.09
17/32	.5312	2	6	8	1	TR97810	82.47
9/16	.5625	2	8	8	1	TR97811	87.97
19/32	.5938	2	8	8	1	TR97812	89.53
5/8	.6250	2-1/4	8	9	2	TR97813	95.37
21/32	.6562	2-1/4	8	9	2	TR97814	96.27
11/16	.6875	2-1/4	8	9	2	TR97815	96.27
23/32	.7188	2-1/4	8	9	2	TR97816	108.55
3/4	.7500	2-1/2	8	9-1/2	2	TR97817	108.55
25/32	.7182	2-1/2	8	9-1/2	2	TR97818	124.06
13/16	.8125	2-1/2	8	9-1/2	2	TR97819	124.06
27/32	.8438	2-1/2	8	9-1/2	2	TR97820	138.52
7/8	.8750	2-5/8	8	10	2	TR97821	140.00

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE
29/32	.9062	2-5/8	8	10	2	TR97822	154.11
15/16	.9375	2-5/8	8	10	3	TR97823	154.11
31/32	.9688	2-5/8	8	10	3	TR97824	169.11
1	1.0000	2-3/4	8	10-1/2	3	TR97825	170.59
1-1/16	1.0625	2-3/4	8	10-1/2	3	TR97826	186.50
1-1/8	1.1250	2-7/8	8	11	3	TR97827	206.96
1-3/16	1.1875	2-7/8	10	11	3	TR97828	231.94
1-1/4	1.2500	3	10	11-1/2	4	TR97829	251.12
1-5/16	1.3125	3	10	11-1/2	4	TR97830	274.62
1-3/8	1.3750	3-1/4	10	12	4	TR97831	296.80
1-7/16	1.4375	3-1/4	10	12	4	TR97832	321.70
1-1/2	1.5000	3-1/2	10	12-1/2	4	TR97833	341.93
1-9/16	1.5625	3-1/2	12	13	4	TR97834	480.10
1-5/8	1.6250	3-1/2	12	13	4	TR97835	480.10
1-11/16	1.6875	4	12	13-1/2	5	TR97836	551.27
1-3/4	1.7500	4	12	13-1/2	5	TR97837	551.27
1-13/16	1.8125	4	12	14	5	TR97838	634.91
1-7/8	1.8750	4	12	14	5	TR97839	634.91
1-15/16	1.9375	4	12	14	5	TR97840	743.30
2	2.0000	4	12	14	5	TR97841	743.30
-	-	-	-	-	-	-	-

For technical information, please see page 240.

THRU 1/2" DIAMETER	1/2" TO 5/8"	5/8" TO 1-1/2"	1-1/2" TO 2"
+0.002, -.0000	+0.003, -.0000	+0.001, +0.004	+0.002, +0.006

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TAKE 55% OFF LIST PRICES

EXPANSION - STRAIGHT SHANK



SERIES 931
HIGH SPEED STEEL

END VIEW

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
3/8	3/4	6	7	5/16	TR97201	148.92
13/32	3/4	6	7	5/16	TR97202	158.63
7/16	7/8	6	7	3/8	TR97203	158.63
15/32	7/8	6	8	27/64	TR97204	164.75
1/2	1	6	8	7/16	TR97205	167.67
17/32	1	6	8	7/16	TR97206	174.76
9/16	1-1/8	6	8	7/16	TR97207	179.21
19/32	1-1/8	6	8	7/16	TR97208	181.94
5/8	1-1/4	6	9	9/16	TR97209	187.47
21/32	1-1/4	6	9	9/16	TR97210	194.95
11/16	1-1/4	6	9	9/16	TR97211	196.32
23/32	1-1/4	6	9	9/16	TR97212	209.06
3/4	1-3/8	6	9-1/2	5/8	TR97213	216.27
25/32	1-3/8	8	9-1/2	5/8	TR97214	228.98
13/16	1-3/8	8	9-1/2	5/8	TR97215	237.75
27/32	1-3/8	8	9-1/2	5/8	TR97216	250.49
7/8	1-1/2	8	10	3/4	TR97217	255.05

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
29/32	1-1/2	8	10	3/4	TR97218	268.58
15/16	1-1/2	8	10	3/4	TR97219	281.17
31/32	1-1/2	8	10	3/4	TR97220	293.87
1	1-5/8	8	10-1/2	7/8	TR97221	309.97
1-1/32	1-5/8	8	10-1/2	7/8	TR97222	431.26
1-1/16	1-5/8	8	10-1/2	7/8	TR97223	342.59
1-3/32	1-5/8	8	10-1/2	7/8	TR97224	358.88
1-1/8	1-3/4	8	11	7/8	TR97225	374.90
1-5/32	1-3/4	8	11	7/8	TR97226	380.01
1-3/16	1-3/4	8	11	1	TR97227	394.86
1-7/32	1-3/4	8	11	1	TR97228	409.24
1-1/4	1-7/8	8	11-1/2	1	TR97229	425.57
1-5/16	1-7/8	8	11-1/2	1	TR97230	439.80
1-3/8	2	8	12	1	TR97231	455.97
1-7/16	2	8	12	1-1/4	TR97232	474.02
1-1/2	2-1/8	8	12-1/2	1-1/4	TR97233	494.01
-	-	-	-	-	-	-

EXPANSION - TAPER SHANK



SERIES 932
HIGH SPEED STEEL

END VIEW

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	MORSE TAPER#	ITEM#	LIST PRICE
3/8	3/4	6	7	5/16	1	TR97250	168.96
13/32	3/4	6	7	5/16	1	TR97251	195.93
7/16	7/8	6	7	3/8	1	TR97252	178.90
15/32	7/8	6	8	27/64	1	TR97253	183.14
1/2	1	6	8	7/16	1	TR97254	186.81
17/32	1	6	8	7/16	1	TR97255	194.21
9/16	1-1/8	6	8	7/16	1	TR97256	194.21
19/32	1-1/8	6	8	7/16	1	TR97257	201.31
5/8	1-1/4	6	9	9/16	2	TR97258	208.52
21/32	1-1/4	6	9	9/16	2	TR97259	214.25
11/16	1-1/4	6	9	9/16	2	TR97260	215.53
23/32	1-1/4	6	9	9/16	2	TR97261	229.91
3/4	1-3/8	6	9-1/2	5/8	2	TR97262	237.01
25/32	1-3/8	8	9-1/2	5/8	2	TR97263	247.92
13/16	1-3/8	8	9-1/2	5/8	2	TR97264	251.62
27/32	1-3/8	8	9-1/2	5/8	2	TR97265	266.28
7/8	1-1/2	8	10	3/4	2	TR97266	276.76

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	MORSE TAPER#	ITEM#	LIST PRICE
29/32	1-1/2	8	10	3/4	2	TR97267	291.14
15/16	1-1/2	8	10	3/4	3	TR97268	298.39
31/32	1-1/2	8	10	3/4	3	TR97269	310.98
1	1-5/8	8	10-1/2	7/8	3	TR97270	328.91
1-1/32	1-5/8	8	10-1/2	7/8	3	TR97271	341.50
1-1/16	1-5/8	8	10-1/2	7/8	3	TR97272	357.83
1-3/32	1-5/8	8	10-1/2	7/8	3	TR97273	373.81
1-1/8	1-3/4	8	11	7/8	3	TR97274	386.71
1-5/32	1-3/4	8	11	7/8	3	TR97275	402.65
1-3/16	1-3/4	8	11	1	3	TR97276	418.75
1-7/32	1-3/4	8	11	1	3	TR97277	434.89
1-1/4	1-7/8	8	11-1/2	1	4	TR97278	455.00
1-5/16	1-7/8	8	11-1/2	1	4	TR97279	472.81
1-3/8	2	8	12	1	4	TR97280	492.41
1-7/16	2	8	12	1-1/4	4	TR97281	521.29
1-1/2	2-1/8	8	12-1/2	1-1/4	4	TR97282	539.11
-	-	-	-	-	-	-	-

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+0.002, -0.000	+0.003, -0.000	+0.001, +0.004



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TAKE 55% OFF LIST PRICES
HAND
STRAIGHT SHANK - STRAIGHT FLUTE



SERIES 9000
HIGH SPEED STEEL

HSS & COBALT REAMERS

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
1/16	.0625	1	4	2	.0625	TR97606	69.49
5/64	.0781	1	4	2	.0781	TR97607	69.49
3/32	.0938	1-1/4	4	2-1/2	.0938	TR97608	69.49
7/64	.1094	1-1/4	4	2-1/2	.1094	TR97609	69.49
1/8	.1250	1-1/2	4	3	.1250	TR97610	65.52
9/64	.1406	1-5/8	4	3-1/4	.1406	TR97611	65.52
5/32	.1562	1-5/8	4	3-1/4	.1562	TR97612	70.82
11/64	.1719	1-3/4	6	3-1/2	.1719	TR97613	70.82
3/16	.1875	1-3/4	6	3-1/2	.1875	TR97614	69.49
13/64	.2031	1-7/8	6	3-3/4	.2031	TR97615	69.49
7/32	.2188	1-7/8	6	3-3/4	.2188	TR97616	76.59
15/64	.2344	2	6	4	.2344	TR97617	76.59
1/4	.2500	2	6	4	.2500	TR97618	76.12
17/64	.2656	2-1/8	6	4-1/4	.2656	TR97619	76.59
9/32	.2812	2-1/8	6	4-1/4	.2812	TR97620	82.39
19/64	.2969	2-1/4	6	4-1/2	.2969	TR97621	82.39
5/16	.3125	2-1/4	6	4-1/2	.3125	TR97622	80.56
11/32	.3438	2-3/8	6	4-3/4	.3438	TR97623	93.50
3/8	.3750	2-1/2	6	5	.3750	TR97624	91.28
13/32	.4062	2-5/8	6	5-1/4	.4062	TR97625	105.93
7/16	.4375	2-3/4	6	5-1/2	.4375	TR97626	103.79
15/32	.4688	2-7/8	6	5-3/4	.4688	TR97627	114.82

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
1/2	.5000	3	6	6	.5000	TR97628	110.38
17/32	.5312	3-1/8	8	6-1/4	.5312	TR97629	119.26
9/16	.5625	3-1/4	8	6-1/2	.5625	TR97630	127.57
19/32	.5938	3-3/8	8	6-3/4	.5938	TR97631	141.79
5/8	.6250	3-1/2	8	7	.6250	TR97632	137.47
21/32	.6562	3-11/16	8	7-3/8	.6562	TR97633	154.07
11/16	.6875	3-7/8	8	7-3/4	.6875	TR97634	151.03
23/32	.7188	4-1/16	8	8-1/8	.7188	TR97635	165.45
3/4	.7500	4-3/16	8	8-3/8	.7500	TR97636	161.05
25/32	.7812	4-3/8	8	8-3/4	.7812	TR97637	176.71
13/16	.8125	4-9/16	8	9-1/8	.8125	TR97638	161.05
27/32	.8438	4-11/16	8	9-3/8	.8438	TR97639	193.47
7/8	.8750	4-7/8	8	9-3/4	.8750	TR97640	195.15
29/32	.9062	5	8	10	.9062	TR97641	215.65
15/16	.9375	5-1/8	8	10-1/4	.9375	TR97642	195.30
31/32	.9688	5-5/16	8	10-5/8	.9688	TR97643	237.44
1	1.0000	5-7/16	8	10-7/8	1.0000	TR97644	236.38
1-1/8	1.1250	5-13/16	8	11-5/8	1.1250	TR97645	308.92
1-1/4	1.2500	6-1/8	8	12-1/4	1.2500	TR97646	379.35
1-3/8	1.3750	6-5/16	10	12-5/8	1.3750	TR97647	448.37
1-1/2	1.5000	6-1/2	10	13	1.5000	TR97648	529.21
-	-	-	-	-	-	-	-

STRAIGHT SHANK - LEFT HAND SPIRAL - RIGHT HAND CUT



SERIES 9050
HIGH SPEED STEEL

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
1/16	.0625	1	4	2	.0625	TR97350	81.54
5/64	.0781	1	4	2	.0781	TR97351	81.54
3/32	.0938	1-1/4	4	2-1/2	.0938	TR97352	81.54
7/64	.1094	1-1/4	4	2-1/2	.1094	TR97353	81.54
1/8	.1250	1-1/2	4	3	.1250	TR97354	80.56
9/64	.1406	1-5/8	4	3-1/4	.1406	TR97355	80.56
5/32	.1562	1-5/8	4	3-1/4	.1562	TR97356	86.88
11/64	.1719	1-3/4	6	3-1/2	.1719	TR97357	86.88
3/16	.1875	1-3/4	6	3-1/2	.1875	TR97358	86.88
13/64	.2031	1-7/8	6	3-3/4	.2031	TR97359	86.88
7/32	.2188	1-7/8	6	3-3/4	.2188	TR97360	84.58
15/64	.2344	2	6	4	.2344	TR97361	84.58
1/4	.2500	2	6	4	.2500	TR97362	84.19
17/64	.2656	2-1/8	6	4-1/4	.2656	TR97363	84.58
9/32	.2812	2-1/8	6	4-1/4	.2812	TR97364	93.50
19/64	.2969	2-1/4	6	4-1/2	.2969	TR97365	93.50
5/16	.3125	2-1/4	6	4-1/2	.3125	TR97366	92.61
11/32	.3438	2-3/8	6	4-3/4	.3438	TR97367	104.14
3/8	.3750	2-1/2	6	5	.3750	TR97368	103.83
13/32	.4062	2-5/8	6	5-1/4	.4062	TR97369	115.37
7/16	.4375	2-3/4	6	5-1/2	.4375	TR97370	115.76
15/32	.4688	2-7/8	6	5-3/4	.4688	TR97371	127.80

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
1/2	.5000	3	6	6	.5000	TR97372	124.68
17/32	.5312	3-1/8	8	6-1/4	.5312	TR97373	145.57
9/16	.5625	3-1/4	8	6-1/2	.5625	TR97374	146.39
19/32	.5938	3-3/8	8	6-3/4	.5938	TR97375	159.21
5/8	.6250	3-1/2	8	7	.6250	TR97376	156.29
21/32	.6562	3-11/16	8	7-3/8	.6562	TR97377	171.37
11/16	.6875	3-7/8	8	7-3/4	.6875	TR97378	170.87
23/32	.7188	4-1/16	8	8-1/8	.7188	TR97379	184.24
3/4	.7500	4-3/16	8	8-3/8	.7500	TR97380	180.69
25/32	.7812	4-3/8	8	8-3/4	.7812	TR97381	196.36
13/16	.8125	4-9/16	8	9-1/8	.8125	TR97382	196.36
27/32	.8438	4-11/16	8	9-3/8	.8438	TR97383	214.91
7/8	.8750	4-7/8	8	9-3/4	.8750	TR97384	214.91
29/32	.9062	5	8	10	.9062	TR97385	239.58
15/16	.9375	5-1/8	8-10	10-1/4	.9375	TR97386	239.58
31/32	.9688	5-5/16	8-10	10-5/8	.9688	TR97387	263.82
1	1.0000	5-7/16	8-10	10-7/8	1.0000	TR97388	263.82
1-1/8	1.1250	5-13/16	8-10	11-5/8	1.1250	TR97389	339.59
1-1/4	1.2500	6-1/8	8-10	12-1/4	1.2500	TR97390	417.85
1-3/8	1.3750	6-5/16	8-10	12-5/8	1.3750	TR97391	493.00
1-1/2	1.5000	6-1/2	8-10	13	1.5000	TR97392	583.93
-	-	-	-	-	-	-	-

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004

Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

TAPER PIPE - LEFT HAND SPIRAL - RIGHT HAND CUT



SERIES 906
HIGH SPEED STEEL

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	# OF FLUTES	THREAD OR FLUTE LENGTH	OVERALL LENGTH	SHANK DIA.	SIZE OF SQUARE	ITEM#	LIST PRICE
1/16	.2320	.2750	6	3/4	2-1/8	.3125	.235	TR97649	90.89
1/8	.3160	.3620	6	3/4	2-1/8	.4375	.328	TR97650	84.73
1/4	.4060	.4720	6	1-1/16	2-7/16	.5625	.421	TR97651	97.01
3/8	.5400	.6060	6	1-1/16	2-9/16	.7000	.531	TR97652	109.83
1/2	.6650	.7510	6	1-3/8	3-1/8	.6875	.515	TR97653	138.75
3/4	.8760	.9620	8	1-3/8	3-1/4	.9063	.679	TR97654	192.38
1	1.1030	1.2120	8	1-3/4	3-3/4	1.1250	.843	TR97655	283.08
1-1/4	1.4440	1.5530	10	1-3/4	4	1.3125	.984	TR97656	476.78
1-1/2	1.6840	1.7930	12	1-3/4	4-1/4	1.5000	1.125	TR97657	602.87
2	2.1590	2.2680	12	1-3/4	4-1/2	1.8750	1.406	TR97658	805.27

TAPER PIN
HIGH SPEED STEEL



SERIES 987
STRAIGHT FLUTE



SERIES 991
LEFT HAND SPIRAL
RIGHT HAND CUT



SERIES 988
LEFT HAND HELICAL
RIGHT HAND CUT

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	# OF FLUTES	STRAIGHT	LIST PRICE	LH-SPIRAL	LIST PRICE	LH-HELICAL	LIST PRICE
7/0	.0497	.0666	4	TR97525	72.69	TR97567	75.42	TR97546	67.43
6/0	.0611	.0806	4	TR97526	72.69	TR97568	75.42	TR97547	63.49
5/0	.0719	.0966	4	TR97527	66.26	TR97569	72.69	TR97548	65.87
4/0	.0869	.1142	4	TR97528	66.26	TR97570	72.69	TR97549	65.87
3/0	.1029	.1302	4	TR97529	66.26	TR97571	72.69	TR97550	59.48
2/0	.1137	.1462	4	TR97530	59.24	TR97572	63.49	TR97551	60.18
0	.1287	.1638	4	TR97531	56.98	TR97573	60.68	TR97552	61.62
1	.1447	.1798	6	TR97532	55.19	TR97574	61.62	TR97553	62.56
2	.1605	.2008	6	TR97533	55.19	TR97575	61.62	TR97554	70.82
3	.1813	.2294	6	TR97534	55.19	TR97576	61.62	TR97555	73.20
4	.2071	.2604	6	TR97535	61.62	TR97577	67.19	TR97556	82.39
5	.2409	.2994	6	TR97536	66.26	TR97578	71.68	TR97557	90.15
6	.2773	.3540	6	TR97537	79.98	TR97579	88.32	TR97558	105.82
7	.3297	.4220	6	TR97538	103.01	TR97580	111.66	TR97559	130.61
8	.3971	.5050	6	TR97539	132.00	TR97581	144.40	TR97560	153.25
9	.4805	.6066	6	TR97540	160.07	TR97582	174.26	TR97561	168.37
10	.5799	.7216	6	TR97541	175.74	TR97583	193.16	TR97562	213.78
11	.7060	.8780	8	TR97542	187.28	TR97584	206.06	TR97563	226.60
12	.8420	1.0500	8	TR97543	289.78	TR97585	318.74	TR97564	350.78
13	1.0090	1.2590	10	TR97544	562.06	TR97586	618.26	TR97565	950.00
14	1.2500	1.5420	10	TR97545	900.60	TR97587	999.48	TR97566	1,097.46

For technical information, please see page 240.

HSS & COBALT REAMERS



Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

CAPSCREW COUNTERBORES HIGH SPEED STEEL



SERIES 901 - STANDARD • SERIES 902 - 1/64 o/s • SERIES 903 - 1/32 o/s

SIZE	TOLERANCE	SERIES NUMBER	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE
4	std.	901	.1120	1/8	.1830	9/16	3-7/8	TR97470	41.70
4	1/64 o/s	902	.1270	1/8	.1990	9/16	3-7/8	TR97484	41.70
4	1/32 o/s	903	.1430	1/8	.2150	9/16	3-7/8	TR97501	41.70
5	std.	901	.1250	5/32	.2050	5/8	4-1/8	TR97471	41.70
5	1/64 o/s	902	.1400	5/32	.2210	5/8	4-1/8	TR97485	41.70
5	1/32 o/s	903	.1560	5/32	.2370	5/8	4-1/8	TR97502	41.70
6	std.	901	.1380	3/16	.2270	3/4	4-5/8	TR97472	44.16
6	1/64 o/s	902	.1530	3/16	.2430	3/4	4-5/8	TR97486	44.16
6	1/32 o/s	903	.1690	3/16	.2590	3/4	4-5/8	TR97503	44.16
8	std.	901	.1640	7/32	.2700	3/4	5	TR97473	47.32
8	1/64 o/s	902	.1790	7/32	.2860	3/4	5	TR97487	47.32
8	1/32 o/s	903	.1950	7/32	.3020	3/4	5	TR97504	47.32
10	std.	901	.1900	1/4	.3120	7/8	5-1/4	TR97474	48.33
10	1/64 o/s	902	.2050	1/4	.3280	7/8	5-1/4	TR97488	48.33
10	1/32 o/s	903	.2210	1/4	.3440	7/8	5-1/4	TR97505	48.33
1/4	std.	901	.2500	9/32	.3800	1	5-5/8	TR97475	50.82
1/4	1/64 o/s	902	.2650	9/32	.3960	1	5-5/8	TR97489	50.82
1/4	1/32 o/s	903	.2810	9/32	.4120	1	5-5/8	TR97506	50.82
5/16	std.	901	.3125	5/16	.4740	1	6-1/8	TR97476	63.49
5/16	1/64 o/s	902	.3280	5/16	.4890	1	6-1/8	TR97490	63.49
5/16	1/32 o/s	903	.3430	5/16	.5040	1	6-1/8	TR97507	63.49
3/8	std.	901	.3750	3/8	.5690	1-1/4	6-1/2	TR97477	69.34
3/8	1/64 o/s	902	.3900	3/8	.5850	1-1/4	6-1/2	TR97491	69.34
3/8	1/32 o/s	903	.4060	3/8	.6010	1-1/4	6-1/2	TR97508	69.34
7/16	std.	901	.4370	7/16	.6610	1-1/4	7	TR97478	83.41
7/16	1/64 o/s	902	.4520	7/16	.6760	1-1/4	7	TR97492	83.41
7/16	1/32 o/s	903	.4680	7/16	.6910	1-1/4	7	TR97509	83.41
1/2	std.	901	.5000	1/2	.7550	1-1/2	7-1/2	TR97479	95.45
1/2	1/64 o/s	902	.5150	1/2	.7710	1-1/2	7-1/2	TR97493	95.45
1/2	1/32 o/s	903	.5310	1/2	.7870	1-1/2	7-1/2	TR97510	95.45
5/8	std.	901	.6250	5/8	.9430	1-1/2	7-5/8	TR97480	155.75
5/8	1/64 o/s	902	.6400	5/8	.9590	1-1/2	7-5/8	TR97494	155.75
5/8	1/32 o/s	903	.6560	5/8	1.0000	1-1/2	7-5/8	TR97511	155.75
3/4	std.	901	.7500	3/4	1.1310	1-5/8	7-3/4	TR97481	181.20
3/4	1/64 o/s	902	.7650	3/4	1.1720	1-5/8	7-3/4	TR97495	181.20
3/4	1/32 o/s	903	.7810	3/4	1.1630	1-5/8	7-3/4	TR97512	181.20
7/8	std.	901	.8750	7/8	1.3200	1-7/8	8	TR97482	220.72
7/8	1/64 o/s	902	.8910	7/8	1.3360	1-7/8	8	TR97496	220.72
7/8	1/32 o/s	903	.9060	7/8	1.3520	1-7/8	8	TR97513	220.72
1	std.	901	1.0000	1	1.5080	2	8-1/2	TR97483	280.00
1	1/64 o/s	902	1.0150	1	1.5240	2	8-1/2	TR97497	280.00
1	1/32 o/s	903	1.0310	1	1.5400	2	8-1/2	TR97514	280.00

For technical information, please see page 240.

Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES



SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
3/8	2-1/2	5	4-5/8	3/8	TR97595	80.01
7/16	3-1/4	5	5-3/8	7/16	TR97596	86.34
1/2	3-3/4	5	5-7/8	1/2	TR97597	95.56
9/16	3-3/4	5	5-7/8	1/2	TR97598	99.46
5/8	4-1/4	5	6-3/8	1/2	TR97599	110.62
11/16	4-1/4	5	6-3/8	1/2	TR97600	120.59
3/4	4-1/2	5	6-7/8	1/2	TR97601	139.65
13/16	4-1/2	5	6-7/8	1/2	TR97602	139.65
7/8	4-1/2	5	6-7/8	1/2	TR97603	158.40
15/16	4-1/2	5	6-7/8	1/2	TR97604	158.40
1	4-1/2	5	6-7/8	1/2	TR97605	180.87
1-1/16	4-1/2	5	6-7/8	1/2	TR97660	212.78

CONSTRUCTION

SERIES 9950

HIGH SPEED STEEL
LEFT HAND SPIRAL
RIGHT HAND CUT
BLACK & GOLD
3 FLATS



SAFETY

MAGNETIC HEX SHANK

SERIES 996

HIGH SPEED STEEL
LEFT HAND SPIRAL
RIGHT HAND CUT

Magnetic Hex Shank has been designed to protect against danger and loss

See OSHA 29CFR Part 1926.759 (falling object protection)

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	HEX SHANK DIAMETER	ITEM#	LIST PRICE
9/16	4	5	5-1/2	1-1/16	TR99050	168.65
11/16	4-1/2	5	6-3/8	1-1/16	TR99052	203.94
13/16	5	5	7	1-1/4	TR99054	243.88
15/16	5	5	7	1-7/16	TR99056	275.56
1-1/16	5	5	7	1-5/8	TR99058	364.98
1-3/16	5	5	7	1-13/16	TR99060	470.16
1-5/16	5	5	7-7/8	2	TR99062	561.63



BRIDGE

SERIES 9850

HIGH SPEED STEEL
LEFT HAND SPIRAL
RIGHT HAND CUT

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	SMALL DIAMETER	ITEM#	LIST PRICE
7/16	5-1/8	5	9	2	.3050	TR98974	106.50
1/2	5-1/8	5	9	2	.3125	TR98976	115.68
9/16	5-1/8	5	9	2	.3430	TR97589	115.68
5/8	6-1/8	5	10	2	.3750	TR98978	125.00
11/16	7-1/8	5	11-3/4	3	.3906	TR97590	133.60
3/4	7-3/8	5	12	3	.5000	TR97591	174.00
13/16	7-3/8	5	12	3	.5000	TR97592	174.00
7/8	7-3/8	5	12	3	.5625	TR98980	190.70
15/16	7-3/8	5	12	3	.6250	TR97593	203.60
1	7-3/8	5	12	3	.6875	TR98982	221.50
1-1/16	7-3/8	5	12	3	.7500	TR97594	229.86
1-1/8	7-3/8	5	12	3	.8125	TR98984	280.30
1-3/16	7-3/8	5	12	3	.8750	TR98986	358.26
1-1/4	7-3/8	5	13	4	.9375	TR98988	407.70
1-5/16	7-3/8	5	13	4	1.0000	TR98990	482.00

For technical information, please see page 240.

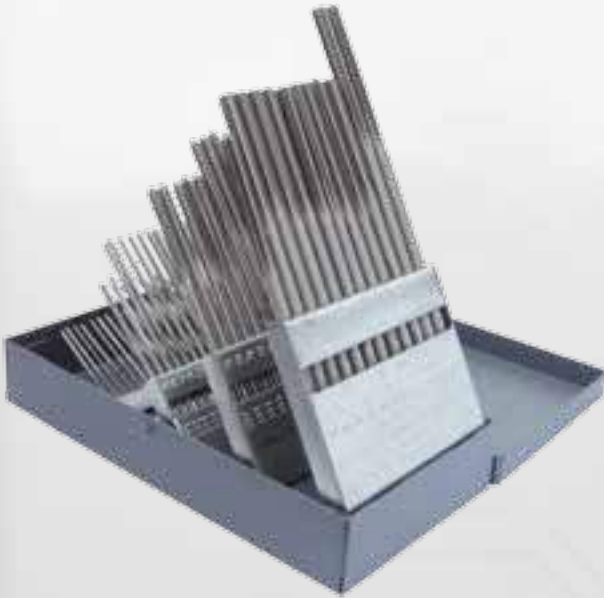


Reamer Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

HSS & COBALT REAMERS



ITEM# TR96286
60 PC. #1 - #60
HIGH SPEED STEEL



ITEM# TR96283
29 PC. 1/16" - 1/2" BY 64ths
HIGH SPEED STEEL

HSS & COBALT

DESCRIPTION	FLUTE STYLE	ITEM#	LIST PRICE
29Pc • 1/16" - 1/2" by 64ths • HSS	Straight	TR96283	1,212.40
29Pc • 1/16" - 1/2" by 64ths • M42 Cobalt	Straight	TR96284	1,588.24
60Pc • #1 - #60 • HSS	Straight	TR96286	1,798.67
60Pc • #1 - #60 • M42 Cobalt	Straight	TR96287	1,952.85
26Pc • A-Z • HSS	Straight	TR96290	1,121.90
26Pc • A-Z • M42 Cobalt	Straight	TR96291	1,561.70
14Pc • Dowel Pin • .1230 - .4995 • HSS	Straight	TR96279	628.83
14Pc • Dowel Pin • .1230 - .4995 • M42 Cobalt	Straight	TR96280	824.83
14Pc • O/U • .1240 - .5010 • HSS	Straight	TR96293	628.83
14Pc • O/U • .1240 - .5010 • M42 Cobalt	Straight	TR96294	788.20
20Pc • #61 - #80 • HSS	Straight	TR96305	737.10
10Pc • #4 - 1/2" • Std • Ctr Bore Set • HSS	RH Spiral	TR96307	618.11
10Pc • #4 - 1/2" • 1/64" OS • Ctr Bore Set • HSS	RH Spiral	TR96308	618.11
10Pc • #4 - 1/2" • 1/32" OS • Ctr Bore Set • HSS	RH Spiral	TR96309	618.11

For technical information, please see page 240.

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS



- Running @ higher SFM; heavier chip loads than conventional end mills
- Speed and feed chart parameters are for 4 flute full diameter slotting
- Slotting depth up to 1 x diameter
- Tool holding important for maximizing tool life. Minimize TIR
- Max ramp angle recommended 3° or less

Speed and Feed Calculation:

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$

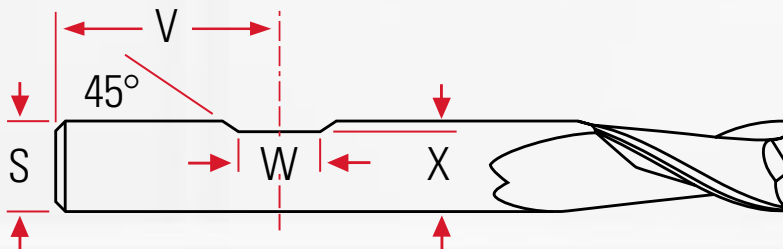


2 on-site Otec Post Polish machines

Benefits of Post polishing

ALCRO-MAX by nature of the coating process leaves tiny "droplets" of the coating on the surface of the tool. Proven results have shown that the removal of these droplets provide a smoother tool surface which results in a better cut. Perhaps the most important benefit, is that the tool is able to run at faster feed rates due to the smoothness of the flute area. This results in better chip evacuation and cooler temperatures resulting in longer tool life.

Weldon Flat specifications for the VI-PRO



STUB LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2"	.750"	.330"	.332"	.440"
5/8"	.750"	.400"	.402"	.560"
3/4"	.750"	.455"	.457"	.675"

REGULAR LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2" (1-1/4" LOC)	.750"	.330"	.332"	.440"
1/2"	.875"	.330"	.332"	.440"
5/8"	.875"	.400"	.402"	.560"
3/4"	.875"	.455"	.457"	.675"
1"	.875"	.515"	.517"	.925"

LONG LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2" (2" LOC)	.875"	.330"	.332"	.440"
1/2"	1.250"	.330"	.332"	.440"
5/8"	1.250"	.400"	.402"	.560"
3/4"	1.250"	.455"	.457"	.675"
1"	1.250"	.515"	.517"	.925"

EXTRA LONG LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2"	1.5"	.330"	.332"	.440"
5/8"	1.5"	.400"	.402"	.560"
3/4"	1.5"	.455"	.457"	.675"
1"	1.5"	.515"	.517"	.925"
-	-	-	-	-



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS

VI-PRO VARIABLE INDEX GEOMETRY 4 FLUTE

SFM

MATERIAL / TYPE	Rc HARDNESS	4 FLUTE STUB LENGTH	4 FLUTE REG LENGTH	4 FLUTE LONG LENGTH	4 FLUTE EXTRA LONG
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
MONEL					
MONEL-65% NICKEL	-	150 - 200	150 - 200	105 - 140	105 - 140
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	-	-	-	-
	-	200 - 325	200 - 325	140 - 230	140 - 230
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32	250 - 300	250 - 300	175 - 210	175 - 210
	OVER 32	200 - 250	200 - 250	140 - 175	140 - 175
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	-	290 - 375	290 - 375	200 - 260	200 - 260
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32	250 - 300	250 - 300	175 - 210	175 - 210
	OVER 32	200 - 250	200 - 250	140 - 175	140 - 175
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	-	250 - 300	250 - 300	175 - 210	175 - 210
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32	250 - 350	250 - 350	175 - 210	175 - 210
	OVER 32	150 - 200	150 - 200	100 - 140	100 - 140
CARBON STEELS					
1000's, 1100's, 1300's	-	560 - 595	560 - 595	300 - 500	300 - 500
DUCTILE					
DUCTILE CAST IRONS	-	560 - 595	560 - 595	400 - 500	400 - 500
CAST IRONS					
GRAY CAST IRONS	-	560 - 595	560 - 595	400 - 500	400 - 500

Speed and feed chart parameters are for 4 flute full diameter slotting

Recommended slotting depth = 1 x Diameter

Tool holding important for maximizing tool life. Minimize TIR

Max ramp angle recommended 3° or less

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS



4 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS										
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0004-.0008	.0005-.0011	.0009-.0016	.0010-.0018	.0012-.0019	.0014-.0021	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
NICKEL BASE ALLOYS										
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	.0004-.0008	.0005-.0011	.0009-.0016	.0010-.0018	.0012-.0019	.0014-.0021	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
IRON BASE ALLOYS										
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0004-.0008	.0005-.0011	.0009-.0016	.0010-.0018	.0012-.0019	.0014-.0021	.0016-.0028	.0019-.0031	.0024-.0037	.0029-.0041
MONEL										
MONEL-65% NICKEL	.0004-.0008	.0009-.0011	.0014-.0016	.0015-.0017	.0017-.0019	.0019-.0021	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
TITANIUM ALLOYS										
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0004-.0008	.0009-.0011	.0014-.0016	.0015-.0017	.0017-.0019	.0019-.0021	.0026-.0028	.0029-.0031	.0035-.0037	.0039-.0041
STAINLESS STEEL (PRECIPITATION)										
12/8, 15/5, 17/4, AM-350/355	.0004-.0008	.0009-.0011	.0014-.0016	.0016-.0020	.0017-.0025	.0019-.0031	.0026-.0032	.0029-.0037	.0035-.0039	.0039-.0041
STAINLESS STEEL (AUSTENITIC)										
200 SERIES, 302, 303, 304, 316	.0004-.0008	.0009-.0011	.0014-.0016	.0016-.0020	.0017-.0025	.0019-.0031	.0026-.0032	.0029-.0037	.0035-.0039	.0039-.0041
STAINLESS STEEL (AUSTENITIC)										
304L, 316L	.0004-.0008	.0009-.0011	.0014-.0016	.0016-.0020	.0017-.0025	.0019-.0031	.0026-.0032	.0029-.0037	.0035-.0039	.0039-.0041
STAINLESS STEEL (MARTENSITIC)										
403, 410, 416, 440	.0004-.0008	.0009-.0011	.0014-.0016	.0016-.0020	.0017-.0025	.0019-.0031	.0026-.0032	.0029-.0037	.0035-.0039	.0039-.0041
HIGH STRENGTH TOOL STEELS										
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	.0004-.0008	.0009-.0011	.0014-.0016	.0016-.0020	.0017-.0025	.0019-.0031	.0026-.0032	.0029-.0037	.0035-.0039	.0039-.0041
CARBON STEELS										
1000's, 1100's, 1300'S	.0004-.0008	.0011-.0013	.0018-.0020	.0024-.0026	.0030-.0032	.0033-.0035	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
DUCTILE										
DUCTILE CAST IRONS	.0004-.0008	.0011-.0013	.0018-.0020	.0024-.0026	.0030-.0032	.0033-.0035	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056
CAST IRONS										
GRAY CAST IRONS	.0004-.0008	.0011-.0013	.0018-.0020	.0024-.0026	.0030-.0032	.0033-.0035	.0035-.0037	.0039-.0041	.0041-.0043	.0054-.0056

Chip Thinning recommended for 4 Flute to optimize tool life:

- 5% of Diameter Radial engaged: Multiply Feed 3X
- 10% of Diameter Radial engaged: Multiply Feed 2X
- 20% of Diameter Radial engaged: Multiply Feed 1.5X

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS



5 FLUTE

**SFM
SEMI-ROUGHING & FINISH PASSES, UP TO 25% OF DIAMETER**

MATERIAL / TYPE	Rc HARDNESS	5 FLUTE STUB LENGTH	5 FLUTE REG LENGTH	5 FLUTE LONG LENGTH	5 FLUTE EXTRA LONG
COBALT BASE ALLOYS					
STELLITE, HS-21,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
HAYNES 25/188, X-40, L-605	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
RENE, HASTELLOY	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
TIMKIN 16-25-6, CARPENTER 22-b3	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
MONEL					
MONEL-65% NICKEL	-	550 - 570	550 - 570	385 - 400	385 - 400
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V,	-	-	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	-	600 - 625	600 - 625	420 - 440	420 - 440
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	-	600 - 625	600 - 625	420 - 440	420 - 440
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2,	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
D2, P20, H11, H13, S2, 01	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
CARBON STEELS					
1000's, 1100's, 1300's	-	800 - 850	800 - 850	560 - 595	560 - 595
DUCTILE					
DUCTILE CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595
CAST IRONS					
GRAY CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595

TECHNICAL INFORMATION

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES



VI-PRO CARBIDE END MILLS



5 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS										
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS										
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS										
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL										
MONEL-65% NICKEL	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS										
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)										
12/8, 15/5, 17/4, AM-350/355	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
200 SERIES, 302, 303, 304, 316	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
304L, 316L	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)										
403, 410, 416, 440	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS										
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS										
1000's, 1100's, 1300'S	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE										
DUCTILE CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS										
GRAY CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS



6 FLUTE

**SFM
FINISHING PASSES ONLY, UP TO 10% OF DIAMETER**

MATERIAL / TYPE	Rc HARDNESS	6 FLUTE REG LENGTH	6 FLUTE LONG LENGTH
COBALT BASE ALLOYS			
STELLITE, HS-21,	UNDER 32	550 - 570	385 - 400
HAYNES 25/188, X-40, L-605	OVER 32	200 - 225	140 - 160
NICKEL BASE ALLOYS			
INCONEL-625/718, WASPALLOY,	UNDER 32	550 - 570	385 - 400
RENE, HASTELLOY	OVER 32	200 - 225	140 - 160
IRON BASE ALLOYS			
INCOLOY 800-802, MULTIMET N-155,	UNDER 32	550 - 570	385 - 400
TIMKIN 16-25-6, CARPENTER 22-b3	OVER 32	200 - 225	140 - 160
MONEL			
MONEL-65% NICKEL	-	550 - 570	385 - 400
TITANIUM ALLOYS			
COMMERCIALLY PURE, 6Al-4V,	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	385 - 400
STAINLESS STEEL (PRECIPITATION)			
12/8, 15/5, 17/4, AM-350/355	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
STAINLESS STEEL (AUSTENITIC)			
200 SERIES, 302, 303, 304, 316	-	600 - 625	420 - 440
STAINLESS STEEL (AUSTENITIC)			
304L, 316L	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
STAINLESS STEEL (MARTENSITIC)			
403, 410, 416, 440	-	600 - 625	420 - 440
HIGH STRENGTH TOOL STEELS			
4140, 4340, 6150, 5210, A2,	UNDER 32	600 - 625	420 - 440
D2, P20, H11, H13, S2, 01	OVER 32	550 - 570	385 - 400
CARBON STEELS			
1000's, 1100's, 1300's	-	800 - 850	560 - 595
DUCTILE			
DUCTILE CAST IRONS	-	800 - 850	560 - 595
CAST IRONS			
GRAY CAST IRONS	-	800 - 850	560 - 595

TECHNICAL INFORMATION

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

VI-PRO CARBIDE END MILLS



6 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS							
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS							
INCONEL-625/718, WASSPALLOY, RENE, HASTELLOY	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS							
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL							
MONEL-65% NICKEL	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS							
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)							
12/8, 15/5, 17/4, AM-350/355	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)							
200 SERIES, 302, 303, 304, 316	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)							
304L, 316L	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)							
403, 410, 416, 440	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS							
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS							
1000's, 1100's, 1300'S	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE							
DUCTILE CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS							
GRAY CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

END MILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS
FOR COATED TOOLS INCREASE SFM: ZRN = +30% ALTIN = +40%

SFM FOR 45° & 60° HELIX CARBIDE END MILLS

MATERIAL / TYPE	Rc HARDNESS	2 Fl, 3 Fl 45° Helix Aluminum	3 Flute 45° & 60° Helix	5 Flute 45° Helix
COBALT BASE ALLOYS				
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	200 - 275 125 - 175	250 - 300 150 - 200
NICKEL BASE ALLOYS				
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	150 - 200 90 - 125	250 - 300 150 - 200
IRON BASE ALLOYS				
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	- -	250 - 300 150 - 200	250 - 300 150 - 200
MONEL				
MONEL-65% NICKEL	-	-	200 - 300	225 - 350
TITANIUM ALLOYS				
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	500 min. -	250 - 400 -	250 - 400 -
STAINLESS STEEL (PRECIPITATION)				
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
STAINLESS STEEL (AUSTENITIC)				
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	250 - 350 175 - 275	250 - 350 175 - 275
STAINLESS STEEL (AUSTENITIC)				
304L, 316L	UNDER 32 OVER 32	- -	125 - 200 90 - 125	125 - 200 90 - 125
STAINLESS STEEL (MARTENSITIC)				
403, 410, 416, 440	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
HIGH STRENGTH TOOL STEELS				
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	225 - 300 125 - 200	225 - 300 125 - 200
MEDIUM ALLOY STEELS				
200, 250, 300	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
CARBON STEELS				
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
DUCTILE				
DUCTILE CAST IRONS	-	-	350 - 450	300 - 400
CAST IRONS				
GRAY CAST IRONS	-	-	300 - 400	250 - 350
ALUMINUM				
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -
MAGNESIUM				
	-	500 min.	500 min.	500 min.
COPPER, COPPER ALLOYS				
	-	400 - 500	400 - 500	250 - 350
BRASS BRONZE				
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	- -
COMPOSITES				
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	250 - 1000 -	- -	- -

TECHNICAL INFORMATION

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

END MILLS - CARBIDE

TECHNICAL INFORMATION

I.P.T. (Inch Per Tooth)					
MATERIAL / TYPE	Rc HARDNESS	1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
MONEL					
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0030"-.0050" -
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32 OVER 32	.0005"-.0008" .0003"-.0005"	.0005"-.0008" .0003"-.0005"	.0008"-.0015" .0005"-.0010"	.0015"-.0030" .0010"-.0020"
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
MEDIUM ALLOY STEELS					
200, 250, 300	UNDER 32 OVER 32	.0007"-.0015" .0005"-.0010"	.0007"-.0015" .0005"-.0010"	.0010"-.0025" .0008"-.0020"	.0030"-.0050" .0020"-.0040"
CARBON STEELS					
1000's, 1100's, 1300's	UNDER 32 OVER 32	.0007"-.0015" .0005"-.0010"	.0007"-.0015" .0005"-.0010"	.0010"-.0025" .0008"-.0020"	.0030"-.0050" .0020"-.0040"
DUCTILE					
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
CAST IRONS					
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
ALUMINUM					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	.0010"-.0020" -	.0010"-.0020" -	.0015"-.0040" -	.0030"-.0150" -
MAGNESIUM					
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
COPPER, COPPER ALLOYS					
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"
BRASS BRONZE					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0020"-.0080" -
COMPOSITES					
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	.0010"-.0020" -	.0010"-.0020" -	.0015"-.0040" -	.0030"-.0100" -



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

TECHNICAL INFORMATION

END MILLS - CARBIDE

GENERAL RECOMMENDATIONS

All speed and feed recommendations should be considered only as a starting point. The suggested speed & feed values are recommended for uncoated tools only. When various coatings are applied, SFM may be increased accordingly. These general percentages are as follows under optimal conditions:

TICN = +25% ZRN = +30% ALTiN = +40%

RIGIDITY

Maximize rigidity to reduce chatter and increase tool life. Ways to improve rigidity include choosing the largest diameter possible to perform your milling task, use the shortest LOC (Length of Cut) available, and always use the tool holder which offers the shortest gage line (Shortest Tool Holder Length).

CHATTER

If chatter is present increase feed or reduce speed.

Speed and Feed Calculations:

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$

ROUGHING END MILLS - CARBIDE

CARBIDE ROUGHERS - SFM & CHIP LOAD

MATERIAL	HARDNESS HRc	SFM UNCOATED	SFM ALTiN	CHIP LOAD PER TOOTH	
				1/4" - 1/2"	1/2" - 1"
LOW AND PLAIN CARBON, ALLOY & TOOL STEELS	<19	258 - 345	430 - 575	.0015 - .0030	.0030 - .0045
LOW AND PLAIN CARBON, ALLOY & TOOL STEELS	20 - 30	210 - 258	350 - 430	.0015 - .0030	.0030 - .0045
LOW AND PLAIN CARBON, ALLOY & TOOL STEELS	31 - 40	126 - 192	210 - 320	.0011 - .0021	.0021 - .0032
AUSTENITIC STAINLESS STEELS, 200 AND 300 SERIES 135-275	<28	150 - 300	250 - 500	.0010 - .0025	.0025 - .0040
FERRITIC, MARTENSITIC 400, 500, & PH STAINLESS STEELS	<35	135 - 258	225 - 430	.0015 - .0030	.0030 - .0045
TITANIUM ALLOYS	32 - 43	75 - 129	125 - 215	.0009 - .0018	.0018 - .0027
NICKEL-BASED HIGH TEMPERATURE ALLOYS	<32	39 - 87	65 - 145	.0009 - .0018	.0018 - .0027
NICKEL-BASED HIGH TEMPERATURE ALLOYS	32 - 50	33 - 66	55 - 110	.0009 - .0018	.0018 - .0027
COBALT-BASED HIGH TEMPERATURE ALLOYS	<45	27 - 45	45 - 75	.0009 - .0018	.0018 - .0027

For the long length carbide rougher the SFM should be reduced by 30%.

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

HIGH PERFORMANCE THREADMILLS - CARBIDE

TECHNICAL INFORMATION

THREADMILLS - SFM & CHIP LOAD								
MATERIAL	SPEED SFM	FEEDRATE (INCHES/TOOTH) PER CUTTING TOOL DIAMETER						
		1/8	3/16	1/4	5/16	3/8	1/2	5/8
ALUMINUM	800 - 1400	.0005-.0010	.0010-.0015	.0015-.0025	.0020-.0030	.0030-.0045	.0035-.0055	.0050-.0070
MAGNESIUM	800 - 1400	.0005-.0010	.0010-.0015	.0015-.0025	.0020-.0030	.0030-.0045	.0035-.0055	.0050-.0070
BRASS	600 - 800	.0005-.0010	.0010-.0015	.0015-.0025	.0020-.0030	.0030-.0045	.0035-.0045	.0050-.0060
BRONZE	500 - 600	.0005-.0010	.0010-.0015	.0015-.0025	.0020-.0030	.0030-.0045	.0035-.0045	.0050-.0060
HARD BRONZE	200 - 300	.0004-.0008	.0007-.0012	.0010-.0020	.0010-.0020	.0015-.0025	.0020-.0030	.0030-.0040
LOW ALLOY STEEL <25RC	350 - 500	.0005-.0010	.0010-.0015	.0015-.0025	.0020-.0030	.0025-.0035	.0030-.0040	.0040-.0050
HIGH ALLOY STEEL >25RC	250 - 400	.0003-.0006	.0005-.0010	.0008-.0015	.0010-.0020	.0015-.0025	.0020-.0030	.0030-.0040
STAINLESS	150 - 250	.0004-.0008	.0006-.0010	.0010-.0015	.0015-.0020	.0015-.0030	.0020-.0035	.0030-.0040
CAST IRON - SOFT	250 - 350	.0004-.0008	.0007-.0013	.0007-.0013	.0015-.0020	.0020-.0030	.0020-.0040	.0030-.0050
CAST IRON - HARD	200 - 300	.0003-.0006	.0005-.0010	.0008-.0015	.0010-.0020	.0015-.0025	.0020-.0030	.0030-.0040
TITANIUM	80 - 150	.0003-.0006	.0005-.0010	.0008-.0015	.0010-.0020	.0015-.0025	.0015-.0025	.0025-.0035
INCONEL	60 - 100	.0003-.0006	.0005-.0010	.0008-.0015	.0010-.0020	.0015-.0025	.0015-.0025	.0020-.0030

THREADMILLS - CALCULATION FORMULAS	
TO CALCULATE	USE THIS FORMULA
FEEDRATE ADJUSTMENT	$\frac{(\text{THREAD MAJOR DIA. TO BE CUT}) - (\text{THREADMILL DIA.})}{(\text{THREAD MAJOR DIA. TO BE CUT})} \times \text{LINEAR FEEDRATE}$
RPM	$\frac{3.8}{(\text{THREADMILL DIAMETER})} \times \text{SFM}$
LINEAR IPM	$(\text{INCHES PER TOOTH}) \times (\text{NUMBER OF FLUTES}) \times \text{RPM}$

BURS - CARBIDE

SELECTION BY CUT

SINGLE CUT:

- Provides the best surface finish and largest contact patch on the work piece.
- Demands greater operator skill since the single flute direction pulls the bur into the work piece.

DOUBLE CUT:

- Most popular geometry as the dual flute direction reduces the contact patch on the work piece and therefore provides easier operator control while still maintaining a good surface finish.

ALUMINUM CUT:

- These burs employ a coarser flute which results in improved cutting performance for aluminum and aluminum alloys.

CARBIDE BURS - SPEEDS		
CUTTING DIA.	SUGGESTED RPM	MAXIMUM RPM
1/16	55,000 – 85,000	90,000
1/8	35,000 – 65,000	80,000
3/16	30,000 – 55,000	70,000
1/4	25,000 – 50,000	70,000
5/16	20,000 – 40,000	67,000
3/8	18,000 – 40,000	63,000
7/16	16,000 – 38,000	58,000
1/2	14,000 – 36,000	50,000
5/8	12,000 – 25,000	40,000
3/4	10,000 – 20,000	33,000
1	7,500 – 20,000	25,000

When using double cut: Reduce speeds by 25% approximately.
For stainless steel material: Increase speeds by 50% approximately.



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

GENERAL PURPOSE END MILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS.
FOR COATED TOOLS INCREASE SFM: TICN = +25% ALTIN = +40%

SFM FOR GENERAL PURPOSE CARBIDE END MILLS

MATERIAL / TYPE	Rc HARDNESS	2 Flute 30° Helix Stub, Reg	2 Flute 30° Helix Long, X-Long	4 Flute 30° Helix Stub, Reg	4 Flute 30° Helix Long, X-Long
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	- -	175 - 225 125 - 175	150 - 200 100 - 150
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	- -	125 - 175 70 - 115	150 - 200 100 - 150
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	- -	- -	175 - 225 125 - 175	150 - 200 100 - 150
MONEL					
MONEL-65% NICKEL	-	175 - 300	125 - 175	175 - 300	125 - 175
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	200 - 300 -	125 - 250 -	200 - 300 -	125 - 250 -
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	- -	200 - 250 150 - 200	125 - 175 100 - 150
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32 OVER 32	- -	- -	90 - 125 75 - 110	80 - 120 60 - 90
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	- -	150 - 225 60 - 125	125 - 175 80 - 120
MEDIUM ALLOY STEELS					
200, 250, 300	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
CARBON STEELS					
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
DUCTILE					
DUCTILE CAST IRONS	-	250 - 350	200 - 300	300 - 400	200 - 300
CAST IRONS					
GRAY CAST IRONS	-	225 - 325	175 - 250	250 - 350	175 - 250
ALUMINUM					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -	500 min. -
MAGNESIUM					
	-	500 min.	500 min.	500 min.	500 min.
COPPER, COPPER ALLOYS					
	-	400 - 500	400 - 500	300 - 400	250 - 350
BRASS BRONZE					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	250 - 350 -	200 - 300 -
COMPOSITES					
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	250 - 1000 -	250 - 1000 -	250 - 1000 -	250 - 1000 -

TECHNICAL INFORMATION

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

GENERAL PURPOSE END MILLS - CARBIDE

TECHNICAL INFORMATION

CHIP LOAD FOR GENERAL PURPOSE CARBIDE END MILLS

MATERIAL / TYPE	Rc HARDNESS	UP TO 1/8"	1/8" - 1/4"	1/4" - 1/2"	1/2" - 1"	1" - 1-1/4"
COBALT BASE ALLOYS						
STELLITE, HS-21,	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
HAYNES 25/188, X-40, L-605	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
NICKEL BASE ALLOYS						
INCONEL-625/718, WASPALLOY,	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
RENE, HASTELLOY	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
IRON BASE ALLOYS						
INCOLOY 800-802, MULTIMET N-155,	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
TIMKIN 16-25-6, CARPENTER 22-b3	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
MONEL						
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
TITANIUM ALLOYS						
COMMERCIALLY PURE, 6Al-4V,	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	-	-	-	-	-
STAINLESS STEEL (PRECIPITATION)						
12/8, 15/5, 17/4, AM-350/355	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
STAINLESS STEEL (AUSTENITIC)						
200 SERIES, 302, 303, 304, 316	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
STAINLESS STEEL (AUSTENITIC)						
304L, 316L	UNDER 32	.0005"-.0008"	.0005"-.0008"	.0008"-.0015"	.0015"-.0030"	.0020"-.0040"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0010"	.0010"-.0020"	.0015"-.0030"
STAINLESS STEEL (MARTENSITIC)						
403, 410, 416, 440	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
HIGH STRENGTH TOOL STEELS						
4140, 4340, 6150, 5210, A2,	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
D2, P20, H11, H13, S2, 01	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
MEDIUM ALLOY STEELS						
200, 250, 300	UNDER 32	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
	OVER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
CARBON STEELS						
1000's, 1100's, 1300's	UNDER 32	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
	OVER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
DUCTILE						
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
CAST IRONS						
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
ALUMINUM						
2014, 2024, 6061-(T1-T6)	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0150"	.0050"-.0150"
7075, DIE CAST, EXTRUDED	-	-	-	-	-	-
MAGNESIUM						
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
COPPER, COPPER ALLOYS						
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
BRASS BRONZE						
BRASS, ALUM/BRONZE,	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
LOW SILICON BRONZE	-	-	-	-	-	-
COMPOSITES						
G-10 FIBERGLASS, GRAPHITE,	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
GRAPHITE/EPOXY, PLASTICS	-	-	-	-	-	-



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

CHAMFER MILLS - CARBIDE

THESE VALUES ARE A STARTING POINT BASED ON A UNCOATED TOOL.
FOR ALTiN COATED TOOLS INCREASE VALUES BY UP TO +40%

SFM & CHIP LOAD

MATERIAL TYPE (<32 HRC)	SFM	SUGGESTED CHIP LOAD PER TOOTH					
		1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
NON FERROUS							
ALUMINUM ALLOYS — 2024-T4/T6, 2014, 6061-T6/T651, 7075-T68	500 - 1000	.001	.002	.002	.002	.003	.004
COPPER — YELLOW BRASS, HIGH LEAD BRASS, RED BRASS	400 - 750	.001	.001	.002	.002	.0025	.003
COPPER ALLOYS — ALUM/BRONZE, LOW SILICON BRONZE	400 - 500	.001	.001	.002	.002	.0025	.003
MAGNESIUM — DE-CAT, EXTRUDED	450 - 650	.001	.002	.002	.002	.003	.004
PLASTICS, ACRYLICS, PHENOLICS — POLYSULFONE	100 - 300	.001	.002	.003	.003	.004	.006
CARBON, GRAPHITES	100 - 200	.040	.040	.060	.060	.080	.010
STAINLESS STEEL							
PRECIPITATION — 13/8, 15/5, AM-350/355	40 - 125	.0005	.0005	.001	.001	.001	.002
AUSTENIC — 200 SERIES, 302, 303, 304L, 316L	50 - 175	.0001	.0002	.0005	.0005	.001	.0015
MARTENSITIC — 403, 410, 416	50 - 125	.0001	.0002	.0005	.0005	.0005	.001
HIGH TEMP ALLOYS							
COBALT BASE — STELLITE, HS-21, HAYNES25/188, X-40, L-605	30 - 50	.0004	.0005	.001	.001	.001	.001
IRON BASE — INCOLY 600-802, MULTIMET N-155, TIMKIN 16-25-6	40 - 65	.0005	.0005	.001	.001	.0015	.002
TITANIUM ALLOYS — 6AL-4V, ASTM 1/2/3, 6 AL-25N-4ZR-2MO-SI	25 - 125	.0005	.0005	.0005	.0005	.001	.001
STEEL							
HIGH STRENGTH STEELS — 4340, 6150, 52100, H-11, H-13	25 - 125	.0005	.0005	.001	.001	.001	.001
HIGH ALLOY STEELS — A-2/6/10, P-3/10, 01, 02, 06	50 - 150	.0005	.0005	.001	.001	.001	.001
MEDIUM ALLOY STEELS — 200, 250, 300	75 - 175	.0005	.0005	.001	.001	.002	.0025
LOW ALLOY STEELS MARAGING — 10XX, 11XX, 13XX	50 - 200	.0005	.001	.0015	.0015	.002	.003
CAST IRON							
DUCTILE IRON — DUCTILE CAST IRON	50 - 200	.0005	.001	.0015	.0015	.002	.002
CAST IRON — GRAY CAST IRON	50 - 200	.0005	.001	.002	.002	.003	.004

FORMULAS

TO CALCULATE	USE THIS FORMULA
RPM	$\frac{\text{SFM} \times 3.82}{(\text{TOOL DIAMETER})}$
IPM	$(\text{CHIP LOAD PER TOOTH}) \times (\text{NUMBER OF FLUTES}) \times \text{RPM}$

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

DRILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS. FOR ALTiN COATED TOOLS INCREASE SFM +40%

MATERIAL / TYPE	Rc HARDNESS	25° HELIX	15° HELIX STR FLT	SUGGESTED CHIP LOAD PER TOOTH				
				1/16" - 1/8"	1/8" - 1/4"	1/4" - 3/8"	3/8" - 1/2"	1/2" - 5/8"
COBALT BASE ALLOYS								
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	100 - 150 80 - 110	100 - 150 80 - 110	.0004"-.0010" .0004"-.0010"	.0008"-.0020" .0005"-.0010"	.0015"-.0025" .0010"-.0015"	.0020"-.0040" .0010"-.0020"	.0025"-.0050" .0015"-.0030"
NICKEL BASE ALLOYS								
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	125 - 150 100 - 125	125 - 175 100 - 125	.0005"-.0015" .0004"-.0010"	.0010"-.0015" .0008"-.0015"	.0015"-.0025" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
IRON BASE ALLOYS								
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	150 - 200 150 - 175	175 - 200 150 - 200	.0010"-.0015" .0008"-.0015"	.0010"-.0020" .0010"-.0020"	.0015"-.0035" .0015"-.0025"	.0020"-.0020" .0020"-.0040"	.0030"-.0060" .0025"-.0050"
MONEL								
MONEL-65% NICKEL	-	100 - 150	100 - 150	.0004"-.0010"	.0008"-.0015"	.0010"-.0015"	.0015"-.0030"	.0020"-.0040"
TITANIUM ALLOYS								
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	150 - 200 -	150 - 200 -	.0008"-.0015" -	.0010"-.0020" -	.0015"-.0030" -	.0020"-.0040" -	.0025"-.0050" -
STAINLESS STEEL (PRECIPITATION)								
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	125 - 175 80 - 125	150 - 200 100 - 150	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
STAINLESS STEEL (AUSTENITIC)								
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	100 - 175 100 - 125	150 - 200 125 - 150	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
STAINLESS STEEL (AUSTENITIC)								
304L, 316L	UNDER 32 OVER 32	80 - 100 60 - 90	90 - 125 80 - 100	.0004"-.0010" .0003"-.0008"	.0008"-.0015" .0005"-.0010"	.0010"-.0015" .0010"-.0015"	.0015"-.0030" .0010"-.0020"	.0020"-.0040" .0015"-.0030"
STAINLESS STEEL (MARTENSITIC)								
403, 410, 416, 440	UNDER 32 OVER 32	100 - 150 80 - 125	125 - 175 100 - 140	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
HIGH STRENGTH TOOL STEELS								
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	100 - 175 80 - 130	125 - 175 80 - 130	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0010"-.0020"	.0015"-.0025" .0010"-.0020"	.0015"-.0030" .0015"-.0030"	.0020"-.0040" .0020"-.0040"
MEDIUM ALLOY STEELS								
200, 250, 300	UNDER 32 OVER 32	125 - 175 100 - 150	125 - 175 100 - 150	.0010"-.0015" .0005"-.0010"	.0015"-.0025" .0010"-.0020"	.0020"-.0030" .0010"-.0025"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
CARBON STEELS								
1000's, 1100's, 1300's	UNDER 32 OVER 32	125 - 175 100 - 125	150 - 200 100 - 175	.0010"-.0015" .0005"-.0010"	.0015"-.0025" .0010"-.0020"	.0020"-.0030" .0010"-.0025"	.0020"-.0040" .0015"-.0035"	.0025"-.0050" .0020"-.0040"
DUCTILE								
DUCTILE CAST IRONS	-	125 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
CAST IRONS								
GRAY CAST IRONS	-	100 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
ALUMINUM								
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	150 - 300 -	- -	.0010"-.0020" -	.0015"-.0040" -	.0020"-.0020" -	.0030"-.0060" -	.0035"-.0070" -
MAGNESIUM								
	-	200 - 500	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
COPPER, COPPER ALLOYS								
	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
BRASS BRONZE								
BRASS, ALUM/BRONZE	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
BRASS BRONZE								
LOW SILICON BRONZE	-	125 - 200	-	.0008"-.0015"	.0010"-.0020"	.0015"-.0030"	.0020"-.0040"	.0025"-.0050"
COMPOSITES								
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	150 - 300 -	150 - 300 -	.0010"-.0020" -	.0010"-.0030" -	.0015"-.0035" -	.0025"-.0040" -	.0030"-.0050" -

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

END MILLS - CARBIDE

Trouble Shooting Guide

PROBLEM	CAUSE	SOLUTION
Premature Wear	<ul style="list-style-type: none"> • Cutting speed is too fast • Hard/Abrasive work-piece material • Speed and/or feed is too light • Helix angle is incorrect for application • Re-cutting chips 	<ul style="list-style-type: none"> • Decrease spindle speed • Use coatings (TiCN, AlTiN) • Increase speed and/or feed • Select tool with appropriate helix angle • Adjust speed & feed, axial and/or radial D.O.C., Increase coolant pressure and/or air to clear chips.
Edge Chipping	<ul style="list-style-type: none"> • Feed rate too aggressive • Feed rate too aggressive on initial cut • D.O.C. too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity 	<ul style="list-style-type: none"> • Reduce feed rate • Reduce feed rate on initial pass • Decrease axial and/or radial D.O.C. • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out
Breakage	<ul style="list-style-type: none"> • Feed rate too aggressive • D.O.C. too aggressive • Excessive tool overhang • Chip packing • Excessive wear 	<ul style="list-style-type: none"> • Reduce feed rate • Reduce axial and/or radial D.O.C. • Hold shank deeper, use shorter endmill • Adjust speed and/or feed, select endmill with fewer flutes, increase coolant pressure and/or air • Re-grind tool sooner
Chip Packing	<ul style="list-style-type: none"> • Speed and/or feed too aggressive • Flute gullet too small for chips • Insufficient coolant volume and/or pressure 	<ul style="list-style-type: none"> • Reduce speed and/or feed • Use endmill with less flutes • Increase coolant and/or air pressure, reposition nozzle to point of cut
Chattering	<ul style="list-style-type: none"> • Speed and/or feed too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity • D.O.C. too aggressive • Wrong tool geometry 	<ul style="list-style-type: none"> • Reduce speed and/or feed • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out • Reduce axial and/or radial D.O.C.
Burs	<ul style="list-style-type: none"> • Incorrect speed & feed • Helix angle is incorrect for application • Primary cutting edge(s) are dull 	<ul style="list-style-type: none"> • Adjust speed & feed • Change to correct helix angle, use climb milling • Re-grind tool sooner
Poor Finish	<ul style="list-style-type: none"> • Feed rate too aggressive • Speed is too slow • D.O.C. too aggressive • Excessive wear 	<ul style="list-style-type: none"> • Reduce feed rate • Increase spindle speed (RPM) • Reduce axial and/or radial D.O.C. • Re-grind tool sooner
Poor Dimensional Accuracy	<ul style="list-style-type: none"> • D.O.C. too aggressive • Tool Rigidity • Machine tool rigidity 	<ul style="list-style-type: none"> • Reduce axial and/or radial D.O.C. • Use tool with more flutes • Check, inspect & repair machine tool, tool holder and fixtures

TECHNICAL INFORMATION

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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

MICRO END MILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS. FOR ALTiN COATED TOOLS INCREASE SFM +40%

SFM & CHIP LOAD										
MATERIAL / TYPE	CONDITIONS	STARTING SFM	DIAMETER RANGE - SUGGESTED CHIP LOAD PER TOOTH							
			.005-.015	.015-.030	.030-.045	.045-.060	.06-.075	.075-.090	.090-.105	.105-.125
STAINLESS STEELS										
PRECIPITATION 13-8, 15-5, 17-4PH	Slotting @ ≤10% of D	90	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
AUSTENITIC 302, 303, 304L, 316L	Slotting @ ≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MARTENSITIC 302, 303, 304L, 316L	Slotting @ ≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH TEMP ALLOYS										
COBALT BASE Stellite, Haynes 25, 188, X-40, L-605	Slotting @ 7% of D	50	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial/≤20% of D Radial	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
NICKEL BASE Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel PermaNickel 300, Incoly 600	Slotting @ 7% of D	40	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial/≤20% of D Radial	60	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
IRON BASE Incoly 800-802, Multimet N-155, Timken 16-26-6	Slotting @ 7% of D	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial/≤20% of D Radial	100	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
STEELS										
HIGH STRENGTH STEELS 4140, 4340, 52100	Slotting @ ≤15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤30% of D Radial	180	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH ALLOY STEELS MOLD & DIE A-2, P20, 01, 02, D2, H-13	Slotting @ ≤10% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MEDIUM ALLOY STEELS 200, 250, 300	Slotting @ ≤15% of D	125	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
	Profiling @ 6% of D Axial/≤30% of D Radial	250	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
LOW ALLOY STEELS MARAGING 10XX, 11XX, 13XX	Slotting @ ≤15% of D	150	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @ 6% of D Axial/≤35% of D Radial	300	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRONS										
DUCTILE IRON Ductile Cast Iron	Slotting @ ≤15% of D	100	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @ 10% of D Axial/≤25% of D Radial	250	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRON Gray Cast Iron	Slotting @ ≤25% of D	125	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
	Profiling @ 10% of D Axial/≤35% of D Radial	400	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
TITANIUMS										
TITANIUM ALLOYS 6AL-4V, ASTM 1, 2, 3, 6AL-2S For 5553, decrease SFM & IPM 25%	Slotting @ ≤15% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial/≤20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
ALUMINUM										
ALUMINUM ALLOYS 6061-T6, 7075	Slotting @ ≤15% of D	650	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"
	Profiling @ 10% of D Axial/≤35% of D Radial	775	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"

SPEED & FEED CALCULATION FORMULAS

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

PREDATOR TAPS - HIGH PERFORMANCE



SPEED CHART

MATERIAL / TYPE	HARDNESS		CUTTING SPEED (fpm)		CUTTING FLUID*
	Bhn	Rc	SPIRAL POINT	SPIRAL FLUTE	
ALUMINUM ALLOYS					
UNALLOYED - 1000 SERIES	-	-	80	60	WS, CO
CAST - 360, A380	-	-	60	45	WS, CO
WROUGHT - 2000-7000 SERIES	-	-	80	60	WS, CO
BRASS					
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60	45	WS
NAVAL, RED - C46400-C46700, C23000	-	-	60	45	WS
CAST IRON					
PEARLITIC, GRAY CAST IRON, FERRITIC - A48 CLASS 20, CLASS 25, CLASS 40	< 253	< 25	20	15	WS
MALLEABLE - ASTM A47 GRADE 32510, SAE J158 GRADE M3210	< 253	< 25	15	12	CO
NICKEL ALLOYS					
NICKEL BASE ALLOY, WROUGHT & CAST - NICKEL 200, MONEL ALLOY 400	< 253	< 25	15	12	CO
HIGH TEMPERATURE ALLOY, WROUGHT & CAST - INCONEL 600, 718, HASTALLOY B & C	253 - 390	25 - 42	10	10	CO
STEEL					
LOW CARBON - 1010, 1018, 1029, 1513, 1522	< 190	< 10	55	40	WS, CO
MEDIUM CARBON - 1030, 1040, 1045, 1050	< 208	< 15	35	25	WS, CO
HIGH CARBON - 1050, 1070, 1080, 1090, 1561, 1572	< 253	< 25	15	12	CO
HIGH STRENGTH STEEL - 4140, 4340	327 - 390	35 - 42	10	10	CO
STAINLESS STEEL					
AUSTENITIC - SAE (300 SERIES)	< 253	< 25	20	15	CO
MARTENSITIC & FERRITIC - 400 SERIES, 416, 420F, 446	253 - 301	25 - 32	15	12	CO
HARDENED - 15-5PH, 17-4PH, A286	< 327 - 390	< 35 - 42	10	10	CO
TITANIUM ALLOYS					
ALPHA & ALPHA-BETA ALLOYS ANNEALED - Ti-6Al-4V	253 - 301	25 - 32	10	10	CO
ALPHA & ALPHA-BETA ALLOYS SOLUTION TREATED & AGED - Ti-6Al-6V	327 - 390	35 - 42	8	8	CO
TOOL STEEL					
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	190 - 253	10 - 25	20	15	CO
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	327 - 390	35 - 42	15	12	CO

Your individual manufacturing conditions will greatly influence speeds.

* WS - Water Soluble
CO - Cutting Oil

In most instances cutting fluid manufacturers recommend specific fluid for different materials.

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

THREAD FORMING TAPS

SPEED CHART FOR THREAD FORMING TAPS			
MATERIAL / TYPE	HARDNESS		FORMING SPEED (fpm)
	Bhn	Rc	
ALUMINUM ALLOYS			
UNALLOYED - 1000 SERIES	-	-	80
CAST - 360, A380	-	-	60
WROUGHT - 2000-7000 SERIES	-	-	80
BRASS			
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60
NAVAL, RED - C46400-C46700, C23000	-	-	60
NICKEL ALLOYS			
NICKEL BASE ALLOY, WROUGHT & CAST - NICKEL 200, MONEL ALLOY 400	< 253	< 25	15
STEEL			
LOW CARBON - 1010, 1018, 1029, 1513, 1522	< 190	< 10	55
MEDIUM CARBON - 1030, 1040, 1045, 1050	< 208	< 15	35
HIGH CARBON - 1050, 1070, 1080, 1090, 1561, 1572	< 253	< 25	15
STAINLESS STEEL			
AUSTENITIC - SAE (300 SERIES)	< 253	< 25	20
MARTENSITIC & FERRITIC - 400 SERIES, 416, 420F, 446	253 - 301	25 - 32	15
TITANIUM ALLOYS			
ALPHA & ALPHA-BETA ALLOYS ANNEALED - Ti-6Al-4V	253 - 301	25 - 32	10
TOOL STEEL			
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	190 - 253	10 - 25	20

CALCULATING TAP DRILL SIZES - THREAD FORMING TAPS

DRILL SIZE = MAJOR DIAMETER - [(0.0068 X desired % of thread) ÷ Threads Per Inch]

DRILL SIZE (mm) = MAJOR DIAMETER - [(0.0068 X desired % of thread x Pitch (mm))]

GUIDELINES FOR USING THREAD FORMING TAPS

PRE-TAP HOLE SIZE - Thread Forming taps require a larger pre-tap hole size than a cutting tap. Tapping with too small of a pre-tap hole size results in excessive tap wear, torque and possible tap breakage.

LUBRICATION - Forming Taps require good lubrication. Cutting oils are generally preferred because of their lubricity compared to water soluble coolants.

TECHNICAL INFORMATION



Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

THREAD FORMING TAPS

TECHNICAL INFORMATION

PRE TAP HOLE SIZE				
TAP SIZE	TPI	75% THREAD	65% THREAD	NEAREST DRILL SIZE
0	80	0.054	0.055	#54 or 1.4 mm
1	64	0.066	0.067	#51 or 1.7 mm
1	72	0.067	0.068	#51 or 1.75 mm
2	56	0.078	0.079	#47 or 2.0 mm
2	64	0.079	0.080	2.0 mm
3	48	0.090	0.091	2.3 mm
3	56	0.091	0.092	2.3 mm
4	40	0.100	0.101	#39
4	48	0.103	0.104	#37
5	40	0.113	0.114	#33 or 2.9 mm
5	44	0.114	0.115	#33 or 2.9 mm
6	32	0.124	0.125	3.1 mm
6	40	0.126	0.127	1/8" or 3.2 mm
8	32	0.149	0.150	#25 or 3.8 mm
8	36	0.151	0.152	#24
10	24	0.170	0.172	11/64"
10	32	0.175	0.176	#16 or .176"
12	24	0.196	0.198	#9 or 5.0 mm
12	28	0.199	0.201	#7 or 5.1 mm
1/4	20	0.225	0.227	5.75 mm
1/4	28	0.233	0.235	"A"
5/16	18	0.285	0.287	7.25 mm
5/16	24	0.292	0.294	.293"
3/8	16	0.344	0.347	"S" or 11/32"
3/8	24	0.355	0.357	9.0 mm
7/16	14	0.402	0.405	"Y"
7/16	20	0.414	0.416	"Z" or 10.5 mm
1/2	13	0.462	0.466	.463"

PRE TAP HOLE SIZE - METRIC				
TAP SIZE	PITCH	75% THREAD	65% THREAD	NEAREST DRILL SIZE
M1.6	0.35	0.057	0.058	1.45 mm
M1.7	0.35	0.061	0.062	1.55 mm
M2	0.4	0.072	0.073	1.85 mm
M2.5	0.45	0.091	0.092	2.30 mm
M3	0.5	0.110	0.111	#35
M3.5	0.6	0.128	0.129	#30
M4	0.7	0.145	0.146	3.70 mm
M5	0.8	0.183	0.184	#14
M6	1	0.218	0.220	5.50 mm
M8	1.25	0.291	0.294	7.40 mm
M10	1.5	0.365	0.368	9.30 mm
M12	1.75	0.439	0.442	7/16"

WHERE TO USE THREAD FORMING TAPS

Materials particularly well suited for thread forming include aluminum, brass, copper, lead, stainless steel, carbon steel, cast steel, leaded steel and zinc. In general, any material which produces a stringy chip is a good candidate for cold forming threads. If the chips are powdery, the material may be too brittle. Forming taps generate threads without producing chips. The threads produced are much stronger than those created by cut taps because of the displacements of the grain of the metal in the workpiece. Cutting taps produce chips which may interfere with the tapping process.

MAJOR ADVANTAGES TO THREAD FORMING

- Chipless Tapping – no chip removal problems in blind holes.
- Stronger Threads – the grain flow of formed threads follows the contour of the thread in steel and stainless steel, resulting in greater thread strength.
- Better Thread Gaging – forming taps create their own lead therefore the possibility of producing oversized threads is greatly reduced.
- Stronger Taps – the absence for the need for flutes results in a stronger more solid tap.
- Longer Tap Life – forming taps last 3 to 20 times longer because they have no cutting edge to dull.
- More Efficient Production – longer tap life, less tap breakage and faster tapping speeds (up to 2X faster than cutting taps).
- Ideal for Non-Lead Screw Tappers – the ability to form their own lead makes forming taps well suited for NC machines or other machines without lead screws.

Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



TAKE 55% OFF LIST PRICES

GENERAL PURPOSE TAPS

MACHINE SCREW TAPS (NC & NF)

SIZE	OVERALL LENGTH	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE
#0 (.060)	1-5/8	5/16	3/16	.141	.110
#1 (.073)	1-11/16	3/8	3/16	.141	.110
#2 (.066)	1-3/4	7/16	3/16	.141	.110
#3 (.099)	1-13/16	1/2	3/16	.141	.110
#4 (.112)	1-7/8	9/16	3/16	.141	.110
#5 (.125)	1-15/16	5/8	3/16	.141	.110
#6 (.138)	2	11/16	3/16	.141	.110
#8 (.164)	2-1/8	3/4	1/4	.168	.131
#10 (.190)	2-3/8	7/8	1/4	.194	.152
#12 (.216)	2-3/8	15/16	9/32	.220	.165

FRACTIONAL SIZE TAPS (NC & NF)

SIZE	OVERALL LENGTH	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE
1/4	2-1/2	1	5/16	.255	.191
5/16	2-23/32	1-1/8	3/8	.318	.238
3/8	2-15/16	1-1/4	7/16	.381	.286
7/16	3-5/32	1-7/16	13/32	.323	.242
1/2	3-3/8	1-21/32	7/16	.367	.275
9/16	3-19/32	1-21/32	1/2	.429	.322
5/8	3-13/16	1-13/16	9/16	.480	.360
11/16	4-1/32	1-13/16	5/8	.542	.406
3/4	4-1/4	2	11/16	.590	.442
7/8	4-11/16	2-7/32	3/4	.697	.523
1	5-1/8	2-1/2	13/16	.800	.600
1-1/8	5-7/16	2-9/16	7/8	.896	.672
1-1/4	5-3/4	2-9/16	1	1.021	.766
1-3/8	6-1/16	3	1-1/16	1.108	.831
1-1/2	6-3/8	3	1-1/8	1.233	.925

PIPE TAPS - STRAIGHT & TAPER

SIZE	OVERALL LENGTH	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE
1/16 - 27	2-1/8	11/16	3/8	.3125	.234
1/8 - 27	2-1/8	3/4	3/8	.3125(SS)	.234
1/8 - 27	2-1/8	3/4	3/8	.4375(LS)	.328
1/4 - 18	2-7/16	1-1/16	7/16	.5625	.421
3/8 - 18	2-9/16	1-1/16	1/2	.7000	.531
1/2 - 14	3-1/8	1-3/8	5/8	.6875	.515
3/4 - 14	3-1/4	1-3/8	11/16	.9063	.679
1 - 11-1/2	3-3/4	1-3/4	13/16	1.1250	.843
1-1/4 - 11-1/2	4	1-3/4	15/16	1.3125	.984
1-1/2 - 11-1/2	4-1/4	1-3/4	1	1.5000	1.125
2 - 11-1/2	4-1/2	1-3/4	1-1/8	1.8750	1.406

(SS) = SMALL SHANK (LS) = LARGE SHANK

PULLEY TAPS

SIZE	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE	NECK LENGTH	GROUND LENGTH
1/4	1	5/16	.255	.191	3/8	1-1/2
5/16	1-1/8	3/8	.318	.238	3/8	1-9/16
3/8	1-1/4	7/16	.381	.286	3/8	1-5/8
7/16	1-7/16	1/2	.444	.333	7/16	1-11/16
1/2	1-21/32	9/16	.507	.380	1/2	1-11/16
5/8	1-13/16	11/16	.633	.475	5/8	2
3/4	2	3/4	.759	.569	3/4	2-1/4

SEE PAGE 167 FOR OVERALL LENGTHS AVAILABLE.

SMALL SHANK EXTENSION TAPS

SIZE	NC/NF	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE
6 - 32	NC	11/16	3/16	0.097	0.073
8 - 32	NC	3/4	1/4	0.123	0.092
10 - 24	NC	7/8	1/4	0.136	0.102
10 - 32	NF	7/8	1/4	0.136	0.102
1/4 - 20	NC	1	5/16	0.185	0.139
1/4 - 28	NF	1	5/16	0.185	0.139
5/16 - 18	NC	1-1/8	3/8	0.240	0.180
5/16 - 24	NF	1-1/8	3/8	0.240	0.180
3/8 - 16	NC	1-1/4	7/16	0.275	0.206
3/8 - 24	NF	1-1/4	7/16	0.275	0.206
7/16 - 14	NC	1-7/16	13/32	0.323	0.242
7/16 - 20	NF	1-7/16	13/32	0.323	0.242
1/2 - 13	NC	1-21/32	7/16	0.367	0.275
1/2 - 20	NF	1-21/32	7/16	0.367	0.275
5/8 - 11	NC	1-13/16	9/16	0.480	0.360
5/8 - 18	NF	1-13/16	9/16	0.480	0.360
3/4 - 10	NC	2	11/16	0.590	0.442
3/4 - 16	NF	2	11/16	0.590	0.442

METRIC TAPS

SIZE	OVERALL LENGTH	THREAD LENGTH	SQUARE LENGTH	SHANK DIAMETER	SQUARE	INCH BLANK
M1.6 x 0.35	1-5/8	5/16	3/16	.141	.110	#0
M2 x 0.40	1-3/4	7/16	3/16	.141	.110	#2
M2.5 x 0.45	1-13/16	1/2	3/16	.141	.110	#3
M3 x 0.50	1-15/16	5/8	3/16	.141	.110	#5
M3.5 x 0.60	2	11/16	3/16	.141	.110	#6
M4 x 0.70	2-1/8	3/4	1/4	.168	.131	#8
M4.5 x 0.75	2-3/8	7/8	1/4	.194	.152	#10
M5 x 0.80	2-3/8	7/8	1/4	.194	.152	#10
M6 x 1	2-1/2	1	5/16	.255	.191	1/4
M6.3 x 1	2-1/2	1	5/16	.255	.191	1/4
M7 x 1	2-23/32	1-1/8	3/8	.318	.238	5/16
M8 x 1.25	2-23/32	1-1/8	3/8	.318	.238	5/16
M10 x 1.50	2-15/16	1-1/4	7/16	.381	.286	3/8
M12 x 1.75	3-3/8	1-21/32	7/16	.367	.275	1/2
M14 x 2	3-19/32	1-21/32	1/2	.429	.322	9/16
M16 x 2	3-13/16	1-13/16	9/16	.480	.360	5/8
M18 x 2.50	4-1/32	1-13/16	5/8	.542	.406	11/16
M20 x 2.50	4-15/32	2	11/16	.652	.489	13/16
M24 x 3	4-29/32	2-7/32	3/4	.760	.570	15/16
M30 x 3.50	5-7/16	2-9/16	1	1.021	.766	1-3/16
M36 x 4	6-1/16	3	1-1/8	1.233	.925	1-7/16

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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICES

DRILLS - HIGH SPEED STEEL

ELEMENT & DIMENSIONAL TOLERANCES FOR 2, 3 & 4 FLUTE DRILLS

DIAMETER AT POINT

SIZE (INCLUSIVE)	TOLERANCE
OVER #81 TO 1/8	+0.000 TO -0.005
OVER 1/8 TO 1/4	+0.000 TO -0.007
OVER 1/4 TO 1/2	+0.000 TO -0.010
OVER 1/2 TO 1	+0.000 TO -0.012
OVER 1 TO 2	+0.000 TO -0.015
OVER 2 TO 3-1/2	+0.000 TO -0.020

SHANK DIAMETER

SIZE (INCLUSIVE)	TOLERANCE
OVER #81 TO 1/8	-0.000 TO -0.025
OVER 1/8 TO 1/4	-0.005 TO -0.030
OVER 1/4 TO 1/2	-0.005 TO -0.045
OVER 1/2 TO 2	-0.005 TO -0.030

BACK TAPER

SIZE (INCLUSIVE)	TOLERANCE PER INCH
OVER #81 TO 1/8	.0000 TO .0008
OVER 1/8 TO 1/4	.0002 TO .0008
OVER 1/4 TO 1/2	.0002 TO .0009
OVER 1/2 TO 1	.0003 TO .0011
OVER 1 TO 3-1/2	.0004 TO .0015

FLUTE LENGTH

SIZE (INCLUSIVE)	TOLERANCE
OVER #81 TO 1/8	+1/8 TO -1/16
OVER 1/8 TO 1/2	+1/8 TO -1/8
OVER 1/2 TO 1	+1/4 TO -1/8
OVER 1 TO 2	+1/4 TO -1/4
OVER 2 TO 3-1/2	+3/8 TO -3/8

OVERALL LENGTH

SIZE (INCLUSIVE)	TOLERANCE
OVER #81 TO 1/8	+1/8 TO -1/16
OVER 1/8 TO 1/2	+1/8 TO -1/8
OVER 1/2 TO 1	+1/4 TO -1/8
OVER 1 TO 2	+1/4 TO -1/4
OVER 2 TO 3-1/2	+3/8 TO -3/8

INCLUDED POINT ANGLE

SIZE (INCLUSIVE)	INCLUDED ANGLE	TOLERANCE
1/16 TO 1/2	118°	±5°
OVER 1/2 TO 1-1/2	118°	±3°
OVER 1-1/2 TO 3-1/2	118°	±2°

LIP HEIGHT

SIZE (INCLUSIVE)	TIV (TOTAL INDICATOR VARIATION)
1/16 TO 1/8	.0020
OVER 1/8 TO 1/4	.0030
OVER 1/4 TO 1/2	.0040
OVER 1/2 TO 1	.0050
OVER 1 TO 3-1/2	.0060

NOTE: 95% of drills in any one lot to fall within tolerances above.

SUGGESTED METHOD OF MEASUREMENT:

1. Rotate the drill in a vee block against a back end stop.
2. Measure the cutting lip height variation on a comparator, or with an indicator set at allocation approximately 75% of the distance from the center to the periphery of the drill.

CENTRALITY OF WEB

SIZE (INCLUSIVE)	TIV (TOTAL INDICATOR VARIATION)
1/16 TO 1/8	.0030
OVER 1/8 TO 1/4	.0040
OVER 1/4 TO 1/2	.0050
OVER 1/2 TO 1	.0070
OVER 1 TO 3-1/2	.0100

NOTE: 95% of drills in any one lot to fall within tolerances above.

SUGGESTED METHOD OF MEASUREMENT:

1. Rotate the drill in a close fitting bushing.
2. Record the difference in indicator readings of the web at the point as the drill is indexed 180°.

FLUTE SPACING

SIZE (INCLUSIVE)	TOLERANCE (TIV)	ACTUAL DEVIATION
1/16 TO 1/8	.0030	.0015
OVER 1/8 TO 1/4	.0060	.0030
OVER 1/4 TO 1/2	.0100	.0050
OVER 1/2 TO 1	.0140	.0070
OVER 1 TO 3-1/2	.0260	.0130

NOTE: 95% of drills in any one lot to fall within tolerances above.

SUGGESTED METHOD OF MEASUREMENT:

1. Place the drill in a vee block against a back end stop, and rotate it against a radial finger stop.
2. Take an indicator reading at the leading edge of the margin on the opposite flute.
3. Repeat for the other flute and note the difference between the two readings.
4. The deviation in flute spacing is equal to one-half the difference between the two readings.

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TAKE 55% OFF LIST PRICES

DRILLS - HIGH SPEED STEEL

TECHNICAL INFORMATION

MATERIAL / TYPE	SFM & CHIP LOAD												
	SFM			FEED in INCHES PER REVOLUTION (IPR) +/-25%									
	GENERAL PURPOSE	HSS HEAVY DUTY	COBALT	1/32"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"	9/16"
STEEL													
12L14, 12L15	115	115	115	.0008-.0009	.0026-.0033	.0040-.0053	.0046-.0060	.0051-.0067	.0059-.0078	.0075-.0098	.009-.0117	.0096-.0124	.0107-.0137
1005-1025, 1214, 1215, A36	98	98	98	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
1000'S, 1100'S	82	89	89	0.0007	.0020-.0022	.0029-.0033	.0033-.0038	.0037-.0043	.0043-.0050	.0054-.0063	.0065-.0075	.0070-.0081	.0080-.0091
4140, 4340, 52100, 8620, H11-H41, A2, D2, 01, P20, 420	30-66	33-79	33-79	.0006-.0007	.0015-.0020	.0021-.0029	.0024-.0033	.0027-.0037	.0031-.0043	.0039-.0054	.0047-.0065	.0051-.0070	.0059-.0080
STAINLESS STEEL													
200, 303, 416, 440	49	72	72	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
300 SERIES	26	36	36	0.0007	0.0022	0.0033	0.0038	0.0043	0.005	0.0063	0.0075	0.0081	0.0091
318-329, 400-446, DUPLEX	30	49	49	0.0006	0.0013	0.0017	0.002	0.0022	0.0025	0.0031	0.0039	0.0043	0.0049
CAST IRON													
GREY, G10, Gg40, J431C, A48 CLASS 20	79-98	92-115	92-115	.0006-.0008	.0013-.0026	.0021-.0040	.0024-.0046	.0027-.0051	.0031-.0059	.0039-.0075	.0047-.009	.0051-.0096	.0059-.0107
A220, A436, A439, A602, BLACK	66	72	72	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
BLACK Gts/Gtw, J434C	46	56	56	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
TITANIUM													
COMMERCIALLY PURE	75	92	92	0.0007	.0017-.0020	.0024-.0029	.0028-.0033	.0031-.0037	.0037-.0043	.0045-.0054	.0055-.0065	.0059-.0070	.0068-.0080
6Al4V, 6A14V-2SnMonel, Monel K	20-39	36-66	36-66	0.0006	.0011-.0015	.0015-.0021	.0016-.0024	.0018-.0027	.0021-.0031	.0026-.0039	.0031-.0047	.0035-.0051	.0041-.0059
NICKEL													
COMMERCIALLY PURE, 17644, 200, 5553	33	49	49	0.0007	0.0022	0.0033	0.0038	0.0043	0.005	0.0063	0.0075	0.0081	0.0091
Monel 400, Hastelloy C, Inconel 625, Waspalloy	20	23	23	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
Inconel 718, Nimonic 75-95, Rene 41, Inconel 825, A286	10	20	20	.0004-.0006	.0009-.0011	.0011-.0015	.0013-.0016	.0014-.0018	.0017-.0021	.0021-.0026	.0024-.0031	.0027-.0035	.0032-.0041
COPPER													
COMMERCIALLY PURE	108	125	125	.0007-.0008	.0022-.0026	.0033-.0040	.0038-.0046	.0043-.0051	.0050-.0059	.0063-.0075	.0075-.0090	.0081-.0096	.0091-.0107
BRASS, BRONZE 314-340, 350-370	115	131	131	.0007-.0008	.0020-.0030	.0029-.0047	.0033-.0053	.0037-.0059	.0043-.0068	.0054-.0087	.0065-.0104	.0070-.0110	.008-.0122
BRASS ALLOYED Cu+Al+Fe, LONG CHIPPING	89	89	89	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
High Strength Bronze	52	69	69	0.0007	.0020-.0022	.0029-.0033	.0033-.0038	.0037-.0043	.0043-.0050	.0054-.0063	.0065-.0075	.0070-.0081	.0080-.0091
ALUMINUM, MAGNESIUM													
Commercially Pure	108	108	108	0.0009	0.0033	0.0053	0.006	0.0067	0.0078	0.0098	0.0117	0.0124	0.0137
6061, T6	89-98	98	98	.0007-.0009	.0022-.0033	.0033-.0053	.0038-.0060	.0043-.0067	.0050-.0078	.0063-.0098	.0075-.0117	.0081-.0124	.0091-.0137
SYNTHETIC MATERIALS													
Thermoplastics	98	-	-	0.0009	0.0033	0.0053	0.006	0.0067	0.0078	0.0098	0.0117	0.0124	0.0137
Thermosetting Plastics	92	-	-	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
Reinforced Plastic Material	46	-	-	0.0007	0.002	0.0029	0.0033	0.0037	0.0043	0.0054	0.0065	0.007	0.008



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REAMERS - CARBIDE

CARBIDE REAMERS - SFM & CHIP LOAD

MATERIAL	SFM	FEED (IPR)
ALUMINUM / ALUMINUM ALLOYS	100 - 250	.005 - .015
ALUMINUM - HIGH SILICON	80 - 200	.003 - .012
BRASS	100 - 250	.005 - .015
BRONZE	90 - 175	.003 - .012
COPPER / COPPER ALLOYS	90 - 220	.005 - .015
CAST IRON - SOFT	80 - 200	.006 - .015
CAST IRON - MEDIUM	60 - 150	.006 - .012
CAST IRON - HARD	40 - 90	.004 - .010
MAGNESIUM	100 - 250	.005 - .015
MONEL	40 - 120	.004 - .012
STEEL - CAST & FORGED	40 - 100	.003 - .010
STEEL - HEAT TREATED (35-40 Rc)	40 - 70	.004 - .008
STEEL - HEAT TREATED (40-45 Rc)	30 - 50	.002 - .006
STEEL - HEAT TREATED (45+ Rc)	15 - 40	.001 - .004

MATERIAL	SFM	FEED (IPR)
STEEL - MEDIUM CARBON	50 - 100	.005 - .010
MOLD STEEL	40 - 120	.004 - .006
TOOL STEEL	30 - 90	.004 - .006
STAINLESS STEEL - 300 SERIES	20 - 80	.004 - .008
STAINLESS STEEL - 400 SERIES	30 - 120	.005 - .010
INCONEL	20 - 60	.001 - .005
RENE	20 - 60	.002 - .006
TITANIUM	30 - 90	.002 - .008
WASPOLOY	20 - 60	.002 - .006
EPOXY FIBER	100 - 250	.005 - .015
PLASTIC	100 - 300	.005 - .015
RESIN - FIBER GLASS	100 - 300	.005 - .015
MASONITE	60 - 150	.005 - .015
PHENOLIC	60 - 100	.005 - .015

REAMERS - HIGH SPEED STEEL

RECOMMENDED SPEEDS

MATERIAL	SFM
STEEL - ALL TYPES	
60+ Rc	8 - 12
50 - 60 Rc	15 - 30
40 - 50 Rc	20 - 40
30 - 40 Rc	35 - 65
Less than 30 Rc	60 - 90
CAST IRON & MALLEABLE IRON	50 - 85
NON-FERROUS	
ALUMINUM, BRASS, BRONZE, COPPER	90 - 175
FIBER, PLASTIC, HARD RUBBER, etc.	90 - 175

Work piece hardness and machinability must be considered when setting machine speed. The feed rate plays an important part in the life expectancy of a tool and the hole finish which one is looking to attain. Improper feed rate can cause excessive tool wear as well as an inadequate hole finish.

To eliminate chatter, slow cutting speed and increase feed appropriately. Stock removal on roughing operations should not exceed 2 to 4 percent of tool diameter in most cases. Stock removal recommendations on finishing operations are .002 to .004.

For best results with brass, cast iron and some plastics, use a Left-Hand Spiral-Fluted reamer with negative shear action. This type of reamer helps prevent chips from working back into the flutes and scoring the hole. In all reaming operations, use constant-flow coolants. Soluble oil is effective for most metals; however, sulphur-based oils are recommended for stainless and certain alloy steels. Lard oil and kerosene improve the finish on aluminum.

RECOMMENDED FEEDS

MATERIAL	FEED (IPR)
STEEL - ALL TYPES	
50+ Rc	.002 - .004
30 - 50 Rc	.004 - .008
CAST IRON & MALLEABLE IRON	.005 - .012
NON-FERROUS	
ALUMINUM, BRASS, BRONZE, COPPER	.005 - .012
FIBER, PLASTIC, HARD RUBBER, etc.	.005 - .012

RECOMMENDED STOCK REMOVAL

REAMER DIAMETER	REMOVAL (Inches)
Up to 1/16" incl.	.003 - .005
Over 1/16" to 1/8" incl.	.004 - .008
Over 1/8" to 1/4" incl.	.006 - .012
Over 1/4" to 3/8" incl.	.008 - .014
Over 3/8" to 1/2" incl.	.010 - .015
Over 1/2" to 3/4" incl.	.012 - .018

RECOMMENDED LUBRICANTS

MATERIAL	LUBRICANT
Steel harder than 50 Rc	Light Oil
Steel softer than 50 Rc	Light Oil for good finishes or Soluable Oil and Water
Cast Iron & Malleable Iron	Soluable Oil and Water
Non-Ferrous Materials	Soluable Oil and Water

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