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

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LIST PRICE!

END MILLS  
MICRO END MILLS  
CHAMFER MILLS  
COUNTERSINKS  
THREAD MILLS  
DRILL MILLS  
TAPS & DIES  
REAMERS  
DRILLS  
BURS



MADE IN THE U.S.A.

2018 MASTER CATALOG  
REFINEMENTS



**MADE IN THE U.S.A.**

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 48 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
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- No Minimum Order
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- 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 [titancuttingtools.com](http://titancuttingtools.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 within 15 minutes. 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



## Our inventory is your inventory

- 18,000 sq/ft of world class distribution space
- Over 300 Lista® cabinets to accommodate all existing and future inventory.
- Multiple work-stations to handle customer requirements, reducing valuable wait times.
- 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.

Many of our customers prefer to place their orders online through our easy-to-use Titan USA website at: [titancuttingtools.com](http://titancuttingtools.com)

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

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

- 5 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 five 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.

# ation



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



During the cleaning process, PLATIT's degasser vaporizes oils and fluids from blind or coolant feed holes. This process also removes trapped gasses from brazed cutting tools, ensuring 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. After the coating is applied, it receives a post-polish treatment to smooth out the coating to maximize chip evacuation at even higher speeds and feeds.

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 Technology

## Post Polish Department

We've adapted a post-coating polish system that buffs our premium ALCRO-MAX coating to a microscopically smooth finish to allow cooler temperatures at higher speeds with better chip evacuation. What does all this mean? A longer lasting, better cutting tool.



## Inspection Department

Quality tools are our priority at Titan USA. We have the latest technology to ensure our tools meet or exceed industry standards. Our Zoller Genius 3 provides quick testing from individual dimensions to complete fully automatic operator independent inspection. All measurement results are recorded and fully documented in our system.

## R&D Center

Our in house VF2 SS HAAS machining center allows us to always be looking into the future. We can test and prove new cutting tool geometries along with new PVD coatings in all materials. Additionally, we can use this technology to train our staff on Milling, Drilling, Tapping, Reaming along with general machining techniques. We also are using this important resource to manufacture parts for our coating center and post polish departments.



## 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@titancuttingtools.com](mailto:quotes@titancuttingtools.com)

## HIGH PERFORMANCE CARBIDE END MILLS

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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.**

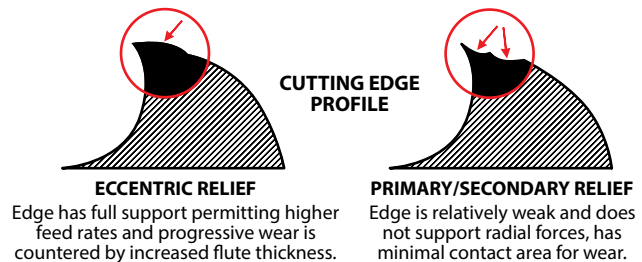
- Post polished ALCRO-MAX coating covers a wide range of materials
- Made in the USA from premium micrograin carbide
- Used in all slotting, roughing, profiling and finishing applications
- High Performance, chatter free machining provides versatility in use for all ferrous materials
- Designed for use 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
- Recommended for slotting up to 1 x Diameter



**3 on-site Otec Post Polish machines**

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.



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## VI-PRO VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - SQUARE END



**TAKE 55% OFF  
LIST PRICE!**

**SERIES V42S**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	4	TC21133	27.01	-	-
3/16	3/16	3/8	2	4	TC21136	34.75	-	-
1/4	1/4	3/8	2	4	TC21139	39.32	-	-
5/16	5/16	7/16	2	4	TC21142	57.20	-	-
3/8	3/8	1/2	2	4	TC21145	63.41	-	-
7/16	7/16	5/8	2-1/2	4	TC21147	82.60	-	-
1/2	1/2	5/8	2-1/2	4	TC21148	94.81	TC21173	100.21
5/8	5/8	3/4	3	4	TC21151	186.66	TC21176	192.05
3/4	3/4	1	3	4	TC21154	246.18	TC21179	251.57

4 FLUTE - REGULAR LENGTH - SQUARE END



**SERIES V42R**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/2	2	4	TC21821	32.27	-	-
3/16	3/16	9/16	2	4	TC21824	36.89	-	-
1/4	1/4	3/4	2-1/2	4	TC21827	46.82	-	-
5/16	5/16	13/16	2-1/2	4	TC21830	62.00	-	-
3/8	3/8	1	2-1/2	4	TC21833	72.63	-	-
7/16	7/16	1	2-3/4	4	TC21835	90.07	-	-
1/2	1/2	1	3	4	TC21836	108.95	TC21863	114.35
1/2	1/2	1-1/4	3	4	TC21839	108.95	TC21866	114.35
5/8	5/8	1-5/8	3-1/2	4	TC21842	197.23	TC21869	202.63
3/4	3/4	1-5/8	4	4	TC21845	272.51	TC21872	277.91
1	1	2	4	4	TC21848	508.70	TC21875	514.10

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 215-217.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6
5/8" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## VI-PRO

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	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	4	TC23201	53.32	-	-
5/16	5/16	1-1/8	3	4	TC23204	73.77	-	-
3/8	3/8	1-1/4	3	4	TC23207	99.08	-	-
7/16	7/16	2	4	4	TC23209	125.67	-	-
1/2	1/2	1-1/2	4	4	TC23210	136.80	TC23331	142.19
1/2	1/2	2	4	4	TC23213	151.69	TC23334	157.08
5/8	5/8	2-1/4	5	4	TC23216	282.12	TC23337	287.51
3/4	3/4	2-1/4	5	4	TC23219	341.37	TC23340	346.76
1	1	2-1/4	5	4	TC23222	562.61	TC23343	568.01

4 FLUTE - EXTRA LONG LENGTH - SQUARE END



**SERIES V42XL**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC24408	63.70	-	-
3/8	3/8	2	4	4	TC24411	111.65	-	-
7/16	7/16	3	6	4	TC24413	183.07	-	-
1/2	1/2	3	6	4	TC24414	213.91	TC24543	219.30
5/8	5/8	3	6	4	TC24417	304.24	TC24546	309.64
3/4	3/4	3	6	4	TC24420	401.59	TC24549	406.99
3/4	3/4	4	7	4	TC24423	659.48	TC24552	664.87
1	1	3	6	4	TC24426	654.73	TC24555	660.12
1	1	4-1/4	7	4	TC24429	966.51	TC24558	972.30

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 215-217.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6

VI-PRO - 4 FLUTE  
VI-PRO - 5 FLUTE  
VI-PRO - 6 FLUTE  
THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH -  CORNER RADIUS



**TAKE 55% OFF LIST PRICE!**

**SERIES V42SR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	4	0.008	TC21503	31.13	-	-
3/16	3/16	3/8	2	4	0.008	TC21506	38.87	-	-
1/4	1/4	3/8	2	4	0.015	TC21509	45.82	-	-
5/16	5/16	7/16	2	4	0.015	TC21512	61.68	-	-
3/8	3/8	1/2	2	4	0.015	TC21515	67.88	-	-
7/16	7/16	5/8	2-1/2	4	0.030	TC21517	86.99	-	-
1/2	1/2	5/8	2-1/2	4	0.030	TC21518	103.77	TC21541	109.17
5/8	5/8	3/4	3	4	0.030	TC21521	195.61	TC21544	201.01
3/4	3/4	1	3	4	0.030	TC21524	255.13	TC21547	260.53



*All TITAN USA tools are 100% Made in the USA*

**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 215-217.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 3/4"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



4 FLUTE - REGULAR LENGTH -  CORNER RADIUS



**SERIES V42RR**  
ALCRO-MAX COATED

**TAKE 55% OFF  
LIST PRICE!**

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/2	2	4	0.010	TC22617	36.39	-	-
1/8	1/8	1/2	2	4	0.020	TC22620	36.39	-	-
1/8	1/8	1/2	2	4	0.030	TC22623	36.39	-	-
3/16	3/16	9/16	2	4	0.010	TC22626	41.01	-	-
3/16	3/16	9/16	2	4	0.020	TC22629	41.01	-	-
3/16	3/16	9/16	2	4	0.030	TC22632	41.01	-	-
1/4	1/4	3/4	2-1/2	4	0.015	TC22635	50.94	-	-
1/4	1/4	3/4	2-1/2	4	0.030	TC22638	50.94	-	-
1/4	1/4	3/4	2-1/2	4	0.060	TC22641	50.94	-	-
5/16	5/16	13/16	2-1/2	4	0.015	TC22644	65.62	-	-
5/16	5/16	13/16	2-1/2	4	0.030	TC22647	65.62	-	-
5/16	5/16	13/16	2-1/2	4	0.060	TC22650	65.62	-	-
3/8	3/8	1	2-1/2	4	0.015	TC22653	76.63	-	-
3/8	3/8	1	2-1/2	4	0.030	TC22656	76.63	-	-
3/8	3/8	1	2-1/2	4	0.060	TC22659	76.63	-	-
7/16	7/16	1	2-3/4	4	0.015	TC22660	100.00	-	-
7/16	7/16	1	2-3/4	4	0.030	TC22661	100.00	-	-
7/16	7/16	1	2-3/4	4	0.060	TC22663	100.00	-	-
1/2	1/2	1	3	4	0.015	TC22662	122.42	TC22801	128.54
1/2	1/2	1	3	4	0.030	TC22665	122.42	TC22804	128.54
1/2	1/2	1	3	4	0.060	TC22668	122.42	TC22807	128.54
1/2	1/2	1	3	4	0.090	TC22671	122.42	TC22810	128.54
1/2	1/2	1	3	4	0.120	TC22674	122.42	TC22813	128.54
1/2	1/2	1-1/4	3	4	0.015	TC22677	122.42	TC22816	128.54
1/2	1/2	1-1/4	3	4	0.030	TC22680	122.42	TC22819	128.54
1/2	1/2	1-1/4	3	4	0.060	TC22683	122.42	TC22822	128.54
1/2	1/2	1-1/4	3	4	0.090	TC22686	122.42	TC22825	128.54
1/2	1/2	1-1/4	3	4	0.120	TC22689	122.42	TC22828	128.54
5/8	5/8	1-5/8	3-1/2	4	0.030	TC22692	206.24	TC22831	211.64
5/8	5/8	1-5/8	3-1/2	4	0.060	TC22695	206.24	TC22834	211.64
5/8	5/8	1-5/8	3-1/2	4	0.090	TC22698	206.24	TC22837	211.64
5/8	5/8	1-5/8	3-1/2	4	0.120	TC22701	206.24	TC22840	211.64
3/4	3/4	1-5/8	4	4	0.030	TC22704	286.00	TC22843	291.40
3/4	3/4	1-5/8	4	4	0.060	TC22707	286.00	TC22846	291.40
3/4	3/4	1-5/8	4	4	0.090	TC22710	286.00	TC22849	291.40
3/4	3/4	1-5/8	4	4	0.120	TC22713	286.00	TC22852	291.40
3/4	3/4	1-5/8	4	4	0.190	TC22714	286.00	TC22853	291.40
3/4	3/4	1-5/8	4	4	0.250	TC22715	286.00	TC22854	291.40
1	1	2	4	4	0.030	TC22716	522.20	TC22855	527.59
1	1	2	4	4	0.060	TC22719	522.20	TC22858	527.59
1	1	2	4	4	0.090	TC22722	522.20	TC22861	527.59
1	1	2	4	4	0.120	TC22725	522.20	TC22864	527.59
1	1	2	4	4	0.190	TC22728	522.20	TC22867	527.59
1	1	2	4	4	0.250	TC22731	522.20	TC22870	527.59

For coating information see page 6. For VI-PRO technical information, please see pages 215-217.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6	+ .001, -.001
5/8" - 3/4"	+ .000, -.003	-.0001, -.0004 ISO H6	+ .001, -.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH -  CORNER RADIUS



**TAKE 55% OFF LIST PRICE!**

**SERIES V42LR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	4	0.015	TC23820	57.44	-	-
1/4	1/4	1-1/8	3	4	0.030	TC23823	57.44	-	-
5/16	5/16	1-1/8	3	4	0.015	TC23826	78.25	-	-
5/16	5/16	1-1/8	3	4	0.030	TC23829	78.25	-	-
3/8	3/8	1-1/4	3	4	0.030	TC23832	103.55	-	-
3/8	3/8	1-1/4	3	4	0.060	TC23835	103.55	-	-
7/16	7/16	2	4	4	0.030	TC23836	133.00	-	-
7/16	7/16	2	4	4	0.060	TC23837	133.00	-	-
1/2	1/2	1-1/2	4	4	0.030	TC23838	145.75	TC23905	151.15
1/2	1/2	1-1/2	4	4	0.060	TC23841	145.75	TC23908	151.15
1/2	1/2	2	4	4	0.030	TC23844	160.65	TC23911	166.04
1/2	1/2	2	4	4	0.060	TC23847	160.65	TC23914	166.04
5/8	5/8	2-1/4	5	4	0.030	TC23850	291.07	TC23917	296.47
5/8	5/8	2-1/4	5	4	0.060	TC23853	291.07	TC23920	296.47
3/4	3/4	2-1/4	5	4	0.030	TC23856	366.54	TC23923	373.56
3/4	3/4	2-1/4	5	4	0.060	TC23859	366.54	TC23926	373.56
1	1	2-1/4	5	4	0.030	TC23862	571.57	TC23929	576.97
1	1	2-1/4	5	4	0.060	TC23865	571.57	TC23932	576.97



*PVD coatings increase cutting tool performance*

**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 215-217.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6	+ .001, -.001
5/8" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6	+ .001, -.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - EXTRA LONG LENGTH -  CORNER RADIUS



**SERIES V42XLR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/2	4	4	0.015	TC25217	69.90	-	-
1/4	1/4	1-1/2	4	4	0.030	TC25220	69.90	-	-
3/8	3/8	2	4	4	0.030	TC25223	118.39	-	-
3/8	3/8	2	4	4	0.060	TC25226	118.39	-	-
7/16	7/16	3	6	4	0.030	TC25227	187.51	-	-
7/16	7/16	3	6	4	0.060	TC25228	187.51	-	-
1/2	1/2	3	6	4	0.030	TC25229	220.65	TC25302	226.05
1/2	1/2	3	6	4	0.060	TC25232	220.65	TC25305	226.05
5/8	5/8	3	6	4	0.030	TC25235	310.93	TC25308	316.33
5/8	5/8	3	6	4	0.060	TC25238	310.93	TC25311	316.33
3/4	3/4	3	6	4	0.030	TC25241	410.55	TC25314	415.94
3/4	3/4	3	6	4	0.060	TC25244	410.55	TC25317	415.94
3/4	3/4	4	7	4	0.030	TC25247	668.43	TC25320	673.83
3/4	3/4	4	7	4	0.060	TC25250	668.43	TC25323	673.83
1	1	3	6	4	0.030	TC25253	672.00	TC25326	677.39
1	1	3	6	4	0.060	TC25256	672.00	TC25329	677.39
1	1	4-1/4	7	4	0.030	TC25259	975.77	TC25332	981.56
1	1	4-1/4	7	4	0.060	TC25262	975.77	TC25335	981.56



TITAN USA - America's tooling partner for over 48 years

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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 215-217.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.000, -.002	-.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 1"	+0.000, -.003	-.0001, -.0004 ISO H6	+0.001, -.001

VI-PRO - 4 FLUTE  
VI-PRO - 5 FLUTE  
VI-PRO - 6 FLUTE  
THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - BALL NOSE



SERIES V42SB  
ALCRO-MAX COATED

**TAKE 55% OFF  
LIST PRICE!**

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	4	TC25499	31.16	-	-
3/16	3/16	3/8	2	4	TC25501	44.52	-	-
1/4	1/4	3/8	2	4	TC25502	50.60	-	-
5/16	5/16	7/16	2	4	TC25504	66.00	-	-
3/8	3/8	1/2	2	4	TC25506	73.16	-	-
7/16	7/16	5/8	2-1/2	4	TC25507	98.50	-	-
1/2	1/2	5/8	2-1/2	4	TC25508	109.40	TC25514	115.62
5/8	5/8	3/4	3	4	TC25510	215.37	TC25516	221.60
3/4	3/4	1	3	4	TC25512	284.05	TC25518	290.27

4 FLUTE - REGULAR LENGTH - BALL NOSE



SERIES V42RB  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/8	1/8	1/2	2	4	TC25547	44.32	-	-
3/16	3/16	9/16	2	4	TC25549	48.99	-	-
1/4	1/4	3/4	2-1/2	4	TC25550	59.12	-	-
5/16	5/16	13/16	2-1/2	4	TC25552	71.55	-	-
3/8	3/8	1	2-1/2	4	TC25554	83.81	-	-
7/16	7/16	1	2-3/4	4	TC25555	114.64	-	-
1/2	1/2	1	3	4	TC25556	125.72	TC25566	131.94
1/2	1/2	1-1/4	3	4	TC25558	125.72	TC25568	131.94
5/8	5/8	1-5/8	3-1/2	4	TC25560	227.58	TC25570	233.81
3/4	3/4	1-5/8	4	4	TC25562	314.43	TC25572	320.66
1	1	2	4	4	TC25564	586.97	TC25574	593.19

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 215-217.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -.0004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -.0004 ISO H6

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - BALL NOSE



**SERIES V42LB**  
ALCRO-MAX COATED

**TAKE 55% OFF LIST PRICE!**

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	4	TC25602	61.52	-	-
5/16	5/16	1-1/8	3	4	TC25604	85.12	-	-
3/8	3/8	1-1/4	3	4	TC25606	114.31	-	-
7/16	7/16	2	4	4	TC25607	142.46	-	-
1/2	1/2	1-1/2	4	4	TC25608	157.84	TC25618	164.06
1/2	1/2	2	4	4	TC25610	175.03	TC25620	181.25
5/8	5/8	2-1/4	5	4	TC25612	325.52	TC25622	331.74
3/4	3/4	2-1/4	5	4	TC25614	393.89	TC25624	400.11
1	1	2-1/4	5	4	TC25616	649.17	TC25626	655.39

4 FLUTE - EXTRA LONG LENGTH - BALL NOSE



**SERIES V42XLB**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	4	TC25656	88.89	-	-
3/8	3/8	2	4	4	TC25658	128.83	-	-
7/16	7/16	3	6	4	TC25659	211.25	-	-
1/2	1/2	3	6	4	TC25660	246.81	TC25672	253.04
5/8	5/8	3	6	4	TC25662	351.04	TC25674	357.28
3/4	3/4	3	6	4	TC25664	463.38	TC25676	469.60
3/4	3/4	4	7	4	TC25666	760.93	TC25678	767.17
1	1	3	6	4	TC25668	755.45	TC25680	761.68
1	1	4-1/4	7	4	TC25670	1115.20	TC25682	1121.88

**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 215-217.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6
5/8" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6

VI-PRO - 4 FLUTE  
VI-PRO - 5 FLUTE  
VI-PRO - 6 FLUTE  
THREAD MILLS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 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	# OF FLUTES	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	5	TC25807	29.70	-	-
3/16	3/16	3/8	2	5	TC25809	38.22	-	-
1/4	1/4	3/8	2	5	TC25796	43.25	-	-
5/16	5/16	7/16	2	5	TC25797	62.92	-	-
3/8	3/8	1/2	2	5	TC25798	69.75	-	-
1/2	1/2	5/8	2-1/2	5	TC25799	104.29	TC25802	110.22
5/8	5/8	3/4	3	5	TC25800	205.32	TC25803	211.26
3/4	3/4	1	3	5	TC25801	270.79	TC25804	276.73

5 FLUTE - REGULAR LENGTH - SQUARE END



SERIES V52R

ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/2	2	5	TC25829	35.50	-	-
3/16	3/16	9/16	2	5	TC25835	40.58	-	-
1/4	1/4	3/4	2-1/2	5	TC25836	51.51	-	-
5/16	5/16	13/16	2-1/2	5	TC25838	68.21	-	-
3/8	3/8	1	2-1/2	5	TC25840	79.90	-	-
1/2	1/2	1	3	5	TC25842	119.85	TC25852	125.79
1/2	1/2	1-1/4	3	5	TC25844	119.85	TC25854	125.79
5/8	5/8	1-5/8	3-1/2	5	TC25846	216.96	TC25856	222.90
3/4	3/4	1-5/8	4	5	TC25848	299.76	TC25858	305.69
1	1	2	4	5	TC25850	559.58	TC25860	565.52

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 215, 218-219.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -.0004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -.0004 ISO H6

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## 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	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/8	3	5	TC25888	58.65	-	-
5/16	5/16	1-1/8	3	5	TC25890	81.14	-	-
3/8	3/8	1-1/4	3	5	TC25892	108.98	-	-
1/2	1/2	1-1/2	4	5	TC25894	150.47	TC25904	156.40
1/2	1/2	2	4	5	TC25896	166.86	TC25906	172.79
5/8	5/8	2-1/4	5	5	TC25898	310.32	TC25908	316.26
3/4	3/4	2-1/4	5	5	TC25900	375.50	TC25910	381.44
1	1	2-1/4	5	5	TC25902	618.88	TC25912	624.80

5 FLUTE - EXTRA LONG LENGTH - SQUARE END



**SERIES V52XL**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	5	TC25942	70.06	-	-
3/8	3/8	2	4	5	TC25944	122.82	-	-
1/2	1/2	3	6	5	TC25946	235.30	TC25958	241.23
5/8	5/8	3	6	5	TC25948	334.66	TC25960	340.60
3/4	3/4	3	6	5	TC25950	441.76	TC25962	447.68
3/4	3/4	4	7	5	TC25952	725.41	TC25964	731.36
1	1	3	6	5	TC25954	720.19	TC25966	726.13
1	1	4-1/4	7	5	TC25956	1063.16	TC25968	1069.53

**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 215, 218-219.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -.0004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -.0004 ISO H6

VI-PRO - 4 FLUTE  
 VI-PRO - 5 FLUTE  
 VI-PRO - 6 FLUTE  
 THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - STUB LENGTH -  CORNER RADIUS



 CORNER RADIUS

**TAKE 55% OFF LIST PRICE!**

**SERIES V52SR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/8	1/8	1/4	1-1/2	5	0.008	TC25995	34.24	-	-
3/16	3/16	3/8	2	5	0.008	TC25996	42.76	-	-
1/4	1/4	3/8	2	5	0.015	TC25986	50.41	-	-
5/16	5/16	7/16	2	5	0.015	TC25987	67.85	-	-
3/8	3/8	1/2	2	5	0.015	TC25988	74.68	-	-
1/2	1/2	5/8	2-1/2	5	0.030	TC25989	114.15	TC25992	120.08
5/8	5/8	3/4	3	5	0.030	TC25990	215.18	TC25993	221.11
3/4	3/4	1	3	5	0.030	TC25991	280.65	TC25994	286.58



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

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 215, 218-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -.002	-.0001, -.0004 ISO H6	+0.01, -.001
5/8" - 3/4"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.01, -.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - REGULAR LENGTH - CORNER RADIUS



SERIES V52RR  
ALCRO-MAX COATED

**TAKE 55% OFF  
LIST PRICE!**

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	3/4	2-1/2	5	0.015	TC26416	56.03	-	-
1/4	1/4	3/4	2-1/2	5	0.030	TC26419	56.03	-	-
1/4	1/4	3/4	2-1/2	5	0.060	TC26422	56.03	-	-
5/16	5/16	13/16	2-1/2	5	0.015	TC26425	72.18	-	-
5/16	5/16	13/16	2-1/2	5	0.030	TC26428	72.18	-	-
5/16	5/16	13/16	2-1/2	5	0.060	TC26431	72.18	-	-
3/8	3/8	1	2-1/2	5	0.015	TC26434	84.29	-	-
3/8	3/8	1	2-1/2	5	0.030	TC26437	84.29	-	-
3/8	3/8	1	2-1/2	5	0.060	TC26440	84.29	-	-
1/2	1/2	1	3	5	0.015	TC26443	134.66	TC26625	141.39
1/2	1/2	1	3	5	0.030	TC26446	134.66	TC26628	141.39
1/2	1/2	1	3	5	0.060	TC26449	134.66	TC26631	141.39
1/2	1/2	1	3	5	0.090	TC26452	134.66	TC26634	141.39
1/2	1/2	1	3	5	0.120	TC26455	134.66	TC26637	141.39
1/2	1/2	1-1/4	3	5	0.015	TC26458	134.66	TC26640	141.39
1/2	1/2	1-1/4	3	5	0.030	TC26461	134.66	TC26643	141.39
1/2	1/2	1-1/4	3	5	0.060	TC26464	134.66	TC26646	141.39
1/2	1/2	1-1/4	3	5	0.090	TC26467	134.66	TC26649	141.39
1/2	1/2	1-1/4	3	5	0.120	TC26470	134.66	TC26652	141.39
5/8	5/8	1-5/8	3-1/2	5	0.030	TC26473	226.87	TC26655	232.81
5/8	5/8	1-5/8	3-1/2	5	0.060	TC26476	226.87	TC26658	232.81
5/8	5/8	1-5/8	3-1/2	5	0.090	TC26479	226.87	TC26661	232.81
5/8	5/8	1-5/8	3-1/2	5	0.120	TC26482	226.87	TC26664	232.81
3/4	3/4	1-5/8	4	5	0.030	TC26485	314.60	TC26667	320.54
3/4	3/4	1-5/8	4	5	0.060	TC26488	314.60	TC26670	320.54
3/4	3/4	1-5/8	4	5	0.090	TC26491	314.60	TC26673	320.54
3/4	3/4	1-5/8	4	5	0.120	TC26494	314.60	TC26676	320.54
3/4	3/4	1-5/8	4	5	0.190	TC26495	314.60	TC26677	320.54
3/4	3/4	1-5/8	4	5	0.250	TC26496	314.60	TC26678	320.54
1	1	2	4	5	0.030	TC26497	574.41	TC26679	580.35
1	1	2	4	5	0.060	TC26500	574.41	TC26682	580.35
1	1	2	4	5	0.090	TC26503	574.41	TC26685	580.35
1	1	2	4	5	0.120	TC26506	574.41	TC26688	580.35
1	1	2	4	5	0.190	TC26507	574.41	TC26689	580.35
1	1	2	4	5	0.250	TC26508	574.41	TC26690	580.35

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 215, 218-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - LONG LENGTH -  CORNER RADIUS



**TAKE 55% OFF LIST PRICE!**



**SERIES V52LR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	5	0.015	TC27109	63.18	-	-
1/4	1/4	1-1/8	3	5	0.030	TC27112	63.18	-	-
5/16	5/16	1-1/8	3	5	0.015	TC27115	86.07	-	-
5/16	5/16	1-1/8	3	5	0.030	TC27118	86.07	-	-
3/8	3/8	1-1/4	3	5	0.030	TC27121	113.91	-	-
3/8	3/8	1-1/4	3	5	0.060	TC27124	113.91	-	-
1/2	1/2	2	4	5	0.030	TC27127	176.71	TC27262	182.65
1/2	1/2	2	4	5	0.060	TC27130	176.71	TC27265	182.65
5/8	5/8	2-1/4	5	5	0.030	TC27133	320.18	TC27268	326.12
5/8	5/8	2-1/4	5	5	0.060	TC27136	320.18	TC27271	326.12
3/4	3/4	2-1/4	5	5	0.030	TC27139	403.19	TC27274	410.91
3/4	3/4	2-1/4	5	5	0.060	TC27142	403.19	TC27277	410.91
1	1	2-1/4	5	5	0.030	TC27145	628.73	TC27280	634.66
1	1	2-1/4	5	5	0.060	TC27148	628.73	TC27283	634.66



Preparing tools in our state-of-the-art PVD Coating Center

For coating information see page 6. For VI-PRO technical information, please see pages 215, 218-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -.002	-.0001, -.0004 ISO H6	+0.01, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.01, -.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## VI-PRO

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	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/2	4	5	0.015	TC27928	76.89	-	-
1/4	1/4	1-1/2	4	5	0.030	TC27931	76.89	-	-
3/8	3/8	2	4	5	0.030	TC27934	130.23	-	-
3/8	3/8	2	4	5	0.060	TC27937	130.23	-	-
1/2	1/2	3	6	5	0.030	TC27940	242.72	TC28002	248.65
1/2	1/2	3	6	5	0.060	TC27943	242.72	TC28005	248.65
5/8	5/8	3	6	5	0.030	TC27946	342.03	TC28008	347.96
5/8	5/8	3	6	5	0.060	TC27949	342.03	TC28011	347.96
3/4	3/4	3	6	5	0.030	TC27952	451.60	TC28014	457.54
3/4	3/4	3	6	5	0.060	TC27955	451.60	TC28017	457.54
3/4	3/4	4	7	5	0.030	TC27958	735.28	TC28020	741.21
3/4	3/4	4	7	5	0.060	TC27961	735.28	TC28023	741.21
1	1	3	6	5	0.030	TC27964	739.19	TC28026	745.13
1	1	3	6	5	0.060	TC27967	739.19	TC28029	745.13
1	1	4-1/4	7	5	0.030	TC27970	1073.35	TC28032	1079.71
1	1	4-1/4	7	5	0.060	TC27973	1073.35	TC28035	1079.71



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

For coating information see page 6. For VI-PRO technical information, please see pages 215, 218-219.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
5/8" - 1"	+0.00, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## VI-PRO VARIABLE INDEX GEOMETRY

6 FLUTE - REGULAR LENGTH - SQUARE END



**SERIES V62R**  
ALCRO-MAX COATED

**TAKE 55% OFF  
LIST PRICE!**

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	3/4	2-1/2	6	TC64516	91.54	-	-
5/16	5/16	13/16	2-1/2	6	TC64520	108.71	-	-
3/8	3/8	1	2-1/2	6	TC64524	117.15	-	-
1/2	1/2	1-1/4	3	6	TC64532	156.64	TC64579	164.47
5/8	5/8	1-5/8	3-1/2	6	TC64540	261.04	TC64581	268.86
3/4	3/4	1-5/8	4	6	TC64548	327.67	TC64583	337.48
1	1	2	4	6	TC64564	501.86	TC64585	511.89

6 FLUTE - REGULAR LENGTH -  CORNER RADIUS



**SERIES V62RR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	3/4	2-1/2	6	0.015	TC67116	102.17	-	-
5/16	5/16	13/16	2-1/2	6	0.015	TC67120	121.39	-	-
3/8	3/8	1	2-1/2	6	0.015	TC67124	130.84	-	-
1/2	1/2	1-1/4	3	6	0.030	TC67132	174.90	TC67184	183.63
5/8	5/8	1-5/8	3-1/2	6	0.030	TC67140	278.78	TC67186	287.13
3/4	3/4	1-5/8	4	6	0.060	TC67148	349.94	TC67188	360.43
1	1	2	4	6	0.060	TC67164	535.95	TC67190	552.03

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 215, 220-221.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+ .000, -.002	-.0001, -.0004 ISO H6	+ .001, -.001

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## VI-PRO

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	# OF FLUTES		ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	6		TC61316	100.91	-	-
5/16	5/16	1-1/8	3	6		TC61320	117.75	-	-
3/8	3/8	1-1/4	3	6		TC61324	133.81	-	-
1/2	1/2	2	4	6		TC61332	208.13	TC61384	218.53
5/8	5/8	2-1/4	5	6		TC61340	323.32	TC61386	333.03
3/4	3/4	2-1/4	5	6		TC61348	403.78	TC61388	415.89
1	1	3	6	6		TC61364	818.37	TC61390	834.73

6 FLUTE - LONG LENGTH -  CORNER RADIUS



**SERIES V62LR**  
ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★						ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD		ITEM #	LIST PRICE	ITEM #	LIST PRICE
1/4	1/4	1-1/8	3	6	0.015		TC61216	112.69	-	-
5/16	5/16	1-1/8	3	6	0.015		TC61220	131.47	-	-
3/8	3/8	1-1/4	3	6	0.015		TC61224	149.43	-	-
1/2	1/2	2	4	6	0.030		TC61232	232.38	TC61287	243.98
5/8	5/8	2-1/4	5	6	0.030		TC61240	345.29	TC61289	355.67
3/4	3/4	2-1/4	5	6	0.060		TC61248	431.22	TC61291	444.17
1	1	3	6	6	0.060		TC61264	873.96	TC61293	891.45

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 215, 220-221.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01

# Carbide Thread Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

INTERNAL/EXTERNAL - UN THREADS



**SERIES 840**  
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	LIST PRICE
2-56	1/8	0.065	0.125	2	3	TC83995	166.24
4-40	1/8	0.085	0.180	2	3	TC83998	166.24
6-32	1/8	0.100	0.218	2	3	TC84001	178.15
8-32	1/8	0.115	0.250	2	3	TC84003	178.15
8-36	1/8	0.115	0.250	2	3	TC84005	178.15
10-24	3/16	0.120	0.312	2	3	TC84007	178.15
10-32	3/16	0.120	0.312	2	3	TC84009	178.15
1/4-20	3/16	0.180	0.500	2-1/2	3	TC84011	201.50
1/4-28	3/16	0.180	0.500	2-1/2	3	TC84013	201.50
5/16-18	1/4	0.240	0.625	2-1/2	3	TC84015	237.13
5/16-24	1/4	0.240	0.625	2-1/2	3	TC84017	237.13
3/8-16	5/16	0.290	0.750	3	4	TC84019	282.55
3/8-24	5/16	0.290	0.750	3	4	TC84021	282.55
7/16-14	3/8	0.340	0.875	3	4	TC84023	304.69
7/16-20	3/8	0.340	0.875	3	4	TC84025	304.69
1/2-13	3/8	0.350	0.875	3-1/2	4	TC84027	304.69
1/2-20	3/8	0.350	0.875	3-1/2	4	TC84029	304.69
9/16-12	1/2	0.370	0.875	3-1/2	4	TC84031	304.69
9/16-18	1/2	0.370	0.875	3-1/2	4	TC84033	304.69
5/8-11	1/2	0.470	1.250	3-1/2	5	TC84035	380.86
5/8-18	1/2	0.470	1.250	3-1/2	5	TC84037	380.86
3/4-10	1/2	0.495	1.250	3-1/2	5	TC84039	380.86
3/4-16	1/2	0.495	1.250	3-1/2	5	TC84041	380.86
7/8-9	5/8	0.620	1.250	3-1/2	5	TC84043	476.69
7/8-14	5/8	0.620	1.250	3-1/2	5	TC84045	476.69
1-8	3/4	0.620	1.375	4	5	TC84047	476.69
1-12	3/4	0.620	1.375	4	5	TC84049	476.69



For coating information see page 6. For technical information please see page 222.

THREAD MILL CUTTING DIAMETER TOLERANCE

+ .000, -.002

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide Thread Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

INTERNAL/EXTERNAL - UN THREADS  
COOLANT END FED



**SERIES 848**  
ALTiN COATED

END VIEW

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	LIST PRICE
10 - 32	3/16	0.120	0.312	2	3	TC84810	206.76
1/4 - 20	3/16	0.180	0.500	2-1/2	3	TC84812	218.19
1/4 - 28	3/16	0.180	0.500	2-1/2	3	TC84814	218.19
5/16 - 18	1/4	0.240	0.625	2-1/2	3	TC84816	270.14
5/16 - 24	1/4	0.240	0.625	2-1/2	3	TC84818	270.14
3/8 - 16	5/16	0.290	0.750	3	4	TC84820	334.56
3/8 - 24	5/16	0.290	0.750	3	4	TC84822	334.56
7/16 - 14	3/8	0.340	0.875	3	4	TC84824	389.63
7/16 - 20	3/8	0.340	0.875	3	4	TC84826	389.63
1/2 - 13	3/8	0.350	0.875	3-1/2	4	TC84828	404.17
1/2 - 20	3/8	0.350	0.875	3-1/2	4	TC84830	404.17
3/4 - 10	1/2	0.495	1.250	3-1/2	4	TC84840	518.46
3/4 - 16	1/2	0.495	1.250	3-1/2	4	TC84842	518.46



For coating information see page 6. For technical information please see page 222.

THREAD MILL CUTTING DIAMETER TOLERANCE

+ .000, -.002

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide Thread Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## INTERNAL/EXTERNAL - NPT PIPE THREADS



**SERIES 842**  
ALTIN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	TC84200	237.13
1/8 - 27	5/16	0.310	0.437	2-1/2	4	TC84202	237.13
1/4 - 18	3/8	0.370	0.625	3	4	TC84204	270.27
3/8 - 18	3/8	0.370	0.625	3	4	TC84206	270.27
1/2 - 14	1/2	0.495	0.875	3-1/2	4	TC84208	380.86
3/4 - 14	1/2	0.495	0.875	3-1/2	4	TC84210	380.86
1 - 11-1/2	3/4	0.620	1.125	4	5	TC84212	476.69

## INTERNAL/EXTERNAL - NPTF PIPE THREADS



**SERIES 844**  
ALTIN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	TC84401	237.13
1/8 - 27	5/16	0.310	0.437	2-1/2	4	TC84403	237.13
1/4 - 18	3/8	0.370	0.625	3	4	TC84405	270.27
3/8 - 18	3/8	0.370	0.625	3	4	TC84407	270.27
1/2 - 14	1/2	0.495	0.875	3-1/2	4	TC84409	380.86
3/4 - 14	1/2	0.495	0.875	3-1/2	4	TC84411	380.86
1 - 11-1/2	3/4	0.620	1.125	4	5	TC84413	476.69

For coating information see page 6. For technical information please see page 222.

THREAD MILL CUTTING DIAMETER TOLERANCE

+.000, -.002

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

# Carbide Thread Mills

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**TAKE 55% OFF LIST PRICE!**

INTERNAL/EXTERNAL  
METRIC THREADS



**SERIES 846**  
ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	LIST PRICE
M4 x 0.70	1/8	0.115	0.250	2	3	TC84620	181.83
M4.5 x 0.75	1/8	0.120	0.250	2	3	TC84622	181.83
M5 x 0.80	3/16	0.120	0.312	2	3	TC84624	181.83
M6 x 1.00	3/16	0.170	0.500	2-1/2	3	TC84626	200.26
M8 x 0.75	1/4	0.235	0.625	2-1/2	3	TC84628	237.13
M8 x 1.00	1/4	0.235	0.625	2-1/2	3	TC84630	237.13
M8 x 1.25	1/4	0.235	0.625	2-1/2	3	TC84632	237.13
M10 x 1.25	5/16	0.300	0.750	3	4	TC84634	282.55
M10 x 1.50	5/16	0.300	0.750	3	4	TC84636	282.55
M12 x 1.00	3/8	0.360	0.875	3-1/2	4	TC84638	305.89
M12 x 1.25	3/8	0.360	0.875	3-1/2	4	TC84640	305.89
M12 x 1.75	3/8	0.360	0.875	3-1/2	4	TC84642	305.89
M14 x 1.50	3/8	0.360	0.875	3-1/2	4	TC84644	305.89
M16 x 2.00	1/2	0.470	1.250	3-1/2	5	TC84646	380.86
M18 x 2.50	1/2	0.470	1.250	3-1/2	5	TC84648	380.86
M20 x 3.00	5/8	0.470	1.250	3-1/2	5	TC84650	380.86



*In-house Research and Development Center*

For coating information see page 6. For technical information please see page 222.

THREAD MILL CUTTING DIAMETER TOLERANCE

+ .000, -.002

VI-PRO - 4 FLUTE  
VI-PRO - 5 FLUTE  
VI-PRO - 6 FLUTE  
THREAD MILLS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**SERIES 626**  
UNCOATED



**SERIES 627**  
ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	TC62608	21.68
3/16	3/16	5/8	2	TC62612	30.22
1/4	1/4	3/4	2-1/2	TC62616	43.60
5/16	5/16	13/16	2-1/2	TC62620	51.49
3/8	3/8	1	2-1/2	TC62624	54.53
1/2	1/2	1-1/4	3	TC62632	90.25
5/8	5/8	1-5/8	3-1/2	TC62640	172.61
3/4	3/4	1-3/4	4	TC62648	247.40
1	1	1-3/4	4	TC62664	407.91

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	TC62708	27.11
3/16	3/16	5/8	2	TC62712	37.79
1/4	1/4	3/4	2-1/2	TC62716	52.73
5/16	5/16	13/16	2-1/2	TC62720	62.27
3/8	3/8	1	2-1/2	TC62724	65.90
1/2	1/2	1-1/4	3	TC62732	104.67
5/8	5/8	1-5/8	3-1/2	TC62740	209.19
3/4	3/4	1-3/4	4	TC62748	300.44
1	1	1-3/4	4	TC62764	494.56

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



 CORNER RADIUS

**SERIES 647**  
ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.010	TC64708	32.40
3/16	3/16	5/8	2	0.010	TC64712	44.43
1/4	1/4	3/4	2-1/2	0.020	TC64716	58.85
5/16	5/16	13/16	2-1/2	0.020	TC64720	69.54
3/8	3/8	1	2-1/2	0.020	TC64724	73.58
1/2	1/2	1-1/4	3	0.040	TC64732	116.84
5/8	5/8	1-5/8	3-1/2	0.040	TC64740	223.41
3/4	3/4	1-3/4	4	0.040	TC64748	320.88
1	1	1-3/4	4	0.040	TC64764	528.17

**TAKE 55% OFF  
LIST PRICE!**

These 2 flute end mills 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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

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



**SERIES 632**  
UNCOATED



**SERIES 633**  
ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	TC63208	36.83
3/16	3/16	3/4	2-1/2	TC63212	42.46
1/4	1/4	1-1/4	3	TC63216	59.85
5/16	5/16	1-3/8	3	TC63220	77.49
3/8	3/8	1-1/2	4	TC63224	97.06
1/2	1/2	2	4	TC63232	135.99
5/8	5/8	2-3/8	5	TC63240	281.98
3/4	3/4	2-1/2	5	TC63248	309.85
1	1	2-1/4	5	TC63264	509.33

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	TC63308	46.02
3/16	3/16	3/4	2-1/2	TC63312	53.08
1/4	1/4	1-1/4	3	TC63316	72.34
5/16	5/16	1-3/8	3	TC63320	98.41
3/8	3/8	1-1/2	4	TC63324	117.39
1/2	1/2	2	4	TC63332	164.90
5/8	5/8	2-3/8	5	TC63340	358.88
3/4	3/4	2-1/2	5	TC63348	387.86
1	1	2-1/4	5	TC63364	610.74

**TAKE 55% OFF  
LIST PRICE!**

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



**SERIES 653**  
ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	0.010	TC65308	55.22
3/16	3/16	3/4	2-1/2	0.010	TC65312	63.69
1/4	1/4	1-1/4	3	0.020	TC65316	80.77
5/16	5/16	1-3/8	3	0.020	TC65320	109.85
3/8	3/8	1-1/2	4	0.020	TC65324	131.08
1/2	1/2	2	4	0.040	TC65332	184.13
5/8	5/8	2-3/8	5	0.040	TC65340	383.26
3/4	3/4	2-1/2	5	0.040	TC65348	414.20
1	1	2-1/4	5	0.040	TC65364	652.27

These 2 flute end mills 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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -.002	-.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 1"	+0.000, -.003	-.0001, -.0004 ISO H6	+0.001, -.001

# Carbide End Mills

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## FOR ALUMINUM 3 FLUTE - REGULAR LENGTH - SQUARE END - 45° HELIX



**SERIES 628**  
UNCOATED



**SERIES 629**  
ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	TC62808	21.68
3/16	3/16	5/8	2	TC62812	30.22
1/4	1/4	3/4	2-1/2	TC62816	43.60
5/16	5/16	13/16	2-1/2	TC62820	51.49
3/8	3/8	1	2-1/2	TC62824	54.53
1/2	1/2	1-1/4	3	TC62832	90.25
5/8	5/8	1-5/8	3-1/2	TC62840	172.61
3/4	3/4	1-3/4	4	TC62848	247.40
1	1	1-3/4	4	TC62864	407.91

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	TC62908	27.11
3/16	3/16	5/8	2	TC62912	37.79
1/4	1/4	3/4	2-1/2	TC62916	52.73
5/16	5/16	13/16	2-1/2	TC62920	62.27
3/8	3/8	1	2-1/2	TC62924	65.90
1/2	1/2	1-1/4	3	TC62932	104.67
5/8	5/8	1-5/8	3-1/2	TC62940	209.19
3/4	3/4	1-3/4	4	TC62948	300.44
1	1	1-3/4	4	TC62964	494.56

## FOR ALUMINUM 3 FLUTE - REGULAR LENGTH - CORNER RADIUS - 45° HELIX



 CORNER RADIUS

**SERIES 659**  
ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.010	TC65908	32.40
3/16	3/16	5/8	2	0.010	TC65912	44.43
1/4	1/4	3/4	2-1/2	0.020	TC65916	58.85
5/16	5/16	13/16	2-1/2	0.020	TC65920	69.54
3/8	3/8	1	2-1/2	0.020	TC65924	73.58
1/2	1/2	1-1/4	3	0.040	TC65932	116.84
5/8	5/8	1-5/8	3-1/2	0.040	TC65940	223.41
3/4	3/4	1-3/4	4	0.040	TC65948	320.88
1	1	1-3/4	4	0.040	TC65964	528.17

**TAKE 55% OFF  
LIST PRICE!**

These 3 flute end mills 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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -.002	-.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 1"	+0.000, -.003	-.0001, -.0004 ISO H6	+0.001, -.001



# Carbide End Mills

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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	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	TC63408	36.83
3/16	3/16	3/4	2-1/2	TC63412	42.46
1/4	1/4	1-1/4	3	TC63416	59.85
5/16	5/16	1-3/8	3	TC63420	77.49
3/8	3/8	1-1/2	4	TC63424	97.06
1/2	1/2	2	4	TC63432	135.99
5/8	5/8	2-3/8	5	TC63440	281.98
3/4	3/4	2-1/2	5	TC63448	309.85
1	1	2-1/4	5	TC63464	509.33

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	TC63508	45.92
3/16	3/16	3/4	2-1/2	TC63512	53.08
1/4	1/4	1-1/4	3	TC63516	72.34
5/16	5/16	1-3/8	3	TC63520	98.41
3/8	3/8	1-1/2	4	TC63524	117.39
1/2	1/2	2	4	TC63532	164.90
5/8	5/8	2-3/8	5	TC63540	358.88
3/4	3/4	2-1/2	5	TC63548	387.86
1	1	2-1/4	5	TC63564	610.74

## FOR ALUMINUM 3 FLUTE - LONG LENGTH - CORNER RADIUS - 45° HELIX



**SERIES 665**  
ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	0.010	TC66508	55.22
3/16	3/16	3/4	2-1/2	0.010	TC66512	63.69
1/4	1/4	1-1/4	3	0.020	TC66516	80.77
5/16	5/16	1-3/8	3	0.020	TC66520	109.85
3/8	3/8	1-1/2	4	0.020	TC66524	131.08
1/2	1/2	2	4	0.040	TC66532	184.13
5/8	5/8	2-3/8	5	0.040	TC66540	383.26
3/4	3/4	2-1/2	5	0.040	TC66548	414.20
1	1	2-1/4	5	0.040	TC66564	652.27

**TAKE 55% OFF  
LIST PRICE!**

These 3 flute end mills 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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

# Carbide End Mills

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**TAKE 55% OFF LIST PRICE!**

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



**SERIES 203  
UNCOATED**

**SERIES 293  
ALTiN COATED**

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/8	2	TC20316	46.43
5/16	5/16	1/2	2	TC20320	63.95
3/8	3/8	9/16	2	TC20324	74.59
1/2	1/2	5/8	2-1/2	TC20332	95.04
5/8	5/8	3/4	3	TC20340	201.43
3/4	3/4	1	3	TC20348	246.36

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/8	2	TC29316	56.93
5/16	5/16	1/2	2	TC29320	79.95
3/8	3/8	9/16	2	TC29324	93.25
1/2	1/2	5/8	2-1/2	TC29332	116.54
5/8	5/8	3/4	3	TC29340	251.78
3/4	3/4	1	3	TC29348	302.17



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**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 225.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.002	-0.0001, -.0004 ISO H6
5/8" - 3/4"	+0.00, -0.003	-0.0001, -.0004 ISO H6

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

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



**SERIES 205**  
UNCOATED

**SERIES 295**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	TC20516	51.59
5/16	5/16	13/16	2-1/2	TC20520	71.05
3/8	3/8	7/8	2-1/2	TC20524	82.88
1/2	1/2	1-1/4	3	TC20532	105.60
5/8	5/8	1-5/8	3-1/2	TC20540	223.81
3/4	3/4	1-5/8	4	TC20548	273.74
1	1	2	4	TC20564	508.34

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	TC29516	63.86
5/16	5/16	13/16	2-1/2	TC29520	88.83
3/8	3/8	7/8	2-1/2	TC29524	103.61
1/2	1/2	1-1/4	3	TC29532	130.73
5/8	5/8	1-5/8	3-1/2	TC29540	279.74
3/4	3/4	1-5/8	4	TC29548	338.94
1	1	2	4	TC29564	623.41

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



**SERIES 206**  
UNCOATED

**SERIES 296**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	TC20616	73.14
5/16	5/16	1-1/2	4	TC20620	93.79
3/8	3/8	1-3/4	4	TC20624	117.25
1/2	1/2	2	4	TC20632	135.42
5/8	5/8	2-1/2	5	TC20640	317.33
3/4	3/4	2-1/2	5	TC20648	381.87
1	1	2-1/2	5	TC20664	652.36

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	1-1/2	4	TC29616	91.44
5/16	5/16	1-1/2	4	TC29620	117.25
3/8	3/8	1-3/4	4	TC29624	146.58
1/2	1/2	2	4	TC29632	169.40
5/8	5/8	2-1/2	5	TC29640	398.54
3/4	3/4	2-1/2	5	TC29648	478.69
1	1	2-1/2	5	TC29664	816.82

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 225.

TOLERANCES	DIAMETER	SHANK
1/4" - 1/2"	+0.00, -0.02	-0.001, -.0004 ISO H6
5/8" - 3/4"	+0.00, -0.03	-0.001, -.0004 ISO H6

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS

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



**SERIES 207**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	TC20716	66.86
5/16	5/16	7/8	2-1/2	TC20720	85.72
3/8	3/8	1	2-1/2	TC20724	109.72
1/2	1/2	1-1/4	3	TC20732	150.86
5/8	5/8	1-5/8	3-1/2	TC20740	262.87
3/4	3/4	1-5/8	4	TC20748	366.87
1	1	2	4	TC20764	600.02



**SERIES 299**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	TC29916	80.00
5/16	5/16	7/8	2-1/2	TC29920	102.86
3/8	3/8	1	2-1/2	TC29924	131.43
1/2	1/2	1-1/4	3	TC29932	180.58
5/8	5/8	1-5/8	3-1/2	TC29940	315.44
3/4	3/4	1-5/8	4	TC29948	440.02
1	1	2	4	TC29964	714.31

**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 225.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/4" - 1/2"	+0.00, -.002	-.0001, -.0004 ISO H6	+0.01, -.001
5/8" - 3/4"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.01, -.001

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## ROUGHER/FINISHER

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

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 297**  
UNCOATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	0.020	TC29716	88.49
5/16	5/16	13/16	2-1/2	0.020	TC29720	95.84
3/8	3/8	7/8	2-1/2	0.020	TC29724	104.14
1/2	1/2	1-1/4	3	0.040	TC29732	120.36
* 5/8	5/8	1-5/8	3-1/2	0.040	TC29740	239.69
* 3/4	3/4	1-5/8	4	0.040	TC29748	320.21
* 1	1	1-5/8	4	0.040	TC29764	522.57

\* WELDON FLATS



**SERIES 298**  
ALTIN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/4	1/4	3/4	2-1/2	0.020	TC29816	110.62
5/16	5/16	13/16	2-1/2	0.020	TC29820	119.79
3/8	3/8	7/8	2-1/2	0.020	TC29824	130.17
1/2	1/2	1-1/4	3	0.040	TC29832	150.48
* 5/8	5/8	1-5/8	3-1/2	0.040	TC29840	299.60
* 3/4	3/4	1-5/8	4	0.040	TC29848	400.29
* 1	1	1-5/8	4	0.040	TC29864	653.24

\* WELDON FLATS

The radius chipbreakers in this high performance tool allow for higher feed rates than a finishing end mill 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 pages 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -0.002	-0.001, -0.0004 ISO H6	+0.001, -0.001

- END MILLS
- DRILL MILLS
- CHAMFER MILLS
- DRILLS
- REAMERS
- BURS

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



**SERIES 495**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM #	LIST PRICE
1/8	1/8	1/2	1-1/2	TC49508	29.67
3/16	3/16	5/8	2	TC49512	35.54
1/4	1/4	3/4	2-1/2	TC49516	38.11
5/16	5/16	13/16	2-1/2	TC49520	46.10
3/8	3/8	1	2-1/2	TC49524	61.72
1/2	1/2	1-1/4	3	TC49532	105.29
5/8	5/8	1-5/8	3-1/2	TC49540	209.55
3/4	3/4	1-5/8	4	TC49548	294.06

**TAKE 55% OFF  
LIST PRICE!**

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



**SERIES 497**  
ALTIN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM #	LIST PRICE
1/8	1/8	1/2	1-1/2	0.010	TC49708	33.13
3/16	3/16	5/8	2	0.010	TC49712	39.67
1/4	1/4	3/4	2-1/2	0.020	TC49716	42.53
5/16	5/16	13/16	2-1/2	0.020	TC49720	51.46
3/8	3/8	1	2-1/2	0.020	TC49724	68.93
1/2	1/2	1-1/4	3	0.040	TC49732	117.53
5/8	5/8	1-5/8	3-1/2	0.040	TC49740	223.79
3/4	3/4	1-5/8	4	0.040	TC49748	314.06

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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 3/4"	+0.00, -0.03	-0.0001, -.0004 ISO H6	+0.001, -.001

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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



**SERIES 395**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM #	LIST PRICE
1/8	1/8	1/2	1-1/2	TC39508	29.67
3/16	3/16	5/8	2	TC39512	35.54
1/4	1/4	3/4	2-1/2	TC39516	38.11
5/16	5/16	13/16	2-1/2	TC39520	46.10
3/8	3/8	1	2-1/2	TC39524	61.72
1/2	1/2	1-1/4	3	TC39532	105.29
5/8	5/8	1-5/8	3-1/2	TC39540	209.55
3/4	3/4	1-5/8	4	TC39548	294.06

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



**SERIES 396**  
ALTIN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM #	LIST PRICE
1/8	1/8	1/2	1-1/2	0.010	TC39608	33.13
3/16	3/16	5/8	2	0.010	TC39612	39.67
1/4	1/4	3/4	2-1/2	0.020	TC39616	42.53
5/16	5/16	13/16	2-1/2	0.020	TC39620	51.46
3/8	3/8	1	2-1/2	0.020	TC39624	68.93
1/2	1/2	1-1/4	3	0.040	TC39632	117.53
5/8	5/8	1-5/8	3-1/2	0.040	TC39640	223.79
3/4	3/4	1-5/8	4	0.040	TC39648	314.06

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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

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



**SERIES 615**  
ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	TC61508	16.24
3/16	3/16	3/8	2	TC61512	24.39
1/4	1/4	1/2	2	TC61516	29.19
5/16	5/16	1/2	2	TC61520	36.88
3/8	3/8	5/8	2	TC61524	57.78
7/16	7/16	5/8	2-1/2	TC61528	66.07
1/2	1/2	5/8	2-1/2	TC61532	76.37
5/8	5/8	3/4	3	TC61540	137.83
3/4	3/4	1	3	TC61548	189.36

**TAKE 55% OFF  
LIST PRICE!**

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



**SERIES 617**  
ALTIN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/4	1-1/2	0.010	TC61708	18.02
3/16	3/16	3/8	2	0.010	TC61712	27.25
1/4	1/4	1/2	2	0.020	TC61716	32.61
5/16	5/16	1/2	2	0.020	TC61720	41.16
3/8	3/8	5/8	2	0.020	TC61724	64.51
7/16	7/16	5/8	2-1/2	0.020	TC61728	73.80
1/2	1/2	5/8	2-1/2	0.040	TC61732	85.25
5/8	5/8	3/4	3	0.040	TC61740	147.16
3/4	3/4	1	3	0.040	TC61748	202.22

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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -.002	-.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 3/4"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.001, -.001



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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



**SERIES 619**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	TC61908	30.97
3/16	3/16	3/4	2	TC61912	37.14
1/4	1/4	3/4	2-1/2	TC61916	39.97
5/16	5/16	7/8	2-1/2	TC61920	48.11
3/8	3/8	1	2-1/2	TC61924	64.54
1/2	1/2	1-1/4	3	TC61932	125.82
5/8	5/8	1-5/8	3-1/2	TC61940	243.27
3/4	3/4	1-5/8	4	TC61948	330.75

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



**SERIES 639**  
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.010	TC63908	34.58
3/16	3/16	3/4	2	0.010	TC63912	41.46
1/4	1/4	3/4	2-1/2	0.020	TC63916	44.58
5/16	5/16	7/8	2-1/2	0.020	TC63920	53.73
3/8	3/8	1	2-1/2	0.020	TC63924	72.06
1/2	1/2	1-1/4	3	0.040	TC63932	140.47
5/8	5/8	1-5/8	3-1/2	0.040	TC63940	259.82
3/4	3/4	1-5/8	4	0.040	TC63948	353.21

**TAKE 55% OFF LIST PRICE!**

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 226-227.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
5/8" - 3/4"	+0.000, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

- END MILLS
- DRILL MILLS
- CHAMFER MILLS
- DRILLS
- REAMERS
- BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**TAKE 55% OFF LIST PRICE!**

**SERIES 102**  
UNCOATED

**SERIES 112**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10201	24.34
1/32	1/8	1/16	1-1/2	TC10202	14.99
3/64	1/8	3/32	1-1/2	TC10203	14.99
1/16	1/8	1/8	1-1/2	TC10204	11.22
5/64	1/8	1/8	1-1/2	TC10205	18.97
3/32	1/8	3/16	1-1/2	TC10206	11.22
1/8	1/8	1/4	1-1/2	TC10208	10.71
5/32	3/16	5/16	2	TC10210	17.84
3/16	3/16	3/8	2	TC10212	16.75
7/32	1/4	7/16	2	TC10214	22.51
1/4	1/4	1/2	2	TC10216	19.75
5/16	5/16	1/2	2	TC10220	26.68
3/8	3/8	5/8	2	TC10224	34.43
7/16	7/16	5/8	2-1/2	TC10228	42.96
1/2	1/2	5/8	2-1/2	TC10232	54.25
5/8	5/8	3/4	3	TC10240	114.85
3/4	3/4	1	3	TC10248	160.77

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11201	30.42
1/32	1/8	1/16	1-1/2	TC11202	19.43
3/64	1/8	3/32	1-1/2	TC11203	19.43
1/16	1/8	1/8	1-1/2	TC11204	14.64
5/64	1/8	1/8	1-1/2	TC11205	23.72
3/32	1/8	3/16	1-1/2	TC11206	14.64
1/8	1/8	1/4	1-1/2	TC11208	13.98
5/32	3/16	5/16	2	TC11210	22.04
3/16	3/16	3/8	2	TC11212	20.76
7/32	1/4	7/16	2	TC11214	27.93
1/4	1/4	1/2	2	TC11216	24.54
5/16	5/16	1/2	2	TC11220	34.70
3/8	3/8	5/8	2	TC11224	42.65
7/16	7/16	5/8	2-1/2	TC11228	53.32
1/2	1/2	5/8	2-1/2	TC11232	67.38
5/8	5/8	3/4	3	TC11240	135.69
3/4	3/4	1	3	TC11248	198.94

## 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	30.38
1/32	1/8	1/16	1-1/2	TC10302	19.51
3/64	1/8	3/32	1-1/2	TC10303	19.51
1/16	1/8	1/8	1-1/2	TC10304	14.68
5/64	1/8	1/8	1-1/2	TC10305	23.76
3/32	1/8	3/16	1-1/2	TC10306	14.68
1/8	1/8	1/4	1-1/2	TC10308	13.90
5/32	3/16	5/16	2	TC10310	23.17
3/16	3/16	3/8	2	TC10312	21.73
7/32	1/4	7/16	2	TC10314	29.21
1/4	1/4	1/2	2	TC10316	25.59
5/16	5/16	1/2	2	TC10320	34.62
3/8	3/8	5/8	2	TC10324	44.71
7/16	7/16	5/8	2-1/2	TC10328	55.93
1/2	1/2	5/8	2-1/2	TC10332	70.46
5/8	5/8	3/4	3	TC10340	134.56
3/4	3/4	1	3	TC10348	204.59

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11301	37.97
1/32	1/8	1/16	1-1/2	TC11302	24.97
3/64	1/8	3/32	1-1/2	TC11303	24.97
1/16	1/8	1/8	1-1/2	TC11304	18.77
5/64	1/8	1/8	1-1/2	TC11305	29.68
3/32	1/8	3/16	1-1/2	TC11306	18.77
1/8	1/8	1/4	1-1/2	TC11308	17.84
5/32	3/16	5/16	2	TC11310	29.68
3/16	3/16	3/8	2	TC11312	27.81
7/32	1/4	7/16	2	TC11314	37.39
1/4	1/4	1/2	2	TC11316	32.75
5/16	5/16	1/2	2	TC11320	44.32
3/8	3/8	5/8	2	TC11324	54.53
7/16	7/16	5/8	2-1/2	TC11328	68.20
1/2	1/2	5/8	2-1/2	TC11332	90.16
5/8	5/8	3/4	3	TC11340	164.75
3/4	3/4	1	3	TC11348	261.88

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/64" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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

**TAKE 55% OFF LIST PRICE!**



**SERIES 106**  
UNCOATED

**SERIES 109**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10601	24.34
1/32	1/8	1/16	1-1/2	TC10602	14.99
3/64	1/8	3/32	1-1/2	TC10603	14.99
1/16	1/8	1/8	1-1/2	TC10604	11.22
5/64	1/8	1/8	1-1/2	TC10605	18.97
3/32	1/8	3/16	1-1/2	TC10606	11.22
1/8	1/8	1/4	1-1/2	TC10608	10.71
5/32	3/16	5/16	2	TC10610	17.84
3/16	3/16	3/8	2	TC10612	16.75
7/32	1/4	7/16	2	TC10614	22.51
1/4	1/4	1/2	2	TC10616	19.75
5/16	5/16	1/2	2	TC10620	26.68
3/8	3/8	5/8	2	TC10624	34.43
7/16	7/16	5/8	2-1/2	TC10628	42.96
1/2	1/2	5/8	2-1/2	TC10632	54.25
5/8	5/8	3/4	3	TC10640	114.85
3/4	3/4	1	3	TC10648	160.77
1	1	1-1/4	3-1/2	TC10664	264.95

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC10901	30.42
1/32	1/8	1/16	1-1/2	TC10902	19.43
3/64	1/8	3/32	1-1/2	TC10903	19.43
1/16	1/8	1/8	1-1/2	TC10904	14.64
5/64	1/8	1/8	1-1/2	TC10905	23.72
3/32	1/8	3/16	1-1/2	TC10906	14.64
1/8	1/8	1/4	1-1/2	TC10908	13.98
5/32	3/16	5/16	2	TC10910	22.04
3/16	3/16	3/8	2	TC10912	20.76
7/32	1/4	7/16	2	TC10914	27.93
1/4	1/4	1/2	2	TC10916	24.54
5/16	5/16	1/2	2	TC10920	34.70
3/8	3/8	5/8	2	TC10924	42.65
7/16	7/16	5/8	2-1/2	TC10928	53.32
1/2	1/2	5/8	2-1/2	TC10932	67.57
5/8	5/8	3/4	3	TC10940	135.73
3/4	3/4	1	3	TC10948	198.94
1	1	1-1/4	3-1/2	TC10964	330.40

## 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	30.38
1/32	1/8	1/16	1-1/2	TC10702	19.51
3/64	1/8	3/32	1-1/2	TC10703	19.51
1/16	1/8	1/8	1-1/2	TC10704	14.68
5/64	1/8	1/8	1-1/2	TC10705	23.76
3/32	1/8	3/16	1-1/2	TC10706	14.68
1/8	1/8	1/4	1-1/2	TC10708	13.90
5/32	3/16	5/16	2	TC10710	23.17
3/16	3/16	3/8	2	TC10712	21.73
7/32	1/4	7/16	2	TC10714	29.21
1/4	1/4	1/2	2	TC10716	27.77
5/16	5/16	1/2	2	TC10720	34.62
3/8	3/8	5/8	2	TC10724	44.71
7/16	7/16	5/8	2-1/2	TC10728	55.93
1/2	1/2	5/8	2-1/2	TC10732	70.46
5/8	5/8	3/4	3	TC10740	134.56
3/4	3/4	1	3	TC10748	204.59
1	1	1-1/4	3-1/2	TC10764	316.90

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/64	1/8	0.023	1-1/2	TC11701	37.97
1/32	1/8	1/16	1-1/2	TC11702	24.97
3/64	1/8	3/32	1-1/2	TC11703	24.97
1/16	1/8	1/8	1-1/2	TC11704	18.77
5/64	1/8	1/8	1-1/2	TC11705	29.68
3/32	1/8	3/16	1-1/2	TC11706	18.77
1/8	1/8	1/4	1-1/2	TC11708	17.84
5/32	3/16	5/16	2	TC11710	29.68
3/16	3/16	3/8	2	TC11712	27.81
7/32	1/4	7/16	2	TC11714	37.39
1/4	1/4	1/2	2	TC11716	36.03
5/16	5/16	1/2	2	TC11720	44.32
3/8	3/8	5/8	2	TC11724	54.53
7/16	7/16	5/8	2-1/2	TC11728	68.20
1/2	1/2	5/8	2-1/2	TC11732	90.16
5/8	5/8	3/4	3	TC11740	164.75
3/4	3/4	1	3	TC11748	261.88
1	1	1-1/4	3-1/2	TC11764	389.63

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/64" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

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YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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

**SERIES 100**  
UNCOATED



**SERIES 101**  
ALTiN COATED



**SERIES 900**  
TiCN COATED



**TAKE 55% OFF  
LIST PRICE!**

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC10001	26.11	TC10101	34.98	TC90001	34.98
1/32	1/8	1/8	1-1/2	TC10002	17.49	TC10102	23.64	TC90002	23.64
3/64	1/8	1/8	1-1/2	TC10003	14.95	TC10103	20.14	TC90003	20.14
1/16	1/8	1/4	1-1/2	TC10004	14.91	TC10104	17.12	TC90004	17.12
5/64	1/8	1/4	1-1/2	TC10005	15.39	TC10105	20.77	TC90005	20.77
3/32	1/8	3/8	1-1/2	TC10006	13.55	TC10106	17.12	TC90006	17.12
7/64	1/8	3/8	1-1/2	TC10007	14.14	TC10107	19.07	TC90007	19.07
1/8	1/8	1/2	1-1/2	TC10008	13.00	TC10108	15.91	TC90008	15.91
9/64	3/16	9/16	2	TC10009	19.04	TC10109	25.70	TC90009	25.70
5/32	3/16	9/16	2	TC10010	19.15	TC10110	22.20	TC90010	22.20
11/64	3/16	5/8	2	TC10011	18.19	TC10111	24.60	TC90011	24.60
3/16	3/16	5/8	2	TC10012	17.71	TC10112	22.20	TC90012	22.20
13/64	1/4	5/8	2-1/2	TC10013	25.85	TC10113	33.88	TC90013	33.88
7/32	1/4	5/8	2-1/2	TC10014	26.40	TC10114	30.67	TC90014	30.67
15/64	1/4	3/4	2-1/2	TC10015	29.83	TC10115	38.44	TC90015	38.44
1/4	1/4	3/4	2-1/2	TC10016	21.87	TC10116	30.67	TC90016	30.67
17/64	5/16	3/4	2-1/2	TC10017	39.44	TC10117	50.67	TC90017	50.67
9/32	5/16	3/4	2-1/2	TC10018	39.44	TC10118	50.67	TC90018	50.67
19/64	5/16	13/16	2-1/2	TC10019	39.44	TC10119	50.67	TC90019	50.67
5/16	5/16	13/16	2-1/2	TC10020	28.46	TC10120	36.71	TC90020	36.71
21/64	3/8	1	2-1/2	TC10021	44.22	TC10121	56.85	TC90021	56.85
11/32	3/8	1	2-1/2	TC10022	44.22	TC10122	56.85	TC90022	56.85
23/64	3/8	1	2-1/2	TC10023	44.22	TC10123	56.85	TC90023	56.85
3/8	3/8	1	2-1/2	TC10024	33.95	TC10124	41.98	TC90024	41.98
25/64	7/16	1	2-3/4	TC10025	57.89	TC10125	74.71	TC90025	74.71
13/32	7/16	1	2-3/4	TC10026	57.89	TC10126	74.71	TC90026	74.71
27/64	7/16	1	2-3/4	TC10027	59.76	TC10127	77.18	TC90027	77.18
7/16	7/16	1	2-3/4	TC10028	52.10	TC10128	64.15	TC90028	64.15
29/64	1/2	1	3	TC10029	86.02	TC10129	110.10	TC90029	110.10
15/32	1/2	1	3	TC10030	86.02	TC10130	110.10	TC90030	110.10
31/64	1/2	1	3	TC10031	86.02	TC10131	110.10	TC90031	110.10
1/2	1/2	1	3	TC10032	62.56	TC10132	78.06	TC90032	78.06
9/16	9/16	1-1/4	3-1/2	TC10036	118.24	TC10136	156.13	TC90036	156.13
5/8	5/8	1-1/4	3-1/2	TC10040	119.60	TC10140	152.48	TC90040	152.48
3/4	3/4	1-1/2	4	TC10048	167.99	TC10148	216.37	TC90048	216.37
7/8	7/8	1-1/2	4	TC10056	307.25	TC10156	388.88	TC90056	388.88
1	1	1-1/2	4	TC10064	274.81	TC10164	351.51	TC90064	351.51

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+ .000, -.001	-.0001, -.0004 ISO H6
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6
9/16" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6

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**TAKE 55% OFF LIST PRICE!**

## 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	20.99	TC15108	26.99	TC95008	26.99
3/16	3/16	3/4	2-1/2	TC15012	24.63	TC15112	31.67	TC95012	31.67
1/4	1/4	1-1/8	3	TC15016	35.28	TC15116	45.48	TC95016	45.48
1/4	1/4	1	4	TC15017	37.15	TC15117	47.91	TC95017	47.91
5/16	5/16	1-1/8	3	TC15020	39.81	TC15120	53.72	TC95020	53.72
3/8	3/8	1-1/8	3	TC15024	45.66	TC15124	61.64	TC95024	61.64
3/8	3/8	1	4	TC15025	53.32	TC15125	68.60	TC95025	68.60
7/16	7/16	2	4	TC15028	71.95	TC15128	93.57	TC95028	93.57
1/2	1/2	1	4	TC15032	77.92	TC15132	100.34	TC95032	100.34
1/2	1/2	2	4	TC15033	82.52	TC15133	105.90	TC95033	105.90
5/8	5/8	2-1/4	5	TC15040	184.44	TC15140	228.26	TC95040	228.26
3/4	3/4	2-1/4	5	TC15048	254.74	TC15148	328.68	TC95048	328.68
7/8	7/8	2-1/4	5	TC15056	482.82	TC15156	570.60	TC95056	570.60
1	1	2-1/4	5	TC15064	348.75	TC15164	450.12	TC95064	450.12

## 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	23.46	TC17108	31.67	TC97008	31.67
3/16	3/16	1-1/8	3	TC17012	25.52	TC17112	32.77	TC97012	32.77
1/4	1/4	1-1/2	4	TC17016	38.21	TC17116	49.22	TC97016	49.22
1/4	1/4	1-1/2	6	TC17017	48.75	TC17117	62.71	TC97017	62.71
5/16	5/16	1-5/8	4	TC17020	49.20	TC17120	63.48	TC97020	63.48
3/8	3/8	1-3/4	4	TC17024	55.86	TC17124	71.55	TC97024	71.55
3/8	3/8	1-1/2	6	TC17025	84.58	TC17125	109.03	TC97025	109.03
7/16	7/16	3	6	TC17028	113.93	TC17128	146.08	TC97028	146.08
1/2	1/2	1-1/2	6	TC17032	128.73	TC17132	159.77	TC97032	159.77
1/2	1/2	3	6	TC17033	135.14	TC17133	166.18	TC97033	166.18
5/8	5/8	3	6	TC17040	199.03	TC17140	244.69	TC97040	244.69
3/4	3/4	3	6	TC17048	295.80	TC17148	363.37	TC97048	363.37
7/8	7/8	3	6	TC17056	526.71	TC17156	658.43	TC97056	658.43
1	1	3	6	TC17064	502.15	TC17164	617.07	TC97064	617.07

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6

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

**SERIES 110**  
UNCOATED



**SERIES 111**  
ALTiN COATED



**SERIES 910**  
TiCN COATED



**TAKE 55% OFF LIST PRICE!**

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC11001	29.24	TC11101	39.18	TC91001	39.18
1/32	1/8	1/8	1-1/2	TC11002	18.71	TC11102	24.30	TC91002	24.30
3/64	1/8	1/8	1-1/2	TC11003	18.71	TC11103	24.30	TC91003	24.30
1/16	1/8	1/4	1-1/2	TC11004	17.34	TC11104	23.42	TC91004	23.42
5/64	1/8	1/4	1-1/2	TC11005	17.34	TC11105	23.42	TC91005	23.42
3/32	1/8	3/8	1-1/2	TC11006	18.19	TC11106	24.60	TC91006	24.60
7/64	1/8	3/8	1-1/2	TC11007	18.19	TC11107	24.60	TC91007	24.60
1/8	1/8	1/2	1-1/2	TC11008	16.68	TC11108	22.54	TC91008	22.54
9/64	3/16	9/16	2	TC11009	24.45	TC11109	33.03	TC91009	33.03
5/32	3/16	9/16	2	TC11010	24.45	TC11110	33.03	TC91010	33.03
11/64	3/16	5/8	2	TC11011	24.45	TC11111	33.03	TC91011	33.03
3/16	3/16	5/8	2	TC11012	21.98	TC11112	29.68	TC91012	29.68
13/64	1/4	5/8	2-1/2	TC11013	32.00	TC11113	40.39	TC91013	40.39
7/32	1/4	5/8	2-1/2	TC11014	32.00	TC11114	40.39	TC91014	40.39
15/64	1/4	3/4	2-1/2	TC11015	32.00	TC11115	40.39	TC91015	40.39
1/4	1/4	3/4	2-1/2	TC11016	30.92	TC11116	38.48	TC91016	38.48
17/64	5/16	3/4	2-1/2	TC11017	40.39	TC11117	51.96	TC91017	51.96
9/32	5/16	3/4	2-1/2	TC11018	40.47	TC11118	52.03	TC91018	52.03
19/64	5/16	13/16	2-1/2	TC11019	43.97	TC11119	57.70	TC91019	57.70
5/16	5/16	13/16	2-1/2	TC11020	37.23	TC11120	47.87	TC91020	47.87
21/64	3/8	1	2-1/2	TC11021	51.15	TC11121	69.04	TC91021	69.04
11/32	3/8	1	2-1/2	TC11022	53.69	TC11122	69.04	TC91022	69.04
23/64	3/8	1	2-1/2	TC11023	51.15	TC11123	69.04	TC91023	69.04
3/8	3/8	1	2-1/2	TC11024	39.84	TC11124	56.30	TC91024	56.30
25/64	7/16	1	2-3/4	TC11025	69.26	TC11125	89.26	TC91025	89.26
13/32	7/16	1	2-3/4	TC11026	69.26	TC11126	89.26	TC91026	89.26
27/64	7/16	1	2-3/4	TC11027	69.26	TC11127	89.26	TC91027	89.26
7/16	7/16	1	2-3/4	TC11028	58.95	TC11128	76.00	TC91028	76.00
29/64	1/2	1	3	TC11029	91.32	TC11129	117.76	TC91029	117.76
15/32	1/2	1	3	TC11030	91.32	TC11130	117.76	TC91030	117.76
31/64	1/2	1	3	TC11031	91.32	TC11131	117.76	TC91031	117.76
1/2	1/2	1	3	TC11032	80.86	TC11132	104.21	TC91032	104.21
9/16	9/16	1-1/4	3-1/2	TC11036	123.25	TC11136	151.67	TC91036	151.67
5/8	5/8	1-1/4	3-1/2	TC11040	130.76	TC11140	168.54	TC91040	168.54
3/4	3/4	1-1/2	4	TC11048	192.66	TC11148	251.06	TC91048	251.06
7/8	7/8	1-1/2	4	TC11056	373.09	TC11156	474.06	TC91056	474.06
1	1	1-1/2	4	TC11064	344.11	TC11164	443.42	TC91064	443.42

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/64" - 7/64"	+0.00, -0.001	-0.0001, -0.0004 ISO H6	+0.001, -0.001
1/8" - 1/2"	+0.00, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
9/16" - 1"	+0.00, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

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



**SERIES 160**  
UNCOATED

**SERIES 161**  
ALTiN COATED

**SERIES 960**  
TiCN COATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/8	1/8	3/4	2-1/4	TC16008	24.97	TC16108	32.11	TC96008	32.11
3/16	3/16	3/4	2-1/2	TC16012	28.72	TC16112	36.90	TC96012	36.90
1/4	1/4	1-1/8	3	TC16016	40.39	TC16116	51.99	TC96016	51.99
1/4	1/4	1	4	TC16017	44.59	TC16117	57.48	TC96017	57.48
5/16	5/16	1-1/8	3	TC16020	47.50	TC16120	64.11	TC96020	64.11
3/8	3/8	1-1/8	3	TC16024	54.83	TC16124	74.05	TC96024	74.05
3/8	3/8	1	4	TC16025	67.16	TC16125	87.27	TC96025	87.27
7/16	7/16	2	4	TC16028	91.84	TC16128	119.42	TC96028	119.42
1/2	1/2	1	4	TC16032	94.05	TC16132	119.60	TC96032	119.60
1/2	1/2	2	4	TC16033	94.97	TC16133	120.52	TC96033	120.52
5/8	5/8	2-1/4	5	TC16040	216.37	TC16140	274.81	TC96040	274.81
3/4	3/4	2-1/4	5	TC16048	301.28	TC16148	381.63	TC96048	381.63
7/8	7/8	2-1/4	5	TC16056	517.95	TC16156	636.48	TC96056	636.48
1	1	2-1/4	5	TC16064	596.16	TC16164	733.14	TC96064	733.14

## 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	27.95	TC18108	37.71	TC98008	37.71
3/16	3/16	1-1/8	3	TC18012	33.50	TC18112	39.36	TC98012	39.36
1/4	1/4	1-1/2	4	TC18016	49.11	TC18116	54.64	TC98016	54.64
1/4	1/4	1-1/2	6	TC18017	56.44	TC18117	64.18	TC98017	64.18
5/16	5/16	1-5/8	4	TC18020	59.36	TC18120	76.63	TC98020	76.63
3/8	3/8	1-3/4	4	TC18024	63.89	TC18124	81.67	TC98024	81.67
3/8	3/8	1-1/2	6	TC18025	90.03	TC18125	110.50	TC98025	110.50
7/16	7/16	3	6	TC18028	135.14	TC18128	173.47	TC98028	173.47
1/2	1/2	1-1/2	6	TC18032	143.35	TC18132	183.52	TC98032	183.52
1/2	1/2	3	6	TC18033	144.23	TC18133	184.44	TC98033	184.44
5/8	5/8	3	6	TC18040	227.34	TC18140	279.37	TC98040	279.37
3/4	3/4	3	6	TC18048	322.38	TC18148	435.21	TC98048	435.21
7/8	7/8	3	6	TC18056	570.60	TC18156	711.08	TC98056	711.08
1	1	3	6	TC18064	575.17	TC18164	740.50	TC98064	740.50

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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

**SERIES 105**  
UNCOATED



**SERIES 995**  
ALTiN COATED



**SERIES 905**  
TiCN COATED



**TAKE 55% OFF  
LIST PRICE!**

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC10501	26.11	TC99501	34.98	TC90501	34.98
1/32	1/8	1/8	1-1/2	TC10502	17.49	TC99502	23.64	TC90502	23.64
3/64	1/8	1/8	1-1/2	TC10503	14.95	TC99503	20.14	TC90503	20.14
1/16	1/8	1/4	1-1/2	TC10504	14.91	TC99504	17.12	TC90504	17.12
5/64	1/8	1/4	1-1/2	TC10505	15.39	TC99505	20.77	TC90505	20.77
3/32	1/8	3/8	1-1/2	TC10506	13.55	TC99506	17.12	TC90506	17.12
7/64	1/8	3/8	1-1/2	TC10507	14.14	TC99507	19.07	TC90507	19.07
1/8	1/8	1/2	1-1/2	TC10508	13.00	TC99508	15.91	TC90508	15.91
9/64	3/16	9/16	2	TC10509	19.04	TC99509	25.70	TC90509	25.70
5/32	3/16	9/16	2	TC10510	19.15	TC99510	22.20	TC90510	22.20
11/64	3/16	5/8	2	TC10511	18.19	TC99511	24.60	TC90511	24.60
3/16	3/16	5/8	2	TC10512	17.71	TC99512	22.20	TC90512	22.20
13/64	1/4	5/8	2-1/2	TC10513	25.85	TC99513	33.88	TC90513	33.88
7/32	1/4	5/8	2-1/2	TC10514	26.40	TC99514	30.67	TC90514	30.67
15/64	1/4	3/4	2-1/2	TC10515	29.83	TC99515	38.44	TC90515	38.44
1/4	1/4	3/4	2-1/2	TC10516	21.87	TC99516	30.67	TC90516	30.67
17/64	5/16	3/4	2-1/2	TC10517	39.44	TC99517	50.67	TC90517	50.67
9/32	5/16	3/4	2-1/2	TC10518	39.44	TC99518	50.67	TC90518	50.67
19/64	5/16	13/16	2-1/2	TC10519	39.44	TC99519	50.67	TC90519	50.67
5/16	5/16	13/16	2-1/2	TC10520	28.46	TC99520	36.71	TC90520	36.71
21/64	3/8	1	2-1/2	TC10521	44.22	TC99521	56.85	TC90521	56.85
11/32	3/8	1	2-1/2	TC10522	44.22	TC99522	56.85	TC90522	56.85
23/64	3/8	1	2-1/2	TC10523	44.22	TC99523	56.85	TC90523	56.85
3/8	3/8	1	2-1/2	TC10524	33.95	TC99524	41.98	TC90524	41.98
25/64	7/16	1	2-3/4	TC10525	57.89	TC99525	74.71	TC90525	74.71
13/32	7/16	1	2-3/4	TC10526	57.89	TC99526	74.71	TC90526	74.71
27/64	7/16	1	2-3/4	TC10527	59.76	TC99527	77.18	TC90527	77.18
7/16	7/16	1	2-3/4	TC10528	52.10	TC99528	64.15	TC90528	64.15
29/64	1/2	1	3	TC10529	86.02	TC99529	110.10	TC90529	110.10
15/32	1/2	1	3	TC10530	86.02	TC99530	110.10	TC90530	110.10
31/64	1/2	1	3	TC10531	86.02	TC99531	110.10	TC90531	110.10
1/2	1/2	1	3	TC10532	62.56	TC99532	78.06	TC90532	78.06
1/2	1/2	1-1/4	3	TC10533	62.56	TC99533	78.06	TC90533	78.06
9/16	9/16	1-1/4	3-1/2	TC10536	118.24	TC99536	156.13	TC90536	156.13
5/8	5/8	1-1/4	3-1/2	TC10540	119.60	TC99540	152.48	TC90540	152.48
3/4	3/4	1-1/2	4	TC10548	167.99	TC99548	216.37	TC90548	216.37
7/8	7/8	1-1/2	4	TC10556	307.25	TC99556	388.88	TC90556	388.88
1	1	1-1/2	4	TC10564	282.81	TC99564	361.75	TC90564	361.75
1-1/4	1-1/4	2	4-1/2	TC10580	965.67	TC99580	1097.35	TC90580	1097.35

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-.0001, -.0004 ISO H6
1/8" - 1/2"	+0.00, -0.02	-.0001, -.0004 ISO H6
9/16" - 1-1/4"	+0.00, -0.03	-.0001, -.0004 ISO H6

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



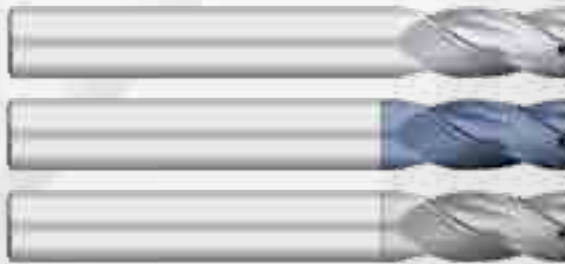
# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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

**TAKE 55% OFF LIST PRICE!**



**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	20.99	TC15608	26.99	TC95508	26.99
3/16	3/16	3/4	2-1/2	TC15512	26.34	TC15612	31.67	TC95512	31.67
1/4	1/4	1-1/8	3	TC15516	35.28	TC15616	45.48	TC95516	45.48
1/4	1/4	1	4	TC15517	37.15	TC15617	47.91	TC95517	47.91
5/16	5/16	1-1/8	3	TC15520	39.81	TC15620	53.72	TC95520	53.72
3/8	3/8	1-1/8	3	TC15524	45.66	TC15624	61.64	TC95524	61.64
3/8	3/8	1	4	TC15525	53.32	TC15625	68.60	TC95525	68.60
7/16	7/16	2	4	TC15528	71.95	TC15628	93.57	TC95528	93.57
1/2	1/2	1	4	TC15532	80.19	TC15632	103.26	TC95532	103.26
1/2	1/2	2	4	TC15533	84.92	TC15633	108.99	TC95533	108.99
5/8	5/8	2-1/4	5	TC15540	184.44	TC15640	228.26	TC95540	228.26
3/4	3/4	2-1/4	5	TC15548	254.74	TC15648	308.37	TC95548	308.37
7/8	7/8	2-1/4	5	TC15556	482.82	TC15656	570.60	TC95556	570.60
1	1	2-1/4	5	TC15564	348.75	TC15664	450.12	TC95564	450.12

## 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	23.46	TC17608	31.67	TC97508	31.67
3/16	3/16	1-1/8	3	TC17512	25.52	TC17612	32.77	TC97512	32.77
1/4	1/4	1-1/2	4	TC17516	36.05	TC17616	46.43	TC97516	46.43
1/4	1/4	1-1/2	6	TC17517	48.75	TC17617	62.71	TC97517	62.71
5/16	5/16	1-5/8	4	TC17520	49.20	TC17620	63.48	TC97520	63.48
3/8	3/8	1-3/4	4	TC17524	55.86	TC17624	71.55	TC97524	71.55
3/8	3/8	1-1/2	6	TC17525	84.58	TC17625	109.03	TC97525	109.03
7/16	7/16	3	6	TC17528	113.93	TC17628	146.08	TC97528	146.08
1/2	1/2	1-1/2	6	TC17532	128.73	TC17632	159.77	TC97532	159.77
1/2	1/2	3	6	TC17533	135.14	TC17633	166.18	TC97533	166.18
5/8	5/8	3	6	TC17540	199.03	TC17640	244.69	TC97540	244.69
3/4	3/4	3	6	TC17548	295.80	TC17648	347.35	TC97548	347.35
3/4	3/4	4	7	TC17549	507.64	TC17649	575.48	TC97549	575.48
7/8	7/8	3	6	TC17556	526.71	TC17656	658.43	TC97556	658.43
1	1	3	6	TC17564	502.15	TC17664	560.57	TC97564	560.57
1	1	4	7	TC17565	658.28	TC17665	808.00	TC97565	808.00

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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

**SERIES 115**  
UNCOATED



**SERIES 116**  
ALTiN COATED



**SERIES 915**  
TiCN COATED



**TAKE 55% OFF  
LIST PRICE!**

DIA	SHANK	LOC	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
1/64	1/8	1/32	1-1/2	TC11501	29.24	TC11601	39.18	TC91501	39.18
1/32	1/8	1/8	1-1/2	TC11502	18.71	TC11602	24.30	TC91502	24.30
3/64	1/8	1/8	1-1/2	TC11503	18.71	TC11603	24.30	TC91503	24.30
1/16	1/8	1/4	1-1/2	TC11504	17.34	TC11604	23.42	TC91504	23.42
5/64	1/8	1/4	1-1/2	TC11505	17.34	TC11605	23.42	TC91505	23.42
3/32	1/8	3/8	1-1/2	TC11506	18.19	TC11606	24.60	TC91506	24.60
7/64	1/8	3/8	1-1/2	TC11507	18.19	TC11607	24.60	TC91507	24.60
1/8	1/8	1/2	1-1/2	TC11508	16.68	TC11608	22.54	TC91508	22.54
9/64	3/16	9/16	2	TC11509	24.45	TC11609	33.03	TC91509	33.03
5/32	3/16	9/16	2	TC11510	24.45	TC11610	33.03	TC91510	33.03
11/64	3/16	5/8	2	TC11511	24.45	TC11611	33.03	TC91511	33.03
3/16	3/16	5/8	2	TC11512	21.98	TC11612	29.68	TC91512	29.68
13/64	1/4	5/8	2-1/2	TC11513	31.71	TC11613	40.39	TC91513	40.39
7/32	1/4	5/8	2-1/2	TC11514	31.71	TC11614	40.39	TC91514	40.39
15/64	1/4	3/4	2-1/2	TC11515	31.71	TC11615	40.39	TC91515	40.39
1/4	1/4	3/4	2-1/2	TC11516	29.86	TC11616	38.48	TC91516	38.48
17/64	5/16	3/4	2-1/2	TC11517	40.39	TC11617	51.96	TC91517	51.96
9/32	5/16	3/4	2-1/2	TC11518	40.47	TC11618	52.03	TC91518	52.03
19/64	5/16	13/16	2-1/2	TC11519	43.97	TC11619	57.70	TC91519	57.70
5/16	5/16	13/16	2-1/2	TC11520	37.23	TC11620	47.87	TC91520	47.87
21/64	3/8	1	2-1/2	TC11521	51.15	TC11621	69.04	TC91521	69.04
11/32	3/8	1	2-1/2	TC11522	53.69	TC11622	69.04	TC91522	69.04
23/64	3/8	1	2-1/2	TC11523	51.15	TC11623	69.04	TC91523	69.04
3/8	3/8	1	2-1/2	TC11524	39.84	TC11624	56.30	TC91524	56.30
25/64	7/16	1	2-3/4	TC11525	69.26	TC11625	89.26	TC91525	89.26
13/32	7/16	1	2-3/4	TC11526	69.26	TC11626	89.26	TC91526	89.26
27/64	7/16	1	2-3/4	TC11527	69.26	TC11627	89.26	TC91527	89.26
7/16	7/16	1	2-3/4	TC11528	58.95	TC11628	76.00	TC91528	76.00
29/64	1/2	1	3	TC11529	91.32	TC11629	117.76	TC91529	117.76
15/32	1/2	1	3	TC11530	91.32	TC11630	117.76	TC91530	117.76
31/64	1/2	1	3	TC11531	91.32	TC11631	117.76	TC91531	117.76
1/2	1/2	1	3	TC11532	80.86	TC11632	104.21	TC91532	104.21
9/16	9/16	1-1/4	3-1/2	TC11536	123.25	TC11636	151.67	TC91536	151.67
5/8	5/8	1-1/4	3-1/2	TC11540	130.76	TC11640	168.54	TC91540	168.54
3/4	3/4	1-1/2	4	TC11548	192.66	TC11648	251.06	TC91548	251.06
7/8	7/8	1-1/2	4	TC11556	373.09	TC11656	474.06	TC91556	474.06
1	1	1-1/2	4	TC11564	344.11	TC11664	443.42	TC91564	443.42

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/64" - 7/64"	+ .000, -.001	-.0001, -.0004 ISO H6	+ .001, -.001
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6	+ .001, -.001
9/16" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6	+ .001, -.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## 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	24.97	TC16608	32.11	TC96508	32.11
3/16	3/16	3/4	2-1/2	TC16512	28.72	TC16612	36.90	TC96512	36.90
1/4	1/4	1-1/8	3	TC16516	40.39	TC16616	51.99	TC96516	51.99
1/4	1/4	1	4	TC16517	44.59	TC16617	57.48	TC96517	57.48
5/16	5/16	1-1/8	3	TC16520	47.50	TC16620	64.11	TC96520	64.11
3/8	3/8	1-1/8	3	TC16524	54.83	TC16624	74.05	TC96524	74.05
3/8	3/8	1	4	TC16525	67.16	TC16625	87.27	TC96525	87.27
7/16	7/16	2	4	TC16528	91.84	TC16628	119.42	TC96528	119.42
1/2	1/2	1	4	TC16532	94.05	TC16632	119.60	TC96532	119.60
1/2	1/2	2	4	TC16533	94.97	TC16633	120.52	TC96533	120.52
5/8	5/8	2-1/4	5	TC16540	216.37	TC16640	274.81	TC96540	274.81
3/4	3/4	2-1/4	5	TC16548	301.28	TC16648	381.63	TC96548	381.63
7/8	7/8	2-1/4	5	TC16556	517.95	TC16656	636.48	TC96556	636.48
1	1	2-1/4	5	TC16564	596.16	TC16664	733.14	TC96564	733.14

## 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	27.95	TC18608	37.71	TC98508	37.71
3/16	3/16	1-1/8	3	TC18512	33.66	TC18612	39.36	TC98512	39.36
1/4	1/4	1-1/2	4	TC18516	49.09	TC18616	54.64	TC98516	54.64
1/4	1/4	1-1/2	6	TC18517	57.73	TC18617	67.95	TC98517	67.95
5/16	5/16	1-5/8	4	TC18520	59.36	TC18620	76.63	TC98520	76.63
3/8	3/8	1-3/4	4	TC18524	63.89	TC18624	81.67	TC98524	81.67
3/8	3/8	1-1/2	6	TC18525	90.03	TC18625	112.31	TC98525	112.31
7/16	7/16	3	6	TC18528	135.14	TC18628	173.47	TC98528	173.47
1/2	1/2	1-1/2	6	TC18532	143.35	TC18632	183.52	TC98532	183.52
1/2	1/2	3	6	TC18533	144.23	TC18633	186.25	TC98533	186.25
5/8	5/8	3	6	TC18540	227.34	TC18640	279.37	TC98540	279.37
3/4	3/4	3	6	TC18548	322.38	TC18648	435.21	TC98548	435.21
3/4	3/4	4	7	TC18549	530.84	TC18649	671.35	TC98549	671.35
7/8	7/8	3	6	TC18556	570.60	TC18656	711.08	TC98556	711.08
1	1	3	6	TC18564	575.17	TC18664	740.50	TC98564	740.50
1	1	4	7	TC18565	695.69	TC18665	828.55	TC98565	828.55

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -0.02	-0.001, -0.004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.001, -0.004 ISO H6	+0.01, -0.01

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**SERIES 118**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC11859	21.55
1.5	3	4.5	38	TC11860	21.55
2.0	3	6.3	38	TC11861	21.55
2.5	3	9.5	38	TC11862	21.55
3.0	3	12	38	TC11863	21.55
3.5	4	12	50	TC11864	26.55
4.0	4	14	50	TC11865	26.55
4.5	6	16	50	TC11866	32.46
5.0	6	16	50	TC11867	32.46
5.5	6	16	50	TC11881	32.46
6.0	6	19	50	TC11868	33.93
6.5	8	19	63	TC11882	36.91
7.0	8	19	63	TC11869	36.90
7.5	8	19	63	TC11883	38.37
8.0	8	20	63	TC11870	38.37
9.0	10	22	75	TC11871	56.07
10.0	10	22	75	TC11872	70.83
11.0	12	25	75	TC11873	78.21
12.0	12	25	75	TC11874	81.15
14.0	14	32	89	TC11875	137.26
16.0	16	32	89	TC11876	156.43
18.0	18	38	100	TC11877	214.00
20.0	20	38	100	TC11878	339.44
25.0	25	38	100	TC11879	442.73



**SERIES 119**  
ALTIM COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC11959	26.90
1.5	3	4.5	38	TC11960	26.90
2.0	3	6.3	38	TC11961	26.90
2.5	3	9.5	38	TC11962	26.90
3.0	3	12	38	TC11963	26.90
3.5	4	12	50	TC11964	33.21
4.0	4	14	50	TC11965	33.21
4.5	6	16	50	TC11966	40.59
5.0	6	16	50	TC11967	40.59
5.5	6	16	50	TC11981	40.59
6.0	6	19	50	TC11968	42.42
6.5	8	19	63	TC11982	46.11
7.0	8	19	63	TC11969	46.11
7.5	8	19	63	TC11983	47.97
8.0	8	20	63	TC11970	47.98
9.0	10	22	75	TC11971	70.08
10.0	10	22	75	TC11972	88.53
11.0	12	25	75	TC11973	97.78
12.0	12	25	75	TC11974	101.47
14.0	14	32	89	TC11975	171.58
16.0	16	32	89	TC11976	195.55
18.0	18	38	100	TC11977	267.50
20.0	20	38	100	TC11978	424.28
25.0	25	38	100	TC11979	553.44

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



**SERIES 128**  
ALTIM COATED

**TAKE 55% OFF LIST PRICE!**

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1.0	3	3	38	TC12802	31.75
1.5	3	4.5	38	TC12804	31.75
2.0	3	6.3	38	TC12806	31.75
2.5	3	9.5	38	TC12808	31.75
3.0	3	12	38	TC12810	31.75
3.5	4	12	50	TC12812	39.19
4.0	4	14	50	TC12814	39.19
4.5	6	16	50	TC12816	47.90
5.0	6	16	50	TC12818	47.90
5.5	6	16	50	TC12820	47.90
6.0	6	19	50	TC12822	50.06
6.5	8	19	63	TC12824	54.41

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
7.0	8	19	63	TC12826	54.41
7.5	8	19	63	TC12828	56.61
8.0	8	20	63	TC12830	56.61
9.0	10	22	75	TC12832	82.69
10.0	10	22	75	TC12834	104.47
11.0	12	25	75	TC12836	115.38
12.0	12	25	75	TC12838	119.73
14.0	14	32	89	TC12840	202.47
16.0	16	32	89	TC12842	230.75
18.0	18	38	100	TC12844	315.65
20.0	20	38	100	TC12846	500.65
25.0	25	38	100	TC12848	653.06

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.0mm, -.05mm	-.0025, -.01mm	+.025, -.025mm

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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

**TAKE 55% OFF LIST PRICE!**



**SERIES 741**  
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	1/2	1-1/2	0.015	TC74104	29.52
1/8	1/8	1/2	1-1/2	0.020	TC74106	29.52
1/8	1/8	1/2	1-1/2	0.030	TC74108	29.52
3/16	3/16	5/8	2	0.015	TC74110	29.52
3/16	3/16	5/8	2	0.020	TC74112	29.52
3/16	3/16	5/8	2	0.030	TC74114	29.52
1/4	1/4	3/4	2-1/2	0.015	TC74116	40.56
1/4	1/4	3/4	2-1/2	0.020	TC74118	40.56
1/4	1/4	3/4	2-1/2	0.030	TC74120	40.56
1/4	1/4	3/4	2-1/2	0.045	TC74122	40.56
1/4	1/4	3/4	2-1/2	0.060	TC74124	40.56
5/16	5/16	13/16	2-1/2	0.015	TC74126	54.40
5/16	5/16	13/16	2-1/2	0.020	TC74128	54.40
5/16	5/16	13/16	2-1/2	0.030	TC74130	54.40
5/16	5/16	13/16	2-1/2	0.045	TC74132	54.40
5/16	5/16	13/16	2-1/2	0.060	TC74134	54.40
3/8	3/8	1	2-1/2	0.015	TC74136	68.29
3/8	3/8	1	2-1/2	0.020	TC74138	68.29
3/8	3/8	1	2-1/2	0.030	TC74140	68.29
3/8	3/8	1	2-1/2	0.045	TC74142	68.29
3/8	3/8	1	2-1/2	0.060	TC74144	68.29
1/2	1/2	1	3	0.015	TC74146	103.02
1/2	1/2	1	3	0.020	TC74148	103.02
1/2	1/2	1	3	0.030	TC74150	103.02

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	3	0.045	TC74152	103.02
1/2	1/2	1	3	0.060	TC74154	103.02
1/2	1/2	1	3	0.090	TC74156	103.02
1/2	1/2	1	3	0.125	TC74158	103.02
5/8	5/8	1-1/4	3-1/2	0.015	TC74160	167.84
5/8	5/8	1-1/4	3-1/2	0.020	TC74162	167.84
5/8	5/8	1-1/4	3-1/2	0.030	TC74164	167.84
5/8	5/8	1-1/4	3-1/2	0.045	TC74166	167.84
5/8	5/8	1-1/4	3-1/2	0.060	TC74168	167.84
5/8	5/8	1-1/4	3-1/2	0.090	TC74170	167.84
3/4	3/4	1-1/2	4	0.015	TC74172	230.34
3/4	3/4	1-1/2	4	0.020	TC74174	230.34
3/4	3/4	1-1/2	4	0.030	TC74176	230.34
3/4	3/4	1-1/2	4	0.045	TC74178	230.34
3/4	3/4	1-1/2	4	0.060	TC74180	230.34
3/4	3/4	1-1/2	4	0.090	TC74182	230.34
3/4	3/4	1-1/2	4	0.125	TC74184	230.34
1	1	1-1/2	4	0.015	TC74186	446.42
1	1	1-1/2	4	0.020	TC74188	446.42
1	1	1-1/2	4	0.030	TC74190	446.42
1	1	1-1/2	4	0.045	TC74192	446.42
1	1	1-1/2	4	0.060	TC74194	446.42
1	1	1-1/2	4	0.090	TC74196	446.42
1	1	1-1/2	4	0.125	TC74198	446.42



For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+ .000, -.002	-.0001, -.0004 ISO H6	+ .001, -.001
5/8" - 1"	+ .000, -.003	-.0001, -.0004 ISO H6	+ .001, -.001

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**SERIES 744**  
ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/8	1/8	3/4	2-1/4	0.015	TC74401	32.45
1/8	1/8	3/4	2-1/4	0.020	TC74402	32.45
1/8	1/8	3/4	2-1/4	0.030	TC74403	32.45
3/16	3/16	3/4	2-1/2	0.015	TC74404	37.71
3/16	3/16	3/4	2-1/2	0.020	TC74405	37.71
3/16	3/16	3/4	2-1/2	0.030	TC74406	37.71
1/4	1/4	1-1/8	3	0.015	TC74407	52.61
1/4	1/4	1-1/8	3	0.020	TC74408	52.61
1/4	1/4	1-1/8	3	0.030	TC74409	52.61
1/4	1/4	1-1/8	3	0.045	TC74410	52.61
1/4	1/4	1-1/8	3	0.060	TC74411	52.61
1/4	1/4	1	4	0.015	TC74412	55.24
1/4	1/4	1	4	0.020	TC74413	55.24
1/4	1/4	1	4	0.030	TC74414	55.24
1/4	1/4	1	4	0.045	TC74415	55.24
1/4	1/4	1	4	0.060	TC74416	55.24
5/16	5/16	1-1/8	3	0.015	TC74417	59.63
5/16	5/16	1-1/8	3	0.020	TC74418	59.63
5/16	5/16	1-1/8	3	0.030	TC74419	59.63
5/16	5/16	1-1/8	3	0.045	TC74420	59.63
5/16	5/16	1-1/8	3	0.060	TC74421	59.63
3/8	3/8	1-1/8	3	0.015	TC74422	75.24
3/8	3/8	1-1/8	3	0.020	TC74423	75.24
3/8	3/8	1-1/8	3	0.030	TC74424	75.24
3/8	3/8	1-1/8	3	0.045	TC74425	75.24
3/8	3/8	1-1/8	3	0.060	TC74426	75.24
3/8	3/8	1	4	0.015	TC74427	93.76
3/8	3/8	1	4	0.020	TC74428	93.76
3/8	3/8	1	4	0.030	TC74429	93.76
3/8	3/8	1	4	0.045	TC74430	93.76
3/8	3/8	1	4	0.060	TC74431	93.76
1/2	1/2	1	4	0.015	TC74432	129.64
1/2	1/2	1	4	0.020	TC74433	129.64

DIA	SHANK	LOC	OAL	RAD	ITEM#	LIST PRICE
1/2	1/2	1	4	0.030	TC74434	129.64
1/2	1/2	1	4	0.045	TC74435	129.64
1/2	1/2	1	4	0.060	TC74436	129.64
1/2	1/2	1	4	0.090	TC74437	129.64
1/2	1/2	1	4	0.125	TC74438	129.64
1/2	1/2	2	4	0.015	TC74439	137.74
1/2	1/2	2	4	0.020	TC74440	137.74
1/2	1/2	2	4	0.030	TC74441	137.74
1/2	1/2	2	4	0.045	TC74442	137.74
1/2	1/2	2	4	0.060	TC74443	137.74
1/2	1/2	2	4	0.090	TC74444	137.74
1/2	1/2	2	4	0.125	TC74445	137.74
5/8	5/8	2-1/4	5	0.015	TC74446	249.04
5/8	5/8	2-1/4	5	0.020	TC74447	249.04
5/8	5/8	2-1/4	5	0.030	TC74448	249.04
5/8	5/8	2-1/4	5	0.045	TC74449	249.04
5/8	5/8	2-1/4	5	0.060	TC74450	249.04
5/8	5/8	2-1/4	5	0.090	TC74451	249.04
3/4	3/4	2-1/4	5	0.015	TC74452	324.10
3/4	3/4	2-1/4	5	0.020	TC74453	324.10
3/4	3/4	2-1/4	5	0.030	TC74454	324.10
3/4	3/4	2-1/4	5	0.045	TC74455	324.10
3/4	3/4	2-1/4	5	0.060	TC74456	324.10
3/4	3/4	2-1/4	5	0.090	TC74457	324.10
3/4	3/4	2-1/4	5	0.125	TC74458	324.10
1	1	2-1/4	5	0.015	TC74459	509.30
1	1	2-1/4	5	0.020	TC74460	509.30
1	1	2-1/4	5	0.030	TC74461	509.30
1	1	2-1/4	5	0.045	TC74462	509.30
1	1	2-1/4	5	0.060	TC74463	509.30
1	1	2-1/4	5	0.090	TC74464	509.30
1	1	2-1/4	5	0.125	TC74465	509.30



For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.00, -.002	-.0001, -.0004 ISO H6	+0.001, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.001, -.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

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	36.83
1/8	1/8	1	3	0.020	TC74602	36.83
1/8	1/8	1	3	0.030	TC74603	36.83
3/16	3/16	1-1/8	3	0.015	TC74604	40.34
3/16	3/16	1-1/8	3	0.020	TC74605	40.34
3/16	3/16	1-1/8	3	0.030	TC74606	40.34
1/4	1/4	1-1/2	4	0.015	TC74607	56.12
1/4	1/4	1-1/2	4	0.020	TC74608	56.12
1/4	1/4	1-1/2	4	0.030	TC74609	56.12
1/4	1/4	1-1/2	4	0.045	TC74610	56.12
1/4	1/4	1-1/2	4	0.060	TC74611	56.12
1/4	1/4	1-1/2	6	0.015	TC74612	75.41
1/4	1/4	1-1/2	6	0.020	TC74613	75.41
1/4	1/4	1-1/2	6	0.030	TC74614	75.41
1/4	1/4	1-1/2	6	0.045	TC74615	75.41
1/4	1/4	1-1/2	6	0.060	TC74616	75.41
5/16	5/16	1-5/8	4	0.015	TC74617	77.17
5/16	5/16	1-5/8	4	0.020	TC74618	77.17
5/16	5/16	1-5/8	4	0.030	TC74619	77.17
5/16	5/16	1-5/8	4	0.045	TC74620	77.17
5/16	5/16	1-5/8	4	0.060	TC74621	77.17
3/8	3/8	1-3/4	4	0.015	TC74622	84.18
3/8	3/8	1-3/4	4	0.020	TC74623	84.18
3/8	3/8	1-3/4	4	0.030	TC74624	84.18
3/8	3/8	1-3/4	4	0.045	TC74625	84.18
3/8	3/8	1-3/4	4	0.060	TC74626	84.18
3/8	3/8	1-1/2	6	0.015	TC74627	119.26
3/8	3/8	1-1/2	6	0.020	TC74628	119.26
3/8	3/8	1-1/2	6	0.030	TC74629	119.26
3/8	3/8	1-1/2	6	0.045	TC74630	119.26
3/8	3/8	1-1/2	6	0.060	TC74631	119.26
1/2	1/2	1-1/2	6	0.015	TC74632	180.64
1/2	1/2	1-1/2	6	0.020	TC74633	180.64
1/2	1/2	1-1/2	6	0.030	TC74634	180.64
1/2	1/2	1-1/2	6	0.045	TC74635	180.64
1/2	1/2	1-1/2	6	0.060	TC74636	180.64
1/2	1/2	1-1/2	6	0.090	TC74637	180.64
1/2	1/2	1-1/2	6	0.125	TC74638	180.64
1/2	1/2	3	6	0.015	TC74639	189.41
1/2	1/2	3	6	0.020	TC74640	189.41

DIA	SHANK	LOC	OAL	RAD	ITEM #	LIST PRICE
1/2	1/2	3	6	0.030	TC74641	189.41
1/2	1/2	3	6	0.045	TC74642	189.41
1/2	1/2	3	6	0.060	TC74643	189.41
1/2	1/2	3	6	0.090	TC74644	189.41
1/2	1/2	3	6	0.125	TC74645	189.41
5/8	5/8	3	6	0.015	TC74646	266.57
5/8	5/8	3	6	0.020	TC74647	266.57
5/8	5/8	3	6	0.030	TC74648	266.57
5/8	5/8	3	6	0.045	TC74649	266.57
5/8	5/8	3	6	0.060	TC74650	266.57
5/8	5/8	3	6	0.090	TC74651	266.57
3/4	3/4	3	6	0.015	TC74652	365.77
3/4	3/4	3	6	0.020	TC74653	365.77
3/4	3/4	3	6	0.030	TC74654	365.77
3/4	3/4	3	6	0.045	TC74655	365.77
3/4	3/4	3	6	0.060	TC74656	365.77
3/4	3/4	3	6	0.090	TC74657	365.77
3/4	3/4	3	6	0.125	TC74658	365.77
3/4	3/4	4	7	0.015	TC74659	600.74
3/4	3/4	4	7	0.020	TC74660	600.74
3/4	3/4	4	7	0.030	TC74661	600.74
3/4	3/4	4	7	0.045	TC74662	600.74
3/4	3/4	4	7	0.060	TC74663	600.74
3/4	3/4	4	7	0.090	TC74664	600.74
3/4	3/4	4	7	0.125	TC74665	600.74
1	1	3	6	0.015	TC74666	596.11
1	1	3	6	0.020	TC74667	596.11
1	1	3	6	0.030	TC74668	596.11
1	1	3	6	0.045	TC74669	596.11
1	1	3	6	0.060	TC74670	596.11
1	1	3	6	0.090	TC74671	596.11
1	1	3	6	0.125	TC74672	596.11
1	1	4	7	0.015	TC74673	859.35
1	1	4	7	0.020	TC74674	859.35
1	1	4	7	0.030	TC74675	859.35
1	1	4	7	0.045	TC74676	859.35
1	1	4	7	0.060	TC74677	859.35
1	1	4	7	0.090	TC74678	859.35
1	1	4	7	0.125	TC74679	859.35

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
1/8" - 1/2"	+0.000, -0.002	-0.0001, -0.0004 ISO H6	+0.001, -0.001
5/8" - 1"	+0.000, -0.003	-0.0001, -0.0004 ISO H6	+0.001, -0.001

# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**SERIES 145**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14504	22.90
3/32	1/8	3/16	1-1/2	TC14506	23.58
1/8	1/8	1/4	1-1/2	TC14508	19.04
5/32	3/16	5/16	2	TC14510	26.76
3/16	3/16	3/8	2	TC14512	26.76
7/32	1/4	1/2	2-1/2	TC14514	36.71
1/4	1/4	1/2	2-1/2	TC14516	36.71
5/16	5/16	1/2	2-1/2	TC14520	47.47
3/8	3/8	9/16	2-1/2	TC14524	52.40
7/16	7/16	9/16	2-3/4	TC14528	74.01
1/2	1/2	5/8	3	TC14532	90.60

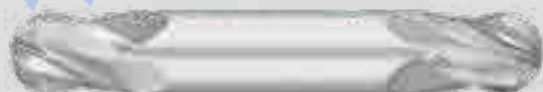


**SERIES 149**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14904	30.92
3/32	1/8	3/16	1-1/2	TC14906	31.86
1/8	1/8	1/4	1-1/2	TC14908	25.68
5/32	3/16	5/16	2	TC14910	34.56
3/16	3/16	3/8	2	TC14912	34.56
7/32	1/4	1/2	2-1/2	TC14914	47.42
1/4	1/4	1/2	2-1/2	TC14916	47.42
5/16	5/16	1/2	2-1/2	TC14920	58.27
3/8	3/8	9/16	2-1/2	TC14924	64.28
7/16	7/16	9/16	2-3/4	TC14928	90.86
1/2	1/2	5/8	3	TC14932	122.29

**TAKE 55% OFF LIST PRICE!**

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



**SERIES 146**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14604	28.64
3/32	1/8	3/16	1-1/2	TC14606	29.46
1/8	1/8	1/4	1-1/2	TC14608	23.80
5/32	3/16	5/16	2	TC14610	33.44
3/16	3/16	3/8	2	TC14612	33.44
7/32	1/4	1/2	2-1/2	TC14614	43.91
1/4	1/4	1/2	2-1/2	TC14616	43.91
5/16	5/16	1/2	2-1/2	TC14620	59.35
3/8	3/8	9/16	2-1/2	TC14624	65.48
7/16	7/16	9/16	2-3/4	TC14628	92.53
1/2	1/2	5/8	3	TC14632	113.24



**SERIES 147**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/16	1/8	1/8	1-1/2	TC14704	38.68
3/32	1/8	3/16	1-1/2	TC14706	39.79
1/8	1/8	1/4	1-1/2	TC14708	32.12
5/32	3/16	5/16	2	TC14710	43.18
3/16	3/16	3/8	2	TC14712	43.18
7/32	1/4	1/2	2-1/2	TC14714	59.26
1/4	1/4	1/2	2-1/2	TC14716	59.26
5/16	5/16	1/2	2-1/2	TC14720	72.81
3/8	3/8	9/16	2-1/2	TC14724	80.36
7/16	7/16	9/16	2-3/4	TC14728	113.59
1/2	1/2	5/8	3	TC14732	152.91

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.000, -.002	-.0001, -.0004 ISO H6	+0.001, -.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



# Carbide End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



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



**SERIES 125**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12508	85.35
5/32	3/8	7/16	3-1/4	TC12510	85.35
3/16	3/8	1/2	3-1/4	TC12512	85.35
7/32	3/8	9/16	3-1/2	TC12514	86.71
1/4	3/8	5/8	3-1/2	TC12516	86.71
9/32	3/8	11/16	3-1/2	TC12518	88.91
5/16	3/8	3/4	3-1/2	TC12520	88.91
11/32	3/8	3/4	3-1/2	TC12522	88.91
3/8	3/8	3/4	3-1/2	TC12524	88.91
7/16	1/2	7/8	4	TC12528	128.89
1/2	1/2	1	4	TC12532	144.80

NOTE: ALL TOOLS ° weldon flats



**SERIES 126**  
ALUMIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC12608	106.55
5/32	3/8	7/16	3-1/4	TC12610	106.55
3/16	3/8	1/2	3-1/4	TC12612	106.55
7/32	3/8	9/16	3-1/2	TC12614	109.00
1/4	3/8	5/8	3-1/2	TC12616	109.00
9/32	3/8	11/16	3-1/2	TC12618	116.98
5/16	3/8	3/4	3-1/2	TC12620	116.98
11/32	3/8	3/4	3-1/2	TC12622	116.98
3/8	3/8	3/4	3-1/2	TC12624	116.98
7/16	1/2	7/8	4	TC12628	174.04
1/2	1/2	1	4	TC12632	195.52

NOTE: ALL TOOLS ° weldon flats

**TAKE 55% OFF LIST PRICE!**

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



**SERIES 135**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13508	97.06
5/32	3/8	7/16	3-1/4	TC13510	97.06
3/16	3/8	1/2	3-1/4	TC13512	97.06
7/32	3/8	9/16	3-1/2	TC13514	98.37
1/4	3/8	5/8	3-1/2	TC13516	98.37
9/32	3/8	11/16	3-1/2	TC13518	107.78
5/16	3/8	3/4	3-1/2	TC13520	107.78
11/32	3/8	3/4	3-1/2	TC13522	107.78
3/8	3/8	3/4	3-1/2	TC13524	107.78
7/16	1/2	7/8	4	TC13528	156.00
1/2	1/2	1	4	TC13532	159.49

NOTE: ALL TOOLS ° weldon flats



**SERIES 136**  
ALUMIN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/8	TC13608	126.72
5/32	3/8	7/16	3-1/4	TC13610	126.72
3/16	3/8	1/2	3-1/4	TC13612	126.72
7/32	3/8	9/16	3-1/2	TC13614	130.91
1/4	3/8	5/8	3-1/2	TC13616	130.91
9/32	3/8	11/16	3-1/2	TC13618	145.53
5/16	3/8	3/4	3-1/2	TC13620	145.53
11/32	3/8	3/4	3-1/2	TC13622	145.53
3/8	3/8	3/4	3-1/2	TC13624	145.53
7/16	1/2	7/8	4	TC13628	198.06
1/2	1/2	1	4	TC13632	215.28

NOTE: ALL TOOLS ° weldon flats

For coating information see page 6. For technical information, please see pages 224, 228-229.

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.00, -.002	-.0001, -.0004 ISO H6	+0.001, -.001

# Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 2 FLUTE - 60° POINT - 30° HELIX



**SERIES 316**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC31602	24.22
1/16	1/8	3/16	1-1/2	TC31604	24.22
3/32	1/8	3/8	1-1/2	TC31606	24.22
1/8	1/8	1/2	1-1/2	TC31608	23.23
3/16	3/16	5/8	2	TC31612	32.70
1/4	1/4	3/4	2-1/2	TC31616	40.93
5/16	5/16	13/16	2-1/2	TC31620	50.82
3/8	3/8	1	2-1/2	TC31624	63.85
7/16	7/16	1	2-3/4	TC31628	86.33
1/2	1/2	1	3	TC31632	105.84
5/8	5/8	1-1/4	3-1/2	TC31640	202.10
3/4	3/4	1-1/2	4	TC31648	297.67



**SERIES 318**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC31802	30.28
1/16	1/8	3/16	1-1/2	TC31804	30.28
3/32	1/8	3/8	1-1/2	TC31806	30.28
1/8	1/8	1/2	1-1/2	TC31808	29.07
3/16	3/16	5/8	2	TC31812	40.89
1/4	1/4	3/4	2-1/2	TC31816	51.16
5/16	5/16	13/16	2-1/2	TC31820	63.51
3/8	3/8	1	2-1/2	TC31824	79.85
7/16	7/16	1	2-3/4	TC31828	107.93
1/2	1/2	1	3	TC31832	132.33
5/8	5/8	1-1/4	3-1/2	TC31840	252.65
3/4	3/4	1-1/2	4	TC31848	372.09

## 4 FLUTE - 60° POINT - 30° HELIX

**TAKE 55% OFF LIST PRICE!**



**SERIES 347**  
UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC34702	24.22
1/16	1/8	3/16	1-1/2	TC34704	24.22
3/32	1/8	3/8	1-1/2	TC34706	24.22
1/8	1/8	1/2	1-1/2	TC34708	23.23
3/16	3/16	5/8	2	TC34712	32.70
1/4	1/4	3/4	2-1/2	TC34716	40.93
5/16	5/16	13/16	2-1/2	TC34720	50.82
3/8	3/8	1	2-1/2	TC34724	63.85
7/16	7/16	1	2-3/4	TC34728	86.33
1/2	1/2	1	3	TC34732	105.84
5/8	5/8	1-1/4	3-1/2	TC34740	202.10
3/4	3/4	1-1/2	4	TC34748	297.67



**SERIES 349**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC34902	30.28
1/16	1/8	3/16	1-1/2	TC34904	30.28
3/32	1/8	3/8	1-1/2	TC34906	30.28
1/8	1/8	1/2	1-1/2	TC34908	29.07
3/16	3/16	5/8	2	TC34912	40.89
1/4	1/4	3/4	2-1/2	TC34916	51.16
5/16	5/16	13/16	2-1/2	TC34920	63.51
3/8	3/8	1	2-1/2	TC34924	79.85
7/16	7/16	1	2-3/4	TC34928	107.93
1/2	1/2	1	3	TC34932	132.33
5/8	5/8	1-1/4	3-1/2	TC34940	252.65
3/4	3/4	1-1/2	4	TC34948	372.09

**Drill mills are very popular 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 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -.0004 ISO H6
1/8" - 1/2"	+0.000, -0.002	-0.0001, -.0004 ISO H6
5/8" - 3/4"	+0.000, -0.003	-0.0001, -.0004 ISO H6

# Carbide Drill Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## 2 FLUTE - 90° POINT - 30° HELIX



**SERIES 320**  
UNCOATED



**SERIES 322**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC32002	24.22
1/16	1/8	3/16	1-1/2	TC32004	24.22
3/32	1/8	3/8	1-1/2	TC32006	24.22
1/8	1/8	1/2	1-1/2	TC32008	23.23
3/16	3/16	5/8	2	TC32012	32.70
1/4	1/4	3/4	2-1/2	TC32016	40.93
5/16	5/16	13/16	2-1/2	TC32020	50.82
3/8	3/8	1	2-1/2	TC32024	63.85
7/16	7/16	1	2-3/4	TC32028	86.33
1/2	1/2	1	3	TC32032	105.84
5/8	5/8	1-1/4	3-1/2	TC32040	202.10
3/4	3/4	1-1/2	4	TC32048	297.67

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC32202	30.28
1/16	1/8	3/16	1-1/2	TC32204	30.28
3/32	1/8	3/8	1-1/2	TC32206	30.28
1/8	1/8	1/2	1-1/2	TC32208	29.07
3/16	3/16	5/8	2	TC32212	40.89
1/4	1/4	3/4	2-1/2	TC32216	51.16
5/16	5/16	13/16	2-1/2	TC32220	63.51
3/8	3/8	1	2-1/2	TC32224	79.85
7/16	7/16	1	2-3/4	TC32228	107.93
1/2	1/2	1	3	TC32232	132.33
5/8	5/8	1-1/4	3-1/2	TC32240	252.65
3/4	3/4	1-1/2	4	TC32248	372.09

## 4 FLUTE - 90° POINT - 30° HELIX

**TAKE 55% OFF LIST PRICE!**



**SERIES 341**  
UNCOATED



**SERIES 343**  
ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC34102	24.22
1/16	1/8	3/16	1-1/2	TC34104	24.22
3/32	1/8	3/8	1-1/2	TC34106	24.22
1/8	1/8	1/2	1-1/2	TC34108	23.23
3/16	3/16	5/8	2	TC34112	32.70
1/4	1/4	3/4	2-1/2	TC34116	40.93
5/16	5/16	13/16	2-1/2	TC34120	50.82
3/8	3/8	1	2-1/2	TC34124	63.85
7/16	7/16	1	2-3/4	TC34128	86.33
1/2	1/2	1	3	TC34132	105.84
5/8	5/8	1-1/4	3-1/2	TC34140	202.10
3/4	3/4	1-1/2	4	TC34148	297.67

DIA	SHANK	LOC	OAL	ITEM#	LIST PRICE
1/32	1/8	1/8	1-1/2	TC34302	30.28
1/16	1/8	3/16	1-1/2	TC34304	30.28
3/32	1/8	3/8	1-1/2	TC34306	30.28
1/8	1/8	1/2	1-1/2	TC34308	29.07
3/16	3/16	5/8	2	TC34312	40.89
1/4	1/4	3/4	2-1/2	TC34316	51.16
5/16	5/16	13/16	2-1/2	TC34320	63.51
3/8	3/8	1	2-1/2	TC34324	79.85
7/16	7/16	1	2-3/4	TC34328	107.93
1/2	1/2	1	3	TC34332	132.33
5/8	5/8	1-1/4	3-1/2	TC34340	252.65
3/4	3/4	1-1/2	4	TC34348	372.09

**Drill mills are very popular 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 224, 228-229.

TOLERANCES	DIAMETER	SHANK
1/32" - 3/32"	+0.000, -0.001	-0.0001, -.0004 ISO H6
1/8" - 1/2"	+0.000, -0.002	-0.0001, -.0004 ISO H6
5/8" - 3/4"	+0.000, -0.003	-0.0001, -.0004 ISO H6

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS

# Carbide Chamfer Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



**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	20.74
1/4	1/4	2-1/2	1	TC87603	TC87615	TC87627	TC87639	TC87651	36.51
3/8	3/8	2-1/2	1	TC87606	TC87618	TC87630	TC87642	TC87654	56.96
1/2	1/2	3	1	TC87609	TC87621	TC87633	TC87645	TC87657	94.29

**TAKE 55% OFF LIST PRICE!**



**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	25.94
1/4	1/4	2-1/2	1	TC87663	TC87675	TC87687	TC87699	TC87711	45.57
3/8	3/8	2-1/2	1	TC87666	TC87678	TC87690	TC87702	TC87714	71.21
1/2	1/2	3	1	TC87669	TC87681	TC87693	TC87705	TC87717	117.95



**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	20.74
1/4	1/4	2-1/2	1	TC87723	TC87735	TC87747	TC87759	TC87771	36.51
3/8	3/8	2-1/2	1	TC87726	TC87738	TC87750	TC87762	TC87774	56.96
1/2	1/2	3	1	TC87729	TC87741	TC87753	TC87765	TC87777	94.29



**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	25.94
1/4	1/4	2-1/2	1	TC87783	TC87795	TC87807	TC87819	TC87831	45.57
3/8	3/8	2-1/2	1	TC87786	TC87798	TC87810	TC87822	TC87834	71.21
1/2	1/2	3	1	TC87789	TC87801	TC87813	TC87825	TC87837	117.95

For coating information see page 6. For technical information, please see pages 224, 230.

# Carbide Chamfer Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**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	37.33
3/16	3/16	2-1/2	1	TC87843	TC87861	TC87879	TC87897	TC87915	51.41
1/4	1/4	2-1/2	1	TC87846	TC87864	TC87882	TC87900	TC87918	65.72
5/16	5/16	2-1/2	1	TC87849	TC87867	TC87885	TC87903	TC87921	84.13
3/8	3/8	2-1/2	1	TC87852	TC87870	TC87888	TC87906	TC87924	102.53
1/2	1/2	3	1	TC87855	TC87873	TC87891	TC87909	TC87927	169.72



**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	46.69
3/16	3/16	2-1/2	1	TC87933	TC87951	TC87969	TC87987	TC88005	64.26
1/4	1/4	2-1/2	1	TC87936	TC87954	TC87972	TC87990	TC88008	82.02
5/16	5/16	2-1/2	1	TC87939	TC87957	TC87975	TC87993	TC88011	105.10
3/8	3/8	2-1/2	1	TC87942	TC87960	TC87978	TC87996	TC88014	128.29
1/2	1/2	3	1	TC87945	TC87963	TC87981	TC87999	TC88017	212.36

**TAKE 55% OFF LIST PRICE!**



**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	37.33
3/16	3/16	2-1/2	1	TC88023	TC88041	TC88059	TC88077	TC88095	51.41
1/4	1/4	2-1/2	1	TC88026	TC88044	TC88062	TC88080	TC88098	65.72
5/16	5/16	2-1/2	1	TC88029	TC88047	TC88065	TC88083	TC88101	84.13
3/8	3/8	2-1/2	1	TC88032	TC88050	TC88068	TC88086	TC88104	102.53
1/2	1/2	3	1	TC88035	TC88053	TC88071	TC88089	TC88107	169.72



**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	46.69
3/16	3/16	2-1/2	1	TC88113	TC88131	TC88149	TC88167	TC88185	64.26
1/4	1/4	2-1/2	1	TC88116	TC88134	TC88152	TC88170	TC88188	82.02
5/16	5/16	2-1/2	1	TC88119	TC88137	TC88155	TC88173	TC88191	105.10
3/8	3/8	2-1/2	1	TC88122	TC88140	TC88158	TC88176	TC88194	128.29
1/2	1/2	3	1	TC88125	TC88143	TC88161	TC88179	TC88197	212.36

For coating information see page 6. For technical information, please see pages 224, 230.

END MILLS  
 DRILL MILLS  
 CHAMFER MILLS  
 DRILLS  
 REAMERS  
 BURS

**TAKE 55% OFF  
LIST PRICE!**



**90° POINT**  
**SERIES 187**  
UNCOATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC18708	29.05
3/16	3/16	3/8	2	TC18712	34.57
1/4	1/4	3/8	3	TC18716	41.98
3/8	3/8	1/2	4	TC18724	68.70
1/2	1/2	3/4	4	TC18732	111.55
5/8	5/8	1	4	TC18740	198.57
3/4	3/4	1	4	TC18748	266.62



**120° POINT**  
**SERIES 188**  
UNCOATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC18808	29.05
3/16	3/16	3/8	2	TC18812	34.57
1/4	1/4	3/8	3	TC18816	41.98
3/8	3/8	1/2	4	TC18824	68.70
1/2	1/2	3/4	4	TC18832	111.55
5/8	5/8	1	4	TC18840	198.57
3/4	3/4	1	4	TC18848	266.62



**140° POINT**  
**SERIES 189**  
UNCOATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC18908	29.05
3/16	3/16	3/8	2	TC18912	34.57
1/4	1/4	3/8	3	TC18916	41.98
3/8	3/8	1/2	4	TC18924	68.70
1/2	1/2	3/4	4	TC18932	111.55
5/8	5/8	1	4	TC18940	198.57
3/4	3/4	1	4	TC18948	266.62

For technical information, please see page 231.

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide Spot Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



**90° POINT  
SERIES 287  
ALTiN COATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC28708	36.31
3/16	3/16	3/8	2	TC28712	43.22
1/4	1/4	3/8	3	TC28716	52.72
3/8	3/8	1/2	4	TC28724	83.43
1/2	1/2	3/4	4	TC28732	145.23
5/8	5/8	1	4	TC28740	253.88
3/4	3/4	1	4	TC28748	333.29



**120° POINT  
SERIES 288  
ALTiN COATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC28808	36.31
3/16	3/16	3/8	2	TC28812	43.22
1/4	1/4	3/8	3	TC28816	52.72
3/8	3/8	1/2	4	TC28824	83.43
1/2	1/2	3/4	4	TC28832	145.23
5/8	5/8	1	4	TC28840	253.88
3/4	3/4	1	4	TC28848	333.29



**140° POINT  
SERIES 289  
ALTiN COATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	LIST PRICE
1/8	1/8	1/4	2	TC28908	36.31
3/16	3/16	3/8	2	TC28912	43.22
1/4	1/4	3/8	3	TC28916	52.72
3/8	3/8	1/2	4	TC28924	83.43
1/2	1/2	3/4	4	TC28932	145.23
5/8	5/8	1	4	TC28940	253.88
3/4	3/4	1	4	TC28948	333.29

END MILLS

DRILL MILLS

CHAMFER MILLS

**DRILLS**

REAMERS

BURS

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



# Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

STUB LENGTH - 135° SPLIT POINT - 15° HELIX

**SERIES 200**  
UNCOATED



**SERIES 201**  
ALTIM COATED



### FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1/32	3/8	1-1/2	TC20002	17.40	TC29002	21.76
3/64	3/8	1-1/2	TC20003	17.40	TC29003	21.76
1/16	13/32	1-1/2	TC20004	16.44	TC29004	20.53
5/64	7/16	1-1/2	TC20005	17.40	TC29005	21.76
3/32	1/2	1-1/2	TC20006	19.18	TC29006	23.96
7/64	5/8	2	TC20007	21.76	TC29007	27.20
1/8	3/4	2	TC20008	23.23	TC29008	29.01
9/64	3/4	2	TC20009	25.74	TC29009	32.14
5/32	7/8	2	TC20010	28.82	TC29010	36.00
11/64	7/8	2	TC20011	34.03	TC29011	42.56
3/16	7/8	2	TC20012	34.99	TC29012	43.75
13/64	1-1/8	2-1/2	TC20013	40.44	TC29013	50.54
7/32	1-1/8	2-1/2	TC20014	44.87	TC29014	56.10
15/64	1-1/4	2-1/2	TC20015	50.78	TC29015	63.47
1/4	1-1/4	2-1/2	TC20016	53.36	TC29016	66.71
17/64	1-1/4	2-1/2	TC20017	60.15	TC29017	75.16

### FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
9/32	1-1/4	2-1/2	TC20018	62.66	TC29018	78.32
19/64	1-1/4	2-1/2	TC20019	70.38	TC29019	88.01
5/16	1-1/4	2-1/2	TC20020	74.12	TC29020	92.60
21/64	1-3/8	3	TC20021	80.83	TC29021	101.05
11/32	1-3/8	3	TC20022	88.39	TC29022	110.46
23/64	1-3/8	3	TC20023	98.81	TC29023	123.50
3/8	1-3/8	3	TC20024	104.79	TC29024	130.99
25/64	1-3/8	3	TC20025	122.73	TC29025	153.41
13/32	1-3/8	3	TC20026	134.42	TC29026	168.03
27/64	1-3/8	3	TC20027	146.23	TC29027	182.77
7/16	1-3/8	3	TC20028	152.94	TC29028	191.18
29/64	1-3/8	3	TC20029	177.44	TC29029	221.81
15/32	1-3/8	3	TC20030	184.89	TC29030	231.11
31/64	1-3/8	3	TC20031	190.10	TC29031	237.63
1/2	1-3/8	3	TC20032	190.52	TC29032	238.14

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

### LETTER SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	1-1/4	2-1/2	TC20101	51.24	TC29101	64.05
B	1-1/4	2-1/2	TC20102	53.36	TC29102	66.71
C	1-1/4	2-1/2	TC20103	53.75	TC29103	67.21
D	1-1/4	2-1/2	TC20104	54.44	TC29104	68.02
E	1-1/4	2-1/2	TC20105	53.36	TC29105	66.71
F	1-1/4	2-1/2	TC20106	59.38	TC29106	74.20
G	1-1/4	2-1/2	TC20107	62.93	TC29107	78.67
H	1-1/4	2-1/2	TC20108	64.28	TC29108	80.37
I	1-1/4	2-1/2	TC20109	65.36	TC29109	81.72
J	1-1/4	2-1/2	TC20110	67.10	TC29110	83.88
K	1-1/4	2-1/2	TC20111	67.71	TC29111	84.61
L	1-1/4	2-1/2	TC20112	71.57	TC29112	89.44
M	1-1/4	2-1/2	TC20113	73.00	TC29113	91.29

### LETTER SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
N	1-1/4	2-1/2	TC20114	77.59	TC29114	96.96
O	1-3/8	3	TC20115	81.80	TC29115	102.25
P	1-3/8	3	TC20116	84.92	TC29116	106.14
Q	1-3/8	3	TC20117	88.01	TC29117	110.00
R	1-3/8	3	TC20118	91.87	TC29118	114.82
S	1-3/8	3	TC20119	97.85	TC29119	122.35
T	1-3/8	3	TC20120	101.36	TC29120	126.71
U	1-3/8	3	TC20121	106.37	TC29121	132.96
V	1-3/8	3	TC20122	117.79	TC29122	147.23
W	1-3/8	3	TC20123	126.86	TC29123	158.58
X	1-3/8	3	TC20124	138.48	TC29124	173.08
Y	1-3/8	3	TC20125	143.11	TC29125	178.87
Z	1-3/8	3	TC20126	155.10	TC29126	193.84

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

DIAMETER TOLERANCE      +.0000, -.0005

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



# Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

STUB LENGTH - 135° SPLIT POINT - 15° HELIX

**SERIES 200**  
UNCOATED



**SERIES 201**  
ALTIM COATED



WIRE SIZES						WIRE SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1	1-1/4	2-1/2	TC20201	46.42	TC29201	58.03	31	3/4	2	TC20231	22.65	TC29231	28.28
2	1-1/4	2-1/2	TC20202	46.42	TC29202	58.03	32	3/4	2	TC20232	22.65	TC29232	28.28
3	1-1/8	2-1/2	TC20203	46.42	TC29203	58.03	33	3/4	2	TC20233	22.42	TC29233	28.05
4	1-1/8	2-1/2	TC20204	45.91	TC29204	57.41	34	3/4	2	TC20234	22.22	TC29234	27.78
5	1-1/8	2-1/2	TC20205	41.01	TC29205	51.24	35	3/4	2	TC20235	22.22	TC29235	27.78
6	1-1/8	2-1/2	TC20206	41.01	TC29206	51.24	36	5/8	2	TC20236	22.22	TC29236	27.78
7	1-1/8	2-1/2	TC20207	39.82	TC29207	49.77	37	5/8	2	TC20237	21.07	TC29237	26.35
8	1-1/8	2-1/2	TC20208	39.66	TC29208	49.58	38	5/8	2	TC20238	20.68	TC29238	25.85
9	1-1/8	2-1/2	TC20209	39.66	TC29209	49.58	39	5/8	2	TC20239	20.68	TC29239	25.85
10	1-1/8	2-1/2	TC20210	39.66	TC29210	49.58	40	5/8	2	TC20240	19.91	TC29240	24.92
11	1-1/8	2-1/2	TC20211	38.66	TC29211	48.34	41	5/8	2	TC20241	19.91	TC29241	24.92
12	1-1/8	2-1/2	TC20212	38.66	TC29212	48.34	42	1/2	1-1/2	TC20242	19.37	TC29242	24.19
13	7/8	2	TC20213	37.31	TC29213	46.65	43	1/2	1-1/2	TC20243	19.37	TC29243	24.19
14	7/8	2	TC20214	36.38	TC29214	45.49	44	1/2	1-1/2	TC20244	18.37	TC29244	22.96
15	7/8	2	TC20215	35.81	TC29215	44.72	45	1/2	1-1/2	TC20245	17.79	TC29245	22.22
16	7/8	2	TC20216	35.81	TC29216	44.72	46	1/2	1-1/2	TC20246	17.79	TC29246	22.22
17	7/8	2	TC20217	34.03	TC29217	42.56	47	1/2	1-1/2	TC20247	17.79	TC29247	22.22
18	7/8	2	TC20218	31.99	TC29218	40.01	48	7/16	1-1/2	TC20248	17.79	TC29248	22.22
19	7/8	2	TC20219	31.33	TC29219	39.16	49	7/16	1-1/2	TC20249	17.02	TC29249	21.26
20	7/8	2	TC20220	29.98	TC29220	37.50	50	7/16	1-1/2	TC20250	17.02	TC29250	21.26
21	7/8	2	TC20221	29.98	TC29221	37.50	51	7/16	1-1/2	TC20251	16.44	TC29251	20.53
22	7/8	2	TC20222	28.82	TC29222	36.00	52	7/16	1-1/2	TC20252	16.44	TC29252	20.53
23	7/8	2	TC20223	28.82	TC29223	36.00	53	13/32	1-1/2	TC20253	17.40	TC29253	21.76
24	7/8	2	TC20224	28.63	TC29224	35.81	54	13/32	1-1/2	TC20254	17.40	TC29254	21.76
25	7/8	2	TC20225	27.09	TC29225	33.84	55	13/32	1-1/2	TC20255	17.40	TC29255	21.76
26	7/8	2	TC20226	27.09	TC29226	33.84	56	3/8	1-1/2	TC20256	17.40	TC29256	21.76
27	7/8	2	TC20227	27.09	TC29227	33.84	57	3/8	1-1/2	TC20257	17.40	TC29257	21.76
28	3/4	2	TC20228	25.74	TC29228	32.14	58	3/8	1-1/2	TC20258	17.40	TC29258	21.76
29	3/4	2	TC20229	25.74	TC29229	32.14	59	3/8	1-1/2	TC20259	17.40	TC29259	21.76
30	3/4	2	TC20230	24.35	TC29230	30.44	60	3/8	1-1/2	TC20260	17.40	TC29260	21.76

NOTE: SIZES 31 - 60 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

## JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX

**SERIES 190**  
UNCOATED



**SERIES 191**  
ALTiN COATED



**TAKE 55% OFF  
LIST PRICE!**

### FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE
1/32	5/16	1-1/4	TC19002	16.36	TC79002	20.45
3/64	3/4	1-1/2	TC19003	16.36	TC79003	20.45
1/16	3/4	1-1/2	TC19004	15.47	TC79004	19.33
5/64	7/8	1-3/4	TC19005	16.36	TC79005	20.45
3/32	1	2	TC19006	18.02	TC79006	22.53
7/64	1-1/4	2-1/4	TC19007	20.49	TC79007	25.62
1/8	1-1/4	2-1/4	TC19008	21.84	TC79008	27.32
9/64	1-3/8	2-1/2	TC19009	24.19	TC79009	30.25
5/32	1-3/8	2-1/2	TC19010	27.12	TC79010	33.91
11/64	1-5/8	2-3/4	TC19011	32.02	TC79011	40.05
3/16	1-5/8	2-3/4	TC19012	32.95	TC79012	41.17
13/64	1-3/4	3	TC19013	38.04	TC79013	47.57
7/32	1-3/4	3	TC19014	42.21	TC79014	52.78
15/64	2	3-1/4	TC19015	47.80	TC79015	59.73
1/4	2	3-1/4	TC19016	50.24	TC79016	62.77
17/64	2-1/8	3-1/2	TC19017	56.56	TC79017	70.72

### FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE
9/32	2-1/8	3-1/2	TC19018	58.99	TC79018	73.77
19/64	2-3/8	3-3/4	TC19019	66.29	TC79019	82.84
5/16	2-3/8	3-3/4	TC19020	69.72	TC79020	87.12
21/64	2-1/2	4	TC19021	76.09	TC79021	95.11
11/32	2-1/2	4	TC19022	83.19	TC79022	103.98
23/64	2-3/4	4-1/4	TC19023	93.02	TC79023	116.29
3/8	2-3/4	4-1/4	TC19024	98.66	TC79024	123.31
25/64	2-7/8	4-1/2	TC19025	115.52	TC79025	144.38
13/32	2-7/8	4-1/2	TC19026	126.51	TC79026	158.15
27/64	2-7/8	4-1/2	TC19027	137.59	TC79027	171.97
7/16	2-7/8	4-1/2	TC19028	143.95	TC79028	179.99
29/64	3	4-3/4	TC19029	167.03	TC79029	208.77
15/32	3	4-3/4	TC19030	174.01	TC79030	217.49
31/64	3	4-3/4	TC19031	178.91	TC79031	223.67
1/2	3	4-3/4	TC19032	179.30	TC79032	224.13

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

### METRIC SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE
0.7	12	31	TC19307	20.33	TC79307	25.43
0.8	12	31	TC19308	20.33	TC79308	25.43
0.9	16	38	TC19309	20.33	TC79309	25.43
1.0	16	38	TC19310	20.33	TC79310	25.43
1.1	19	38	TC19311	20.33	TC79311	25.43
1.2	19	38	TC19312	20.33	TC79312	25.43
1.3	19	38	TC19313	20.33	TC79313	25.43
1.4	19	38	TC19314	20.33	TC79314	25.43
1.5	19	38	TC19315	20.49	TC79315	25.62
1.6	19	38	TC19316	20.49	TC79316	25.62
1.7	19	38	TC19317	20.49	TC79317	25.62
1.8	22	38	TC19318	20.49	TC79318	25.62
1.9	22	38	TC19319	20.49	TC79319	25.62
2.0	22	44	TC19320	21.76	TC79320	27.20
2.1	22	44	TC19321	21.76	TC79321	27.20
2.2	25	50	TC19322	21.76	TC79322	27.20
2.3	25	50	TC19323	21.76	TC79323	27.20
2.4	25	50	TC19324	21.76	TC79324	27.20
2.5	25	50	TC19325	25.00	TC79325	31.25
2.6	32	57	TC19326	25.00	TC79326	31.25
2.7	32	57	TC19327	25.00	TC79327	31.25
2.8	32	57	TC19328	25.00	TC79328	31.25
2.9	32	57	TC19329	25.00	TC79329	31.25

### METRIC SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTiN	LIST PRICE
3.0	32	57	TC19330	28.01	TC79330	34.99
3.1	32	57	TC19331	28.01	TC79331	34.99
3.2	32	57	TC19332	28.01	TC79332	34.99
3.3	32	57	TC19333	28.01	TC79333	34.99
3.4	35	63	TC19334	30.40	TC79334	38.04
3.5	35	63	TC19335	30.40	TC79335	38.04
4.0	35	63	TC19340	37.43	TC79340	46.76
4.5	41	70	TC19345	40.09	TC79345	50.12
5.0	44	75	TC19350	44.33	TC79350	55.44
5.5	44	75	TC19355	52.51	TC79355	65.63
6.0	50	82	TC19360	55.52	TC79360	69.37
6.5	50	82	TC19365	88.43	TC79365	110.54
7.0	54	89	TC19370	96.84	TC79370	121.07
7.5	60	95	TC19375	100.01	TC79375	125.01
8.0	60	95	TC19380	105.80	TC79380	132.22
8.5	63	100	TC19385	130.60	TC79385	163.25
9.0	70	100	TC19390	148.28	TC79390	185.35
9.5	70	108	TC19395	169.19	TC79395	211.51
10.0	73	114	TC19400	194.30	TC79400	242.88
10.5	73	114	TC19405	217.30	TC79405	271.63
11.0	73	114	TC19410	258.55	TC79410	323.21
11.5	76	120	TC19415	266.30	TC79415	332.90
12.0	76	120	TC19420	295.55	TC79420	369.47

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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX

**SERIES 190**  
UNCOATED



**SERIES 191**  
ALTIM COATED



**TAKE 55% OFF LIST PRICE!**

LETTER SIZES						
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	2	3-1/4	TC19101	48.23	TC79101	60.27
B	2	3-1/4	TC19102	50.24	TC79102	62.77
C	2	3-1/4	TC19103	50.62	TC79103	63.28
D	2	3-1/4	TC19104	51.24	TC79104	64.05
E	2	3-1/4	TC19105	50.24	TC79105	62.77
F	2	3-1/4	TC19106	59.64	TC79106	69.84
G	2-1/8	3-1/2	TC19107	64.50	TC79107	74.04
H	2-1/8	3-1/2	TC19108	66.21	TC79108	75.66
I	2-1/8	3-1/2	TC19109	67.48	TC79109	76.90
J	2-1/8	3-1/2	TC19110	71.73	TC79110	78.98
K	2-1/8	3-1/2	TC19111	71.90	TC79111	79.64
L	2-1/8	3-1/2	TC19112	72.21	TC79112	84.19
M	2-3/8	3-3/4	TC19113	72.64	TC79113	85.89

LETTER SIZES						
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
N	2-3/8	3-3/4	TC19114	79.71	TC79114	91.29
O	2-3/8	3-3/4	TC19115	84.30	TC79115	96.23
P	2-3/8	3-3/4	TC19116	87.12	TC79116	99.89
Q	2-1/2	4	TC19117	92.52	TC79117	103.52
R	2-1/2	4	TC19118	95.36	TC79118	108.07
S	2-1/2	4	TC19119	101.79	TC79119	115.13
T	2-3/4	4-1/4	TC19120	105.35	TC79120	119.22
U	2-3/4	4-1/4	TC19121	110.45	TC79121	125.13
V	2-3/4	4-1/4	TC19122	119.69	TC79122	138.59
W	2-7/8	4-1/2	TC19123	125.72	TC79123	149.28
X	2-7/8	4-1/2	TC19124	137.36	TC79124	162.90
Y	2-7/8	4-1/2	TC19125	141.82	TC79125	168.38
Z	2-7/8	4-1/2	TC19126	176.01	TC79126	182.46

WIRE SIZES						
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1	1-3/4	3	TC19201	43.71	TC79201	54.63
2	1-3/4	3	TC19202	43.71	TC79202	54.63
3	1-3/4	3	TC19203	43.71	TC79203	54.63
4	1-3/4	3	TC19204	43.25	TC79204	54.06
5	1-3/4	3	TC19205	38.58	TC79205	48.27
6	1-3/4	3	TC19206	38.58	TC79206	48.27
7	1-3/4	3	TC19207	37.50	TC79207	46.88
8	1-3/4	3	TC19208	37.31	TC79208	46.65
9	1-3/4	3	TC19209	37.31	TC79209	46.65
10	1-5/8	2-3/4	TC19210	37.31	TC79210	46.65
11	1-5/8	2-3/4	TC19211	36.42	TC79211	45.49
12	1-5/8	2-3/4	TC19212	36.42	TC79212	45.49
13	1-5/8	2-3/4	TC19213	35.11	TC79213	43.91
14	1-5/8	2-3/4	TC19214	34.22	TC79214	42.79
15	1-5/8	2-3/4	TC19215	33.68	TC79215	42.09
16	1-5/8	2-3/4	TC19216	33.68	TC79216	42.09
17	1-5/8	2-3/4	TC19217	32.02	TC79217	40.05
18	1-5/8	2-3/4	TC19218	30.13	TC79218	37.66
19	1-5/8	2-3/4	TC19219	29.48	TC79219	36.85
20	1-3/8	2-1/2	TC19220	28.20	TC79220	35.27
21	1-3/8	2-1/2	TC19221	28.20	TC79221	35.27
22	1-3/8	2-1/2	TC19222	27.12	TC79222	33.91
23	1-3/8	2-1/2	TC19223	27.12	TC79223	33.91
24	1-3/8	2-1/2	TC19224	26.93	TC79224	33.68
25	1-3/8	2-1/2	TC19225	25.47	TC79225	31.87
26	1-3/8	2-1/2	TC19226	25.47	TC79226	31.87
27	1-3/8	2-1/2	TC19227	25.47	TC79227	31.87
28	1-3/8	2-1/2	TC19228	24.19	TC79228	30.25
29	1-3/8	2-1/2	TC19229	24.19	TC79229	30.25
30	1-1/4	2-1/4	TC19230	22.92	TC79230	28.67

WIRE SIZES						
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
31	1-1/4	2-1/4	TC19231	21.30	TC79231	26.62
32	1-1/4	2-1/4	TC19232	21.30	TC79232	26.62
33	1-1/4	2-1/4	TC19233	21.11	TC79233	26.39
34	1-1/4	2-1/4	TC19234	20.95	TC79234	26.16
35	1-1/4	2-1/4	TC19235	20.95	TC79235	26.16
36	1-1/4	2-1/4	TC19236	20.95	TC79236	26.16
37	1-1/4	2-1/4	TC19237	19.83	TC79237	24.81
38	1-1/4	2-1/4	TC19238	19.48	TC79238	24.35
39	1-1/4	2-1/4	TC19239	19.48	TC79239	24.35
40	1	2	TC19240	18.75	TC79240	23.42
41	1	2	TC19241	18.75	TC79241	23.42
42	1	2	TC19242	18.21	TC79242	22.76
43	1	2	TC19243	18.21	TC79243	22.76
44	1	2	TC19244	17.29	TC79244	21.61
45	7/8	1-3/4	TC19245	16.78	TC79245	20.95
46	7/8	1-3/4	TC19246	16.78	TC79246	20.95
47	7/8	1-3/4	TC19247	16.78	TC79247	20.95
48	7/8	1-3/4	TC19248	16.78	TC79248	20.95
49	7/8	1-3/4	TC19249	16.01	TC79249	20.02
50	7/8	1-3/4	TC19250	16.01	TC79250	20.02
51	3/4	1-1/2	TC19251	15.47	TC79251	19.33
52	3/4	1-1/2	TC19252	15.47	TC79252	19.33
53	3/4	1-1/2	TC19253	16.36	TC79253	20.45
54	3/4	1-1/2	TC19254	16.36	TC79254	20.45
55	3/4	1-1/2	TC19255	16.36	TC79255	20.45
56	3/4	1-1/2	TC19256	16.36	TC79256	20.45
57	3/4	1-1/2	TC19257	16.36	TC79257	20.45
58	3/4	1-1/2	TC19258	16.36	TC79258	20.45
59	3/4	1-1/2	TC19259	16.36	TC79259	20.45
60	3/4	1-1/2	TC19260	16.36	TC79260	20.45

NOTE: SIZES 31-60 ARE NOT SPLIT.

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

DIAMETER TOLERANCE +.0000, -.0005

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS





# Carbide Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF LIST PRICE!**

## STRAIGHT FLUTE - 140° SPLIT POINT

**SERIES 195**  
UNCOATED



**SERIES 196**  
ALTIM COATED



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

FRACTIONAL SIZES						FRACTIONAL SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1/8	3/4	2	TC19508	25.47	TC79508	31.83	5/16	1-1/4	2-1/2	TC19520	77.21	TC79520	96.50
9/64	3/4	2	TC19509	29.13	TC79509	36.38	21/64	1-3/8	3	TC19521	82.99	TC79521	103.71
5/32	7/8	2	TC19510	32.60	TC79510	40.78	11/32	1-3/8	3	TC19522	92.06	TC79522	115.06
11/64	7/8	2	TC19511	36.19	TC79511	45.22	23/64	1-3/8	3	TC19523	100.70	TC79523	125.90
3/16	7/8	2	TC19512	33.41	TC79512	41.75	3/8	1-3/8	3	TC19524	99.85	TC79524	124.82
13/64	1-1/8	2-1/2	TC19513	43.44	TC79513	54.36	25/64	1-3/8	3	TC19525	123.50	TC79525	154.37
7/32	1-1/8	2-1/2	TC19514	48.81	TC79514	61.04	13/32	1-3/8	3	TC19526	118.18	TC79526	147.74
15/64	1-1/4	2-1/2	TC19515	51.51	TC79515	64.40	27/64	1-3/8	3	TC19527	149.86	TC79527	187.28
1/4	1-1/4	2-1/2	TC19516	48.73	TC79516	60.92	7/16	1-3/8	3	TC19528	146.15	TC79528	182.69
17/64	1-1/4	2-1/2	TC19517	67.75	TC79517	84.65	15/32	1-3/8	3	TC19530	162.63	TC79530	203.29
9/32	1-1/4	2-1/2	TC19518	70.41	TC79518	88.05	1/2	1-3/8	3	TC19532	176.21	TC79532	220.27
19/64	1-1/4	2-1/2	TC19519	74.54	TC79519	93.18							

LETTER SIZES						LETTER SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	1-1/4	2-1/2	TC19601	51.51	TC79601	64.40	N	1-1/4	2-1/2	TC19614	77.21	TC79614	96.50
B	1-1/4	2-1/2	TC19602	51.51	TC79602	64.40	O	1-3/8	3	TC19615	77.21	TC79615	96.50
C	1-1/4	2-1/2	TC19603	51.51	TC79603	64.40	P	1-3/8	3	TC19616	82.99	TC79616	103.75
D	1-1/4	2-1/2	TC19604	51.51	TC79604	64.40	Q	1-3/8	3	TC19617	92.06	TC79617	115.06
E	1-1/4	2-1/2	TC19605	48.73	TC79605	60.92	R	1-3/8	3	TC19618	92.06	TC79618	115.06
F	1-1/4	2-1/2	TC19606	67.75	TC79606	84.65	S	1-3/8	3	TC19619	100.70	TC79619	125.90
G	1-1/4	2-1/2	TC19607	67.75	TC79607	84.65	T	1-3/8	3	TC19620	100.70	TC79620	125.90
H	1-1/4	2-1/2	TC19608	67.75	TC79608	84.65	U	1-3/8	3	TC19621	111.70	TC79621	139.59
I	1-1/4	2-1/2	TC19609	70.41	TC79609	88.05	V	1-3/8	3	TC19622	111.70	TC79622	139.59
J	1-1/4	2-1/2	TC19610	70.41	TC79610	88.05	W	1-3/8	3	TC19623	123.50	TC79623	154.37
K	1-1/4	2-1/2	TC19611	70.41	TC79611	88.05	X	1-3/8	3	TC19624	136.66	TC79624	170.85
L	1-1/4	2-1/2	TC19612	74.54	TC79612	93.18	Y	1-3/8	3	TC19625	143.26	TC79625	179.06
M	1-1/4	2-1/2	TC19613	74.54	TC79613	93.18	Z	1-3/8	3	TC19626	149.86	TC79626	187.28

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 PRICE!**

## STRAIGHT FLUTE - 140° SPLIT POINT

**SERIES 195**  
UNCOATED



**SERIES 196**  
ALTIN COATED



WIRE SIZES						WIRE SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1	1-1/4	2-1/2	TC19701	50.12	TC79701	62.66	16	7/8	2	TC19716	37.46	TC79716	46.84
2	1-1/4	2-1/2	TC19702	49.23	TC79702	61.54	17	7/8	2	TC19717	36.58	TC79717	45.72
3	1-1/8	2-1/2	TC19703	47.26	TC79703	59.07	18	7/8	2	TC19718	35.54	TC79718	44.41
4	1-1/8	2-1/2	TC19704	44.64	TC79704	55.79	19	7/8	2	TC19719	35.30	TC79719	44.14
5	1-1/8	2-1/2	TC19705	45.14	TC79705	56.41	20	7/8	2	TC19720	34.11	TC79720	42.63
6	1-1/8	2-1/2	TC19706	44.49	TC79706	55.60	21	7/8	2	TC19721	33.88	TC79721	42.36
7	1-1/8	2-1/2	TC19707	42.83	TC79707	53.55	22	7/8	2	TC19722	33.22	TC79722	41.55
8	1-1/8	2-1/2	TC19708	42.21	TC79708	52.74	23	7/8	2	TC19723	31.83	TC79723	39.78
9	1-1/8	2-1/2	TC19709	40.94	TC79709	51.16	24	7/8	2	TC19724	30.94	TC79724	38.70
10	1-1/8	2-1/2	TC19710	40.32	TC79710	50.43	25	7/8	2	TC19725	30.02	TC79725	37.54
11	1-1/8	2-1/2	TC19711	39.63	TC79711	49.50	26	7/8	2	TC19726	29.67	TC79726	37.08
12	1-1/8	2-1/2	TC19712	38.89	TC79712	48.61	27	7/8	2	TC19727	29.09	TC79727	36.38
13	7/8	2	TC19713	38.24	TC79713	47.77	28	3/4	2	TC19728	28.13	TC79728	35.11
14	7/8	2	TC19714	37.97	TC79714	47.50	29	3/4	2	TC19729	27.51	TC79729	34.38
15	7/8	2	TC19715	37.62	TC79715	46.99	30	3/4	2	TC19730	27.09	TC79730	33.88



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

DIAMETER TOLERANCE    +.0000, -.0005

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS



# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF LIST PRICE!**



SERIES 870

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.0400	N60	.0400	1-1/2	1/4	4	TC87046	42.60
.0410	N59	.0410	1-1/2	3/8	4	TC87047	42.60
.0420	N58	.0420	1-1/2	3/8	4	TC87048	42.60
.0430	N57	.0430	1-1/2	3/8	4	TC87049	42.60
.0440	-	.0440	1-1/2	3/8	4	TC87050	45.01
.0450	-	.0450	1-1/2	3/8	4	TC87051	45.01
.0460	-	.0460	1-1/2	3/8	4	TC87052	45.01
.0465	N56	.0465	1-1/2	3/8	4	TC87053	42.60
.0469	3/64	.0469	1-1/2	3/8	4	TC87054	40.48
.0470	-	.0470	1-1/2	3/8	4	TC87055	45.01
.0480	-	.0480	1-1/2	3/8	4	TC87056	45.01
.0490	-	.0490	1-1/2	3/8	4	TC87057	45.01
.0500	-	.0500	1-1/2	3/8	4	TC87058	45.01
.0510	-	.0510	1-1/2	3/8	4	TC87059	45.01
.0520	N55	.0520	1-1/2	3/8	4	TC87060	42.60
.0530	-	.0530	1-1/2	3/8	4	TC87061	45.01
.0540	-	.0540	1-1/2	3/8	4	TC87062	45.01
.0550	N54	.0550	1-1/2	3/8	4	TC87063	42.60
.0560	-	.0560	1-1/2	3/8	4	TC87064	45.01
.0570	-	.0570	1-1/2	3/8	4	TC87065	45.01
.0580	-	.0580	1-1/2	3/8	4	TC87066	45.01
.0590	-	.0590	1-1/2	3/8	4	TC87067	45.01
.0591	1.5MM	.0591	1-1/2	3/8	4	TC87068	45.01
.0595	N53	.0595	1-1/2	3/8	4	TC87069	42.60
.0600	-	.0600	1-1/2	3/8	4	TC87070	45.01
.0605	-	.0605	1-1/2	3/8	4	TC87071	59.85
.0610	-	.0610	1-1/2	3/8	4	TC87072	45.01
.0615	-	.0615	1-1/2	3/8	4	TC87073	49.78
.0620	-	.0620	1-1/2	3/8	4	TC87074	45.01
.0625	1/16	.0625	1-1/2	3/8	4	TC87075	40.48
.0630	-	.0630	1-1/2	3/8	4	TC87076	45.01
.0635	N52	.0635	1-1/2	3/8	4	TC87077	42.60
.0640	-	.0640	1-1/2	3/8	4	TC87078	45.01
.0645	-	.0645	1-1/2	3/8	4	TC87079	59.85
.0650	-	.0650	1-1/2	3/8	4	TC87080	45.01
.0660	-	.0660	1-3/4	1/2	4	TC87081	45.01
.0670	N51	.0670	1-3/4	1/2	4	TC87082	42.60
.0680	-	.0680	1-3/4	1/2	4	TC87083	45.01
.0690	-	.0690	1-3/4	1/2	4	TC87084	45.01
.0700	N50	.0700	1-3/4	1/2	4	TC87085	42.60

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.0710	-	.0710	1-3/4	1/2	4	TC87086	45.01
.0720	-	.0720	1-3/4	1/2	4	TC87087	45.01
.0730	N49	.0730	1-3/4	1/2	4	TC87088	42.60
.0740	-	.0740	1-3/4	1/2	4	TC87089	45.01
.0750	-	.0750	1-3/4	1/2	4	TC87090	45.01
.0760	N48	.0760	1-3/4	1/2	4	TC87091	42.60
.0770	-	.0770	1-3/4	1/2	4	TC87092	45.01
.0780	-	.0780	1-3/4	1/2	4	TC87093	45.01
.0781	5/64	.0781	1-3/4	1/2	4	TC87094	40.48
.0785	N47	.0785	1-3/4	1/2	4	TC87095	42.60
.0787	2MM	.0787	1-3/4	1/2	4	TC87096	45.01
.0790	-	.0790	1-3/4	1/2	4	TC87097	45.01
.0800	-	.0800	1-3/4	1/2	4	TC87098	45.01
.0810	N46	.0810	2	1/2	4	TC87099	42.60
.0820	N45	.0820	2	1/2	4	TC87100	42.60
.0830	-	.0830	2	1/2	4	TC87101	45.01
.0840	-	.0840	2	1/2	4	TC87102	45.01
.0850	-	.0850	2	1/2	4	TC87103	45.01
.0860	N44	.0860	2	1/2	4	TC87104	42.60
.0870	-	.0870	2	1/2	4	TC87105	45.01
.0880	-	.0880	2	1/2	4	TC87106	45.01
.0890	N43	.0890	2	1/2	4	TC87107	42.60
.0900	-	.0900	2	1/2	4	TC87108	45.01
.0910	-	.0910	2	1/2	4	TC87109	45.01
.0915	-	.0915	2	1/2	4	TC87110	59.37
.0920	-	.0920	2	1/2	4	TC87111	45.01
.0925	-	.0925	2	1/2	4	TC87112	49.78
.0930	-	.0930	2	1/2	4	TC87113	45.01
.0935	N42	.0935	2	1/2	4	TC87114	42.60
.0938	3/32	.0938	2	1/2	4	TC87115	40.48
.0940	-	.0940	2	1/2	4	TC87116	45.01
.0945	-	.0945	2	1/2	4	TC87117	49.78
.0950	-	.0950	2	1/2	4	TC87118	45.01
.0960	N41	.0960	2	5/8	4	TC87119	42.60
.0970	-	.0970	2	5/8	4	TC87120	45.01
.0980	N40	.0980	2	5/8	4	TC87121	42.60
.0984	2.5MM	.0984	2	5/8	4	TC87122	45.01
.0990	-	.0990	2-1/4	5/8	4	TC87123	45.01
.0995	N39	.0995	2-1/4	5/8	4	TC87124	42.60
.1000	-	.1000	2-1/4	5/8	4	TC87125	45.01

For technical information, please see page 240.

DIAMETER TOLERANCE +.0003, -.0000

# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.1010	-	.1010	2-1/4	5/8	4	TC87126	45.01
.1015	N38	.1015	2-1/4	5/8	4	TC87127	42.60
.1020	-	.1020	2-1/4	5/8	4	TC87128	45.01
.1030	-	.1030	2-1/4	5/8	4	TC87129	45.01
.1040	N37	.1040	2-1/4	5/8	4	TC87130	42.60
.1050	-	.1050	2-1/4	5/8	4	TC87131	45.01
.1060	-	.1060	2-1/4	5/8	4	TC87132	45.01
.1065	N36	.1065	2-1/4	5/8	4	TC87133	42.60
.1070	-	.1070	2-1/4	5/8	4	TC87134	45.01
.1080	-	.1080	2-1/4	5/8	4	TC87135	45.01
.1090	-	.1090	2-1/4	5/8	4	TC87136	46.90
.1094	7/64	.1094	2-1/4	5/8	4	TC87137	40.48
.1100	N35	.1100	2-1/4	5/8	4	TC87138	42.60
.1110	N34	.1110	2-1/4	5/8	4	TC87139	42.60
.1120	-	.1120	2-1/4	5/8	4	TC87140	45.01
.1130	N33	.1130	2-1/4	5/8	4	TC87141	42.60
.1140	-	.1140	2-1/4	5/8	4	TC87142	45.01
.1150	-	.1150	2-1/4	5/8	4	TC87143	45.01
.1160	N32	.1160	2-1/4	5/8	4	TC87144	44.81
.1170	-	.1170	2-1/4	5/8	4	TC87145	47.66
.1180	-	.1180	2-1/4	5/8	4	TC87146	47.66
.1181	3MM	.1181	2-1/4	5/8	4	TC87147	43.81
.1190	-	.1190	2-1/4	5/8	4	TC87148	47.66
.1200	N31	.1200	2-1/4	5/8	4	TC87149	44.81
.1210	-	.1210	2-1/4	5/8	4	TC87150	47.66
.1220	-	.1220	2-1/4	5/8	4	TC87151	47.66
.1230	-	.1230	2-1/4	5/8	4	TC87152	47.66
.1235	-	.1235	2-1/4	5/8	4	TC87153	63.46
.1240	-	.1240	2-1/4	5/8	4	TC87154	47.66
.1245	-	.1245	2-1/4	5/8	4	TC87155	52.67
.1250	1/8	.1250	2-1/4	5/8	4	TC87156	43.09
.1255	-	.1255	2-1/4	5/8	4	TC87157	52.67
.1260	-	.1260	2-1/4	5/8	4	TC87158	47.66
.1265	-	.1265	2-1/4	5/8	4	TC87159	63.46
.1270	-	.1270	2-1/4	5/8	4	TC87160	47.66
.1275	-	.1275	2-1/4	5/8	4	TC87161	63.46
.1280	-	.1280	2-1/4	5/8	4	TC87162	47.66
.1285	N30	.1285	2-1/4	5/8	4	TC87163	47.66
.1290	-	.1290	2-1/4	5/8	4	TC87164	47.66
.1300	-	.1300	2-1/2	5/8	4	TC87165	47.66

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.1310	-	.1310	2-1/2	3/4	4	TC87166	54.56
.1320	-	.1320	2-1/2	3/4	4	TC87167	54.56
.1330	-	.1330	2-1/2	3/4	4	TC87168	54.56
.1340	-	.1340	2-1/2	3/4	4	TC87169	54.56
.1350	-	.1350	2-1/2	3/4	4	TC87170	54.56
.1360	N29	.1360	2-1/2	3/4	4	TC87171	51.03
.1370	-	.1370	2-1/2	3/4	4	TC87172	54.56
.1378	3.5MM	.1378	2-1/2	3/4	4	TC87173	54.56
.1380	-	.1380	2-1/2	3/4	4	TC87174	54.56
.1390	-	.1390	2-1/2	3/4	4	TC87175	54.56
.1400	-	.1400	2-1/2	3/4	4	TC87176	54.56
.1405	N28	.1405	2-1/2	3/4	4	TC87177	51.03
.1406	9/64	.1406	2-1/2	3/4	4	TC87178	49.10
.1410	-	.1410	2-1/2	3/4	4	TC87179	54.56
.1420	-	.1420	2-1/2	3/4	4	TC87180	54.56
.1430	-	.1430	2-1/2	3/4	4	TC87181	54.56
.1440	N27	.1440	2-1/2	3/4	4	TC87182	51.03
.1450	-	.1450	2-1/2	3/4	4	TC87183	54.56
.1460	-	.1460	2-1/2	3/4	4	TC87184	56.97
.1470	N26	.1470	2-1/2	3/4	4	TC87185	53.15
.1480	-	.1480	2-1/2	3/4	4	TC87186	56.97
.1490	-	.1490	2-1/2	3/4	4	TC87187	56.97
.1495	N25	.1495	2-1/2	3/4	4	TC87188	53.15
.1500	-	.1500	2-1/2	3/4	4	TC87189	56.97
.1510	-	.1510	2-1/2	3/4	4	TC87190	56.97
.1520	N24	.1520	2-1/2	3/4	4	TC87191	53.15
.1530	-	.1530	2-1/2	3/4	4	TC87192	56.97
.1540	N23	.1540	2-1/2	3/4	4	TC87193	53.15
.1545	-	.1545	2-1/2	3/4	4	TC87194	65.87
.1550	-	.1550	2-1/2	3/4	4	TC87195	56.97
.1555	-	.1555	2-1/2	3/4	4	TC87196	65.87
.1560	-	.1560	2-1/2	3/4	4	TC87197	56.97
.1562	5/32	.1562	2-1/2	3/4	4	TC87198	51.51
.1565	-	.1565	2-1/2	3/4	4	TC87199	65.87
.1570	N22	.1570	2-1/2	3/4	4	TC87200	53.15
.1575	4MM	.1575	2-1/2	3/4	4	TC87201	56.97
.1580	-	.1580	2-1/2	3/4	4	TC87202	56.97
.1590	N21	.1590	2-1/2	3/4	4	TC87203	53.15
.1600	-	.1600	2-1/2	3/4	4	TC87204	56.97
.1610	N20	.1610	2-1/2	7/8	4	TC87205	59.85

For technical information, please see page 240.

DIAMETER TOLERANCE      +.0003, -.0000

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS



# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**



SERIES 870

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

**REAMERS**

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1620	-	.1620	2-3/4	7/8	4	TC87206	64.15
.1630	-	.1630	2-3/4	7/8	4	TC87207	64.15
.1640	-	.1640	2-3/4	7/8	4	TC87208	64.15
.1650	-	.1650	2-3/4	7/8	4	TC87209	59.85
.1660	N19	.1660	2-3/4	7/8	4	TC87210	59.85
.1670	-	.1670	2-3/4	7/8	4	TC87211	64.15
.1680	-	.1680	2-3/4	7/8	4	TC87212	64.15
.1690	-	.1690	2-3/4	7/8	4	TC87213	64.15
.1695	N18	.1695	2-3/4	7/8	4	TC87214	59.85
.1700	-	.1700	2-3/4	7/8	4	TC87215	64.15
.1710	-	.1710	2-3/4	7/8	4	TC87216	64.15
.1719	11/64	.1719	2-3/4	7/8	4	TC87217	57.69
.1720	-	.1720	2-3/4	7/8	4	TC87218	64.15
.1730	N17	.1730	2-3/4	7/8	4	TC87219	59.85
.1740	-	.1740	2-3/4	7/8	4	TC87220	64.15
.1750	-	.1750	2-3/4	7/8	4	TC87221	64.15
.1760	-	.1760	2-3/4	7/8	4	TC87222	64.15
.1770	N16	.1770	2-3/4	7/8	4	TC87223	59.85
.1772	4.5MM	.1772	2-3/4	7/8	4	TC87224	66.79
.1780	-	.1780	2-3/4	7/8	4	TC87225	64.15
.1790	-	.1790	2-3/4	7/8	4	TC87226	64.15
.1800	N15	.1800	2-3/4	7/8	4	TC87227	59.85
.1810	-	.1810	2-3/4	7/8	4	TC87228	64.15
.1820	N14	.1820	2-3/4	7/8	4	TC87229	59.85
.1830	-	.1830	2-3/4	7/8	4	TC87230	64.15
.1840	-	.1840	2-3/4	7/8	4	TC87231	64.15
.1850	N13	.1850	2-3/4	7/8	4	TC87232	59.85
.1855	-	.1855	2-3/4	7/8	4	TC87233	77.10
.1860	-	.1860	2-3/4	7/8	4	TC87234	64.15
.1865	-	.1865	2-3/4	7/8	4	TC87235	68.96
.1870	-	.1870	2-3/4	7/8	4	TC87236	64.15
.1875	3/16	.1875	2-3/4	7/8	4	TC87237	57.69
.1880	-	.1880	2-3/4	7/8	4	TC87238	64.15
.1885	-	.1885	2-3/4	7/8	4	TC87239	68.96
.1890	N12	.1890	2-3/4	7/8	4	TC87240	59.85
.1900	-	.1900	2-3/4	7/8	4	TC87241	64.15
.1910	N11	.1910	2-3/4	7/8	4	TC87242	72.77
.1920	-	.1920	2-3/4	7/8	4	TC87243	77.83
.1930	-	.1930	2-3/4	7/8	4	TC87244	77.83
.1935	N10	.1935	2-3/4	7/8	4	TC87245	72.77

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.1940	-	.1940	2-3/4	7/8	4	TC87246	77.83
.1950	-	.1950	2-3/4	7/8	4	TC87247	77.83
.1960	N9	.1960	3	1	4	TC87248	72.77
.1969	5MM	.1969	3	1	4	TC87249	77.83
.1970	-	.1970	3	1	4	TC87250	77.83
.1980	-	.1980	3	1	4	TC87251	77.83
.1990	N8	.1990	3	1	4	TC87252	72.77
.2000	-	.2000	3	1	4	TC87253	77.83
.2010	N7	.2010	3	1	4	TC87254	72.77
.2020	-	.2020	3	1	4	TC87255	77.83
.2030	-	.2030	3	1	4	TC87256	77.83
.2031	13/64	.2031	3	1	4	TC87257	69.88
.2040	N6	.2040	3	1	4	TC87258	72.77
.2050	-	.2050	3	1	4	TC87259	77.83
.2055	N5	.2055	3	1	4	TC87260	72.77
.2060	-	.2060	3	1	4	TC87261	77.83
.2070	-	.2070	3	1	4	TC87262	77.83
.2080	-	.2080	3	1	4	TC87263	77.83
.2090	N4	.2090	3	1	4	TC87264	72.77
.2100	-	.2100	3	1	4	TC87265	77.83
.2110	-	.2110	3	1	4	TC87266	77.83
.2120	-	.2120	3	1	4	TC87267	77.83
.2130	N3	.2130	3	1	4	TC87268	72.77
.2140	-	.2140	3	1	4	TC87269	77.83
.2150	-	.2150	3	1	4	TC87270	77.83
.2160	-	.2160	3	1	4	TC87271	77.83
.2165	5.5MM	.2165	3	1	4	TC87272	82.12
.2170	-	.2170	3	1	4	TC87273	77.83
.2180	-	.2180	3	1	4	TC87274	77.83
.2188	7/32	.2188	3	1	4	TC87275	69.88
.2190	-	.2190	3	1	4	TC87276	77.83
.2200	-	.2200	3	1	4	TC87277	77.83
.2210	N2	.2210	3	1	4	TC87278	72.77
.2220	-	.2220	3	1	4	TC87279	77.83
.2230	-	.2230	3	1	4	TC87280	77.83
.2240	-	.2240	3	1	4	TC87281	77.83
.2250	-	.2250	3	1	4	TC87282	77.83
.2260	-	.2260	3	1	4	TC87283	85.49
.2270	-	.2270	3	1	4	TC87284	85.49
.2280	N1	.2280	3	1	4	TC87285	79.75

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DIAMETER TOLERANCE +.0003, -.0000



# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**



## SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.2290	-	.2290	3	1	4	TC87286	79.75
.2300	-	.2300	3	1	4	TC87287	85.49
.2310	-	.2310	3	1	4	TC87288	85.49
.2320	-	.2320	3	1	4	TC87289	85.49
.2330	-	.2330	3	1	4	TC87290	85.49
.2340	A	.2340	3	1	4	TC87291	85.49
.2344	15/64	.2344	3	1	4	TC87292	76.86
.2350	-	.2350	3	1	4	TC87293	85.49
.2360	-	.2360	3	1	4	TC87294	85.49
.2362	6MM	.2362	3	1	4	TC87295	81.40
.2370	-	.2370	3	1	4	TC87296	85.49
.2380	B	.2380	3	1	4	TC87297	85.49
.2390	-	.2390	3	1	4	TC87298	85.49
.2400	-	.2400	3	1	4	TC87299	85.49
.2410	-	.2410	3	1	4	TC87300	85.49
.2420	C	.2420	3	1	4	TC87301	85.49
.2430	-	.2430	3	1	4	TC87302	85.49
.2440	-	.2440	3	1	4	TC87303	85.49
.2450	-	.2450	3	1	4	TC87304	85.49
.2460	D	.2460	3	1	4	TC87305	85.49
.2470	-	.2470	3	1	4	TC87306	85.49
.2480	-	.2480	3	1	4	TC87307	85.49
.2485	-	.2485	3	1	4	TC87308	95.52
.2490	-	.2490	3	1	4	TC87309	85.49
.2495	-	.2495	3	1	4	TC87310	90.74
.2500	1/4	.2500	3	1	4	TC87311	76.86
.2505	-	.2505	3	1	4	TC87312	90.74
.2510	-	.2510	3	1	4	TC87313	85.49
.2515	-	.2515	3	1	4	TC87314	106.31
.2520	-	.2520	3	1	4	TC87315	85.49
.2530	-	.2530	3	1	4	TC87316	85.49
.2540	-	.2540	3	1	4	TC87317	85.49
.2550	-	.2550	3	1	6	TC87318	85.49
.2559	6.5MM	.2559	3-1/4	1-1/8	6	TC87319	90.50
.2560	-	.2560	3-1/4	1-1/8	6	TC87320	103.42
.2570	F	.2570	3-1/4	1-1/8	6	TC87321	103.42
.2580	-	.2580	3-1/4	1-1/8	6	TC87322	103.42
.2590	-	.2590	3-1/4	1-1/8	6	TC87323	103.42
.2600	-	.2600	3-1/4	1-1/8	6	TC87324	103.42
.2610	G	.2610	3-1/4	1-1/8	6	TC87325	103.42

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.2620	-	.2620	3-1/4	1-1/8	6	TC87326	103.42
.2630	-	.2630	3-1/4	1-1/8	6	TC87327	103.42
.2640	-	.2640	3-1/4	1-1/8	6	TC87328	103.42
.2650	-	.2650	3-1/4	1-1/8	6	TC87329	103.42
.2656	17/64	.2656	3-1/4	1-1/8	6	TC87330	93.15
.2660	H	.2660	3-1/4	1-1/8	6	TC87331	103.42
.2670	-	.2670	3-1/4	1-1/8	6	TC87332	103.42
.2680	-	.2680	3-1/4	1-1/8	6	TC87333	103.42
.2690	-	.2690	3-1/4	1-1/8	6	TC87334	103.42
.2700	-	.2700	3-1/4	1-1/8	6	TC87335	103.42
.2710	-	.2710	3-1/4	1-1/8	6	TC87336	103.42
.2720	I	.2720	3-1/4	1-1/8	6	TC87337	103.42
.2730	-	.2730	3-1/4	1-1/8	6	TC87338	103.42
.2740	-	.2740	3-1/4	1-1/8	6	TC87339	103.42
.2750	-	.2750	3-1/4	1-1/8	6	TC87340	103.42
.2756	7MM	.2756	3-1/4	1-1/8	6	TC87341	112.97
.2760	-	.2760	3-1/4	1-1/8	6	TC87342	103.42
.2770	J	.2770	3-1/4	1-1/8	6	TC87343	103.42
.2780	-	.2780	3-1/4	1-1/8	6	TC87344	103.42
.2790	-	.2790	3-1/4	1-1/8	6	TC87345	103.42
.2800	-	.2800	3-1/4	1-1/8	6	TC87346	103.42
.2810	K	.2810	3-1/4	1-1/8	6	TC87347	103.42
.2812	9/32	.2812	3-1/4	1-1/8	6	TC87348	93.15
.2820	-	.2820	3-1/4	1-1/8	6	TC87349	103.42
.2830	-	.2830	3-1/4	1-1/8	6	TC87350	103.42
.2840	-	.2840	3-1/4	1-1/8	6	TC87351	103.42
.2850	-	.2850	3-1/4	1-1/8	6	TC87352	103.42
.2860	-	.2860	3-1/4	1-1/8	6	TC87353	103.42
.2870	-	.2870	3-1/4	1-1/8	6	TC87354	103.42
.2880	-	.2880	3-1/4	1-1/8	6	TC87355	103.42
.2890	-	.2890	3-1/4	1-1/8	6	TC87356	103.42
.2900	L	.2900	3-1/4	1-1/8	6	TC87357	103.42
.2910	-	.2910	3-1/4	1-1/8	6	TC87358	103.42
.2920	-	.2920	3-1/4	1-1/8	6	TC87359	103.42
.2930	-	.2930	3-1/4	1-1/8	6	TC87360	103.42
.2940	-	.2940	3-1/4	1-1/8	6	TC87361	103.42
.2950	M	.2950	3-1/4	1-1/8	6	TC87362	103.42
.2953	-	.2953	3-1/4	1-1/8	6	TC87363	112.97
.2960	-	.2960	3-1/4	1-1/8	6	TC87364	103.42
.2969	19/64	.2969	3-1/4	1-1/8	6	TC87365	103.42

For technical information, please see page 240.

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END MILLS  
DRILL MILLS  
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REAMERS  
BURS



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**TAKE 55% OFF LIST PRICE!**



SERIES 870

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

**REAMERS**

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.2970	-	.2970	3-1/4	1-1/8	6	TC87366	103.42
.2980	-	.2980	3-1/4	1-1/8	6	TC87367	103.42
.2990	-	.2990	3-1/4	1-1/8	6	TC87368	103.42
.3000	-	.3000	3-1/4	1-1/8	6	TC87369	103.42
.3010	-	.3010	3-1/4	1-1/8	6	TC87370	103.42
.3020	N	.3020	3-1/4	1-1/8	6	TC87371	103.42
.3030	-	.3030	3-1/4	1-1/8	6	TC87372	103.42
.3040	-	.3040	3-1/4	1-1/8	6	TC87373	103.42
.3050	-	.3050	3-1/4	1-1/8	6	TC87374	103.42
.3060	-	.3060	3-1/4	1-1/8	6	TC87375	103.42
.3070	-	.3070	3-1/4	1-1/8	6	TC87376	103.42
.3080	-	.3080	3-1/4	1-1/8	6	TC87377	103.42
.3090	-	.3090	3-1/4	1-1/8	6	TC87378	103.42
.3100	-	.3100	3-1/4	1-1/8	6	TC87379	103.42
.3110	-	.3110	3-1/4	1-1/8	6	TC87380	103.42
.3115	-	.3115	3-1/4	1-1/8	6	TC87381	118.75
.3120	-	.3120	3-1/4	1-1/8	6	TC87382	103.42
.3125	5/16	.3125	3-1/4	1-1/8	6	TC87383	103.42
.3130	-	.3130	3-1/4	1-1/8	6	TC87384	103.42
.3135	-	.3135	3-1/4	1-1/8	6	TC87385	118.75
.3140	-	.3140	3-1/4	1-1/8	6	TC87386	103.42
.3150	8MM	.3150	3-1/4	1-1/8	6	TC87387	103.42
.3160	O	.3160	3-1/4	1-1/8	6	TC87388	115.66
.3170	-	.3170	3-1/4	1-1/8	6	TC87389	115.66
.3180	-	.3180	3-1/4	1-1/8	6	TC87390	115.66
.3190	-	.3190	3-1/4	1-1/8	6	TC87391	115.66
.3200	-	.3200	3-1/4	1-1/8	6	TC87392	115.66
.3210	-	.3210	3-1/2	1-1/4	6	TC87393	115.66
.3220	-	.3220	3-1/2	1-1/4	6	TC87394	115.66
.3230	P	.3230	3-1/2	1-1/4	6	TC87395	115.66
.3240	-	.3240	3-1/2	1-1/4	6	TC87396	115.66
.3250	-	.3250	3-1/2	1-1/4	6	TC87397	115.66
.3260	-	.3260	3-1/2	1-1/4	6	TC87398	115.66
.3270	-	.3270	3-1/2	1-1/4	6	TC87399	115.66
.3280	-	.3280	3-1/2	1-1/4	6	TC87400	115.66
.3281	21/64	.3281	3-1/2	1-1/4	6	TC87401	116.82
.3290	-	.3290	3-1/2	1-1/4	6	TC87402	115.66
.3300	-	.3300	3-1/2	1-1/4	6	TC87403	115.66
.3310	-	.3310	3-1/2	1-1/4	6	TC87404	115.66
.3320	Q	.3320	3-1/2	1-1/4	6	TC87405	115.66

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.3330	-	.3330	3-1/2	1-1/4	6	TC87406	115.66
.3340	-	.3340	3-1/2	1-1/4	6	TC87407	115.66
.3346	8.5MM	.3346	3-1/2	1-1/4	6	TC87408	115.66
.3350	-	.3350	3-1/2	1-1/4	6	TC87409	115.66
.3360	-	.3360	3-1/2	1-1/4	6	TC87410	115.66
.3370	-	.3370	3-1/2	1-1/4	6	TC87411	115.66
.3380	-	.3380	3-1/2	1-1/4	6	TC87412	115.66
.3390	R	.3390	3-1/2	1-1/4	6	TC87413	116.42
.3400	-	.3400	3-1/2	1-1/4	6	TC87414	115.66
.3410	-	.3410	3-1/2	1-1/4	6	TC87415	115.66
.3420	-	.3420	3-1/2	1-1/4	6	TC87416	115.66
.3430	-	.3430	3-1/2	1-1/4	6	TC87417	115.66
.3438	11/32	.3438	3-1/2	1-1/4	6	TC87418	116.82
.3440	-	.3440	3-1/2	1-1/4	6	TC87419	115.66
.3450	-	.3450	3-1/2	1-1/4	6	TC87420	115.66
.3460	-	.3460	3-1/2	1-1/4	6	TC87421	115.66
.3470	-	.3470	3-1/2	1-1/4	6	TC87422	115.66
.3480	S	.3480	3-1/2	1-1/4	6	TC87423	115.66
.3490	-	.3490	3-1/2	1-1/4	6	TC87424	115.66
.3500	-	.3500	3-1/2	1-1/4	6	TC87425	115.66
.3510	-	.3510	3-1/2	1-1/4	6	TC87426	126.17
.3520	-	.3520	3-1/2	1-1/4	6	TC87427	126.17
.3530	-	.3530	3-1/2	1-1/4	6	TC87428	126.17
.3540	-	.3540	3-1/2	1-1/4	6	TC87429	126.17
.3543	9MM	.3543	3-1/2	1-1/4	6	TC87430	131.66
.3550	-	.3550	3-1/2	1-1/4	6	TC87431	126.17
.3560	-	.3560	3-1/2	1-1/4	6	TC87432	126.17
.3570	-	.3570	3-1/2	1-1/4	6	TC87433	126.17
.3580	T	.3580	3-1/2	1-1/4	6	TC87434	126.17
.3590	-	.3590	3-1/2	1-1/4	6	TC87435	128.33
.3594	23/64	.3594	3-1/2	1-1/4	6	TC87436	124.48
.3600	-	.3600	3-1/2	1-1/4	6	TC87437	126.17
.3610	-	.3610	3-1/2	1-1/4	6	TC87438	126.17
.3620	-	.3620	3-1/2	1-1/4	6	TC87439	126.17
.3630	-	.3630	3-1/2	1-1/4	6	TC87440	126.17
.3640	-	.3640	3-1/2	1-1/4	6	TC87441	126.17
.3650	-	.3650	3-1/2	1-1/4	6	TC87442	126.17
.3660	-	.3660	3-1/2	1-1/4	6	TC87443	126.17
.3670	-	.3670	3-1/2	1-1/4	6	TC87444	126.17
.3680	U	.3680	3-1/2	1-1/4	6	TC87445	126.17

For technical information, please see page 240.

DIAMETER TOLERANCE +.0003, -.0000

# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**



SERIES 870

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.3690	-	.3690	3-1/2	1-1/4	6	TC87446	126.17
.3700	-	.3700	3-1/2	1-1/4	6	TC87447	126.17
.3710	-	.3710	3-1/2	1-1/4	6	TC87448	126.17
.3720	-	.3720	3-1/2	1-1/4	6	TC87449	126.17
.3730	-	.3730	3-1/2	1-1/4	6	TC87450	126.17
.3740	9.5MM	.3740	3-1/2	1-1/4	6	TC87451	126.17
.3745	-	.3745	3-1/2	1-1/4	6	TC87452	153.21
.3750	3/8	.3750	3-1/2	1-1/4	6	TC87453	124.48
.3755	-	.3755	3-1/2	1-1/4	6	TC87454	153.21
.3760	-	.3760	3-1/2	1-1/4	6	TC87455	158.46
.3765	-	.3765	3-1/2	1-1/4	6	TC87456	166.24
.3770	V	.3770	3-1/2	1-1/4	6	TC87457	158.46
.3780	-	.3780	3-1/2	1-1/4	6	TC87458	158.46
.3790	-	.3790	3-1/2	1-1/4	6	TC87459	158.46
.3800	-	.3800	3-1/2	1-1/4	6	TC87460	158.46
.3810	-	.3810	3-1/2	1-1/4	6	TC87461	158.46
.3820	-	.3820	3-1/2	1-1/4	6	TC87462	158.46
.3830	-	.3830	3-1/2	1-1/4	6	TC87463	158.46
.3840	-	.3840	3-1/2	1-1/4	6	TC87464	158.46
.3850	-	.3850	3-1/2	1-1/4	6	TC87465	158.46
.3860	W	.3860	3-1/2	1-1/4	6	TC87466	158.46
.3870	-	.3870	3-1/2	1-1/4	6	TC87467	196.57
.3880	-	.3880	3-1/2	1-1/4	6	TC87468	196.57
.3890	-	.3890	3-1/2	1-1/4	6	TC87469	196.57
.3900	-	.3900	3-1/2	1-1/4	6	TC87470	196.57
.3906	25/64	.3906	3-1/2	1-1/4	6	TC87471	196.57
.3910	-	.3910	3-1/2	1-1/4	6	TC87472	196.57
.3920	-	.3920	3-1/2	1-1/4	6	TC87473	196.57
.3930	-	.3930	3-1/2	1-1/4	6	TC87474	196.57
.3937	10MM	.3937	3-1/2	1-1/4	6	TC87475	148.91
.3940	-	.3940	3-1/2	1-1/4	6	TC87476	196.57
.3950	-	.3950	3-1/2	1-1/4	6	TC87477	196.57
.3960	-	.3960	3-1/2	1-1/4	6	TC87478	196.57
.3970	X	.3970	3-1/2	1-1/4	6	TC87479	196.57
.3980	-	.3980	3-1/2	1-1/4	6	TC87480	196.57
.3990	-	.3990	3-1/2	1-1/4	6	TC87481	196.57
.4000	-	.4000	3-1/2	1-1/4	6	TC87482	196.57
.4010	-	.4010	3-1/2	1-1/4	6	TC87483	196.57
.4020	-	.4020	3-1/2	1-1/4	6	TC87484	196.57
.4030	-	.4030	3-1/2	1-1/4	6	TC87485	196.57

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM #	LIST PRICE
.4040	Y	.4040	3-1/2	1-1/4	6	TC87486	196.57
.4050	-	.4050	3-1/2	1-1/4	6	TC87487	196.57
.4060	-	.4060	3-1/2	1-1/4	6	TC87488	196.57
.4062	13/32	.4062	3-1/2	1-1/4	6	TC87489	142.70
.4070	-	.4070	3-1/2	1-1/4	6	TC87490	196.57
.4080	-	.4080	3-1/2	1-1/4	6	TC87491	196.57
.4090	-	.4090	3-1/2	1-1/4	6	TC87492	196.57
.4100	-	.4100	3-1/2	1-1/4	6	TC87493	196.57
.4110	-	.4110	3-1/2	1-1/4	6	TC87494	196.57
.4120	-	.4120	3-1/2	1-1/4	6	TC87495	196.57
.4130	Z	.4130	3-1/2	1-1/4	6	TC87496	196.57
.4134	-	.4134	3-1/2	1-1/4	6	TC87497	179.04
.4140	-	.4140	3-1/2	1-1/4	6	TC87498	196.57
.4150	-	.4150	3-1/2	1-1/4	6	TC87499	196.57
.4160	-	.4160	4	1-3/8	6	TC87500	196.57
.4170	-	.4170	4	1-3/8	6	TC87501	196.57
.4180	-	.4180	4	1-3/8	6	TC87502	196.57
.4190	-	.4190	4	1-3/8	6	TC87503	196.57
.4200	-	.4200	4	1-3/8	6	TC87504	196.57
.4210	-	.4210	4	1-3/8	6	TC87505	196.57
.4219	27/64	.4219	4	1-3/8	6	TC87506	161.79
.4220	-	.4220	4	1-3/8	6	TC87507	196.57
.4230	-	.4230	4	1-3/8	6	TC87508	196.57
.4240	-	.4240	4	1-3/8	6	TC87509	196.57
.4250	-	.4250	4	1-3/8	6	TC87510	196.57
.4260	-	.4260	4	1-3/8	6	TC87511	196.57
.4270	-	.4270	4	1-3/8	6	TC87512	196.57
.4280	-	.4280	4	1-3/8	6	TC87513	196.57
.4290	-	.4290	4	1-3/8	6	TC87514	196.57
.4300	-	.4300	4	1-3/8	6	TC87515	196.57
.4310	-	.4310	4	1-3/8	6	TC87516	196.57
.4320	-	.4320	4	1-3/8	6	TC87517	196.57
.4330	-	.4330	4	1-3/8	6	TC87518	196.57
.4331	-	.4331	4	1-3/8	6	TC87519	179.04
.4340	-	.4340	4	1-3/8	6	TC87520	196.57
.4350	-	.4350	4	1-3/8	6	TC87521	196.57
.4360	-	.4360	4	1-3/8	6	TC87522	196.57
.4365	-	.4365	4	1-3/8	6	TC87523	196.57
.4370	-	.4370	4	1-3/8	6	TC87524	196.57
.4375	7/16	.4375	4	1-3/8	6	TC87525	161.79

For technical information, please see page 240.

DIAMETER TOLERANCE      +.0003, -.0000

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS



# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



SERIES 870

**TAKE 55% OFF LIST PRICE!**

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

**REAMERS**

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.4380	-	.4380	4	1-3/8	6	TC87526	196.57
.4385	-	.4385	4	1-3/8	6	TC87527	234.88
.4390	-	.4390	4	1-3/8	6	TC87528	196.57
.4400	-	.4400	4	1-3/8	6	TC87529	196.57
.4410	-	.4410	4	1-3/8	6	TC87530	223.05
.4420	-	.4420	4	1-3/8	6	TC87531	223.05
.4430	-	.4430	4	1-3/8	6	TC87532	223.05
.4440	-	.4440	4	1-3/8	6	TC87533	223.05
.4450	-	.4450	4	1-3/8	6	TC87534	223.05
.4460	-	.4460	4	1-3/8	6	TC87535	223.05
.4470	-	.4470	4	1-3/8	6	TC87536	223.05
.4480	-	.4480	4	1-3/8	6	TC87537	223.05
.4490	-	.4490	4	1-3/8	6	TC87538	223.05
.4500	-	.4500	4	1-3/8	6	TC87539	223.05
.4510	-	.4510	4	1-3/8	6	TC87540	223.05
.4520	-	.4520	4	1-3/8	6	TC87541	223.05
.4528	-	.4528	4	1-3/8	6	TC87542	223.05
.4530	-	.4530	4	1-3/8	6	TC87543	204.44
.4531	29/64	.4531	4	1-3/8	6	TC87544	178.36
.4540	-	.4540	4	1-3/8	6	TC87545	223.05
.4550	-	.4550	4	1-3/8	6	TC87546	223.05
.4560	-	.4560	4	1-3/8	6	TC87547	223.05
.4570	-	.4570	4	1-3/8	6	TC87548	223.05
.4580	-	.4580	4	1-3/8	6	TC87549	223.05
.4590	-	.4590	4	1-3/8	6	TC87550	223.05
.4600	-	.4600	4	1-3/8	6	TC87551	223.05
.4610	-	.4610	4	1-3/8	6	TC87552	223.05
.4620	-	.4620	4	1-3/8	6	TC87553	223.05
.4630	-	.4630	4	1-3/8	6	TC87554	223.05
.4640	-	.4640	4	1-3/8	6	TC87555	223.05
.4650	-	.4650	4	1-3/8	6	TC87556	223.05
.4660	-	.4660	4	1-3/8	6	TC87557	223.05
.4670	-	.4670	4	1-3/8	6	TC87558	223.05
.4680	-	.4680	4	1-3/8	6	TC87559	223.05
.4688	15/32	.4688	4	1-3/8	6	TC87560	178.36
.4690	-	.4690	4	1-3/8	6	TC87561	235.04
.4700	-	.4700	4	1-3/8	6	TC87562	235.04

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	LIST PRICE
.4710	-	.4710	4	1-3/8	6	TC87563	235.04
.4720	-	.4720	4	1-3/8	6	TC87564	235.04
.4724	12MM	.4724	4	1-3/8	6	TC87565	226.46
.4730	-	.4730	4	1-3/8	6	TC87566	235.04
.4740	-	.4740	4	1-3/8	6	TC87567	235.04
.4750	-	.4750	4	1-3/8	6	TC87568	235.04
.4760	-	.4760	4	1-1/2	6	TC87569	235.04
.4770	-	.4770	4	1-1/2	6	TC87570	235.04
.4780	-	.4780	4	1-1/2	6	TC87571	235.04
.4790	-	.4790	4	1-1/2	6	TC87572	235.04
.4800	-	.4800	4	1-1/2	6	TC87573	235.04
.4810	-	.4810	4	1-1/2	6	TC87574	235.04
.4820	-	.4820	4	1-1/2	6	TC87575	235.04
.4830	-	.4830	4	1-1/2	6	TC87576	235.04
.4840	-	.4840	4	1-1/2	6	TC87577	235.04
.4844	31/64	.4844	4	1-1/2	6	TC87578	202.07
.4850	-	.4850	4	1-1/2	6	TC87579	235.04
.4860	-	.4860	4	1-1/2	6	TC87580	235.04
.4870	-	.4870	4	1-1/2	6	TC87581	283.43
.4880	-	.4880	4	1-1/2	6	TC87582	283.43
.4890	-	.4890	4	1-1/2	6	TC87583	283.43
.4900	-	.4900	4	1-1/2	6	TC87584	283.43
.4910	-	.4910	4	1-1/2	6	TC87585	283.43
.4920	-	.4920	4	1-1/2	6	TC87586	283.43
.4921	-	.4921	4	1-1/2	6	TC87587	283.43
.4930	-	.4930	4	1-1/2	6	TC87588	283.43
.4940	-	.4940	4	1-1/2	6	TC87589	283.43
.4950	-	.4950	4	1-1/2	6	TC87590	283.43
.4960	-	.4960	4	1-1/2	6	TC87591	283.43
.4970	-	.4970	4	1-1/2	6	TC87592	283.43
.4980	-	.4980	4	1-1/2	6	TC87593	283.43
.4990	-	.4990	4	1-1/2	6	TC87594	283.43
.4995	-	.4995	4	1-1/2	6	TC87595	283.43
.5000	1/2	.5000	4	1-1/2	6	TC87596	202.07
.5005	-	.5005	4	1-1/2	6	TC87597	283.43
.5010	-	.5010	4	1-1/2	6	TC87598	283.43
.5020	-	.5020	4	1-1/2	6	TC87599	283.43

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DIAMETER TOLERANCE +.0003, -.0000

# Carbide Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**



**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	272.58	180.34	157.26	100.65	79.68	71.30	67.10	62.89	58.71
.0451 - .0500	0.042	3/8	1-1/2	272.58	180.34	157.26	100.65	79.68	71.30	67.10	62.89	58.71
.0501 - .0570	0.046	3/8	1-1/2	274.67	182.41	159.35	102.74	81.78	73.38	69.19	65.00	60.82
.0571 - .0650	0.053	3/8	1-1/2	272.58	180.34	157.26	100.65	79.68	71.30	67.10	62.89	58.71
.0651 - .0800	0.060	1/2	1-3/4	274.67	182.41	159.35	102.74	81.78	73.38	69.19	65.00	60.82
.0801 - .0950	0.075	1/2	2	276.79	184.52	161.45	104.85	83.87	75.49	71.30	67.10	62.89
.0951 - .1150	0.090	5/8	2-1/4	280.97	188.70	165.64	109.03	88.06	79.68	75.49	71.30	67.10
.1151 - .1300	0.110	5/8	2-1/4	283.07	190.79	167.74	111.13	90.16	81.78	77.57	73.38	69.19
.1301 - .1450	0.125	3/4	2-1/2	289.34	197.09	174.04	117.42	96.47	88.06	83.87	79.68	75.49
.1451 - .1600	0.140	3/4	2-1/2	295.66	203.38	180.34	123.71	102.74	94.35	90.16	85.97	81.78
.1601 - .1750	0.155	7/8	2-3/4	301.93	209.68	186.59	129.99	109.03	100.65	96.47	92.26	88.06
.1751 - .1950	0.170	7/8	2-3/4	310.33	218.05	195.01	138.38	117.42	109.03	104.85	100.65	96.47
.1951 - .2100	0.188	1	3	327.09	234.83	211.79	155.16	134.20	125.81	121.61	117.42	113.22
.2101 - .2250	0.205	1	3	333.39	241.13	218.05	161.45	140.49	132.09	127.91	123.71	119.50
.2251 - .2400	0.220	1	3	343.87	251.63	228.56	171.93	150.98	142.57	138.38	134.20	129.99
.2401 - .2550	0.235	1	3	352.25	259.99	236.93	180.34	159.35	150.98	146.76	142.57	138.38
.2551 - .2750	0.250	1	3-1/4	373.24	280.97	257.89	201.30	180.34	171.93	167.74	163.56	159.35
.2751 - .2950	0.270	1-1/8	3-1/4	375.31	283.07	259.99	203.38	182.41	174.04	169.83	165.64	161.45
.2951 - .3150	0.290	1-1/8	3-1/4	396.27	304.01	280.97	224.35	203.38	195.01	190.79	186.59	182.41
.3151 - .3350	0.313	1-1/4	3-1/2	425.64	333.39	310.33	253.71	232.75	224.35	220.16	215.97	211.79
.3351 - .3550	0.330	1-1/4	3-1/2	429.82	341.77	314.53	257.89	236.93	228.56	224.35	220.16	215.97
.3551 - .3800	0.350	1-1/4	3-1/2	438.22	350.16	322.90	266.31	245.32	236.93	232.75	228.56	224.35
.3801 - .4100	0.375	1-1/4	4	469.67	377.43	354.35	297.75	276.79	268.37	264.20	259.99	255.80
.4101 - .4400	0.405	1-3/8	4	486.44	394.21	371.13	314.53	293.55	285.16	280.97	276.79	272.58
.4401 - .4700	0.438	1-3/8	4	511.60	419.36	396.27	339.68	318.70	310.33	306.13	301.93	297.75
.4701 - .5050	0.465	1-1/2	4	553.55	461.30	438.22	381.60	360.64	352.25	348.08	343.87	339.68
.5051 - .5400	0.500	1-1/2	4-1/2	608.06	515.81	492.75	436.14	415.16	406.77	402.58	398.39	394.21
.5401 - .5800	0.535	1-1/2	4-1/2	691.93	599.66	576.62	520.00	499.03	490.66	486.44	482.25	478.06
.5801 - .6260	0.575	1-3/4	4-1/2	759.04	666.78	643.70	587.10	566.13	557.75	553.55	549.35	545.16
.6261 - .6600	0.615	1-3/4	4-1/2	859.68	767.42	744.36	687.75	666.78	658.37	654.19	650.01	645.81
.6601 - .7050	0.655	2	5	985.49	893.24	870.16	813.55	792.59	784.19	780.00	775.82	771.61
.7051 - .7550	0.700	2	5	1069.34	977.11	954.02	897.42	876.45	868.04	863.87	859.68	855.49
.7551 - .7950	0.750	2	5	1153.21	1060.97	1037.89	981.28	960.32	951.94	947.73	943.55	939.35
.7951 - .8450	0.750	2-1/4	5	1237.10	1144.84	1121.78	1065.16	1044.21	1035.80	1031.60	1027.43	1023.23
.8451 - .9000	0.750	2-1/4	5	1404.84	1312.60	1289.52	1232.91	1211.95	1203.54	1199.35	1195.17	1190.97
.9001 - .9600	0.875	2-1/4	5	1614.52	1522.26	1499.20	1442.58	1421.60	1413.22	1409.03	1404.84	1400.64
.9601 - 1.025	0.875	2-1/4	5	1782.25	1690.01	1666.94	1610.33	1589.35	1580.97	1576.78	1572.57	1568.38

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

END MILLS  
 DRILL MILLS  
 CHAMFER MILLS  
 DRILLS  
**REAMERS**  
 BURS

## SA - CYLINDRICAL



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SA-61	1/16	3/32	1/4	1-1/2	TB19264	10.53	TB19280	10.53
* SA-41	1/16	1/8	1/4	1-1/2	TB19301	9.97	TB19316	9.97
* SA-41L2	1/16	1/8	1/4	2	TB19265	14.94	TB19281	14.94
* SA-41L3	1/16	1/8	1/4	3	TB19266	16.54	TB19282	16.54
* SA-63	3/32	3/32	3/8	1-1/2	TB19267	10.53	TB19283	10.53
* SA-42	3/32	1/8	7/16	1-1/2	TB19302	9.97	TB19317	9.97
* SA-42L2	3/32	1/8	7/16	2	TB19268	14.94	TB19284	14.94
* SA-42L3	3/32	1/8	7/16	3	TB19269	16.54	TB19285	16.54
* SA-43	1/8	1/8	9/16	1-1/2	TB19303	9.97	TB19318	9.97
* SA-43L2	1/8	1/8	9/16	2	TB19270	14.94	TB19286	14.94
* SA-43L3	1/8	1/8	9/16	3	TB19271	16.54	TB19287	16.54
* SA-11	1/8	1/4	1/2	2	TB19307	19.80	TB19322	19.80
* SA-12	1/8	1/4	5/8	2	TB19272	19.90	TB19288	19.90
SA-52	5/32	1/8	1/2	2	TB19304	21.94	TB19319	21.94
* SA-13	5/32	1/4	5/8	2	TB19630	27.44	TB19652	27.44
SA-53	3/16	1/8	1/2	2	TB19305	21.94	TB19320	21.94
* SA-81	3/16	3/16	1/2	2	TB19273	24.09	TB19289	24.09
* SA-14	3/16	1/4	5/8	2	TB19308	23.69	TB19323	23.69
SA-51	1/4	1/8	1/2	2	TB19306	14.80	TB19321	14.80
* SA-1	1/4	1/4	5/8	2	TB19309	16.78	TB19324	16.78
SA-1L6	1/4	1/4	1/2	6-1/2	TB19562	34.01	TB19565	34.01
* SA-1L	1/4	1/4	1	2	TB19274	25.91	TB19290	25.91
SA-2	5/16	1/4	3/4	2-1/2	TB19310	30.99	TB19325	30.99
SA-3	3/8	1/4	3/4	2-1/2	TB19311	20.77	TB19326	20.77
SA-3L6	3/8	1/4	3/4	6-3/4	TB19563	47.90	TB19566	47.90
SA-3L	3/8	1/4	1	2-3/4	TB19275	31.98	TB19291	31.98
SA-3X	3/8	1/4	1-1/2	3-1/4	TB19276	45.48	TB19292	45.48
SA-4	7/16	1/4	1	2-3/4	TB19312	48.15	TB19327	48.15
SA-5	1/2	1/4	1	2-3/4	TB19313	33.14	TB19328	33.14
SA-5L6	1/2	1/4	1	7	TB19564	74.86	TB19567	74.86
SA-6	5/8	1/4	1	2-3/4	TB19314	47.78	TB19329	47.78
SA-15	3/4	1/4	1/2	2-1/4	TB19277	72.77	TB19293	72.77
SA-16	3/4	1/4	3/4	2-1/2	TB19278	72.77	TB19294	72.77
SA-7	3/4	1/4	1	2-3/4	TB19315	74.51	TB19330	74.51
SA-9	1	1/4	1	2-3/4	TB19632	117.65	TB19654	117.65

\* One Piece

## SA - CYLINDRICAL - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	LIST PRICE
* SA-1NF	1/4	1/4	5/8	2	TB19592	24.28
SA-3NF	3/8	1/4	3/4	2-1/2	TB19593	33.94
SA-5NF	1/2	1/4	1	2-3/4	TB19594	56.69
SA-6NF	5/8	1/4	1	2-3/4	TB19595	84.25
SA-7NF	3/4	1/4	1	2-3/4	TB19596	110.70

\* One Piece

**TAKE 55% OFF LIST PRICE!**

For technical information, please see page 224.

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## SB - CYLINDRICAL END CUT



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SB-41	1/16	1/8	1/4	1-1/2	TB19331	13.44	TB19660	13.44
* SB-41L2	1/16	1/8	1/4	2	TB19815	16.43	TB19834	16.43
* SB-41L3	1/16	1/8	1/4	3	TB19816	18.19	TB19835	18.19
* SB-42	3/32	1/8	7/16	1-1/2	TB19332	10.63	TB19658	10.63
* SB-42L2	3/32	1/8	7/16	2	TB19817	16.43	TB19836	16.43
* SB-42L3	3/32	1/8	7/16	3	TB19818	18.19	TB19837	18.19
† SB-ECO	1/8	1/8	-	1-1/2	TB19819	7.72	-	-
* SB-43	1/8	1/8	9/16	1-1/2	TB19333	9.73	TB19656	9.73
* SB-43L2	1/8	1/8	9/16	2	TB19820	16.43	TB19839	16.43
* SB-43L3	1/8	1/8	9/16	3	TB19821	18.19	TB19840	18.19
* SB-11	1/8	1/4	1/2	2	TB19336	25.64	TB19344	25.64
* SB-12	1/8	1/4	5/8	2	TB19822	21.83	TB19841	21.83
* SB-13	5/32	1/4	5/8	2	TB19634	30.95	TB19662	30.95
* SB-14	3/16	1/4	5/8	2	TB19337	25.64	TB19345	25.64
SB-51	1/4	1/8	3/16	1-11/16	TB19334	14.83	TB19342	14.83
SB-51	1/4	1/8	1/2	2	TB19335	16.15	TB19343	16.15
* SB-1	1/4	1/4	5/8	2	TB19338	19.91	TB19346	19.91
* SB-1L	1/4	1/4	1	2	TB19823	28.50	TB19842	28.50
SB-2	5/16	1/4	3/4	2-1/2	TB19339	34.08	TB19347	34.08
SB-3	3/8	1/4	3/4	2-1/2	TB19340	23.76	TB19348	23.76
SB-3L	3/8	1/4	1	2-3/4	TB19824	35.12	TB19843	35.12
SB-3X	3/8	1/4	1-1/2	3-1/4	TB19825	46.42	TB19844	46.42
SB-4	7/16	1/4	1	2-3/4	TB19636	54.71	TB19349	54.71
SB-5	1/2	1/4	1	2-3/4	TB19341	36.48	TB19350	36.48
SB-6	5/8	1/4	1	2-3/4	TB19692	53.45	TB19351	53.45
SB-15	3/4	1/4	1/2	2-1/4	TB19826	79.73	TB19845	79.73
SB-16	3/4	1/4	3/4	2-1/2	TB19827	79.73	TB19846	79.73
SB-7	3/4	1/4	1	2-3/4	TB19638	82.10	TB19352	82.10
SB-9	1	1/4	1	2-3/4	TB19640	128.40	TB19664	128.40

\* One Piece † SB-ECO = End Cut Only

## SB - CYLINDRICAL END CUT - FOR ALUMINUM



**TAKE 55% OFF LIST PRICE!**

TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	LIST PRICE
SB-3NF	3/8	1/4	3/4	2-1/2	TB19852	38.37
SB-5NF	1/2	1/4	1	2-3/4	TB19853	58.86
SB-6NF	5/8	1/4	1	2-3/4	TB19854	81.33
SB-7NF	3/4	1/4	1	2-3/4	TB19855	119.08

For technical information, please see page 224.

## SC - CYLINDRICAL BALL NOSE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SC-61	3/32	3/32	3/8	1-1/2	TB19761	10.53	TB19772	10.53
* SC-41	3/32	1/8	7/16	1-1/2	TB19353	9.97	TB19367	9.97
* SC-42	1/8	1/8	9/16	1-1/2	TB19354	9.97	TB19368	9.97
* SC-42L2	1/8	1/8	9/16	2	TB19762	14.94	TB19773	14.94
* SC-42L3	1/8	1/8	9/16	3	TB19763	16.54	TB19774	16.54
* SC-11	1/8	1/4	1/2	2	TB19358	27.55	TB19372	27.55
* SC-12	1/8	1/4	5/8	2	TB19764	21.11	TB19775	21.11
SC-52	5/32	1/8	1/2	2	TB19355	21.94	TB19369	21.94
* SC-13	5/32	1/4	5/8	2	TB19642	31.51	TB19666	31.51
SC-53	3/16	1/8	1/2	2	TB19356	21.94	TB19370	21.94
* SC-81	3/16	3/16	1/2	2	TB19766	24.09	TB19777	24.09
* SC-14	3/16	1/4	5/8	2	TB19359	27.55	TB19373	27.55
SC-51	1/4	1/8	1/2	2	TB19357	14.83	TB19371	14.83
* SC-1	1/4	1/4	5/8	2	TB19360	19.94	TB19374	19.94
* SC-1L	1/4	1/4	1	2	TB19767	25.91	TB19778	25.91
SC-1L6	1/4	1/4	1/2	6-1/2	TB19568	39.60	TB19571	39.60
SC-2	5/16	1/4	3/4	2-1/2	TB19361	33.49	TB19375	33.49
SC-3	3/8	1/4	3/4	2-1/2	TB19362	24.11	TB19376	24.11
SC-3L	3/8	1/4	1	2-3/4	TB19768	35.01	TB19779	35.01
SC-3L6	3/8	1/4	3/4	6-3/4	TB19569	53.36	TB19572	53.36
SC-3X	3/8	1/4	1-1/2	3-1/4	TB19769	41.13	TB19788	41.13
SC-4	7/16	1/4	1	2-3/4	TB19363	52.91	TB19377	52.91
SC-5	1/2	1/4	1	2-3/4	TB19364	37.38	TB19378	37.38
SC-5L6	1/2	1/4	1	7	TB19570	83.96	TB19573	83.96
SC-6	5/8	1/4	1	2-3/4	TB19365	55.69	TB19379	55.69
SC-15	3/4	1/4	1/2	2-1/4	TB19770	78.12	TB19789	78.12
SC-16	3/4	1/4	3/4	2-1/2	TB19771	78.12	TB19792	78.12
SC-7	3/4	1/4	1	2-3/4	TB19366	80.26	TB19380	80.26
SC-9	1	1/4	1	2-3/4	TB19780	121.37	TB19782	121.37

\* One Piece

## SC - CYLINDRICAL BALL NOSE FOR ALUMINUM



**TAKE 55% OFF  
LIST PRICE!**

TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	LIST PRICE
* SC-1NF	1/4	1/4	5/8	2	TB19597	23.90
SC-3NF	3/8	1/4	3/4	2-1/2	TB19598	31.86
SC-5NF	1/2	1/4	1	2-3/4	TB19599	45.16
SC-7NF	3/4	1/4	1	2-3/4	TB19600	109.46

\* One Piece

For technical information, please see page 224.



# Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## SD - BALL SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SD-40	1/16	1/8	1/16	1-1/2	TB19492	10.53	TB19136	10.53
* SD-61	3/32	3/32	3/32	1-1/2	TB19130	10.53	TB19137	10.53
* SD-41	3/32	1/8	3/32	1-1/2	TB19493	9.97	TB19506	9.97
* SD-42	1/8	1/8	1/8	1-1/2	TB19644	9.97	TB19507	9.97
* SD-42L2	1/8	1/8	1/8	2	TB19131	14.94	TB19138	14.94
SD-42L3	1/8	1/8	1/8	3	TB19132	16.54	TB19139	16.54
SD-11	1/8	1/4	1/8	2	TB19497	25.29	TB19510	25.29
* SD-52	5/32	1/8	5/32	1-21/32	TB19133	20.33	TB19140	20.33
* SD-53	3/16	1/8	3/16	1-11/16	TB19134	21.94	TB19508	21.94
SD-81	3/16	3/16	5/32	2	TB19135	24.09	TB19141	24.09
* SD-14	3/16	1/4	3/16	2	TB19498	25.29	TB19511	25.29
SD-51	1/4	1/8	1/4	1-3/4	TB19496	14.80	TB19509	14.80
SD-1	1/4	1/4	1/4	2	TB19499	19.38	TB19512	19.38
SD-1L6	1/4	1/4	1/4	6-1/4	TB19574	36.51	TB19577	36.51
SD-2	5/16	1/4	5/16	2-1/16	TB19500	27.23	TB19513	27.23
SD-3	3/8	1/4	3/8	2-1/8	TB19501	20.77	TB19514	20.77
SD-3L6	3/8	1/4	3/8	6-3/8	TB19575	43.91	TB19578	43.91
SD-4	7/16	1/4	7/16	2-3/16	TB19502	35.16	TB19515	35.16
SD-5	1/2	1/4	1/2	2-1/2	TB19503	28.17	TB19516	28.17
SD-5L6	1/2	1/4	1/2	6-1/2	TB19576	59.16	TB19579	59.16
SD-6	5/8	1/4	5/8	2-3/8	TB19504	43.86	TB19517	43.86
SD-7	3/4	1/4	3/4	2-1/2	TB19505	60.52	TB19518	60.52
SD-9	1	1/4	1	2-3/4	TB19646	128.40	TB19668	128.40

\* One Piece

## SD - BALL SHAPE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	LIST PRICE
* SD-1NF	1/4	1/4	1/4	2	TB19613	23.55
SD-3NF	3/8	1/4	3/8	2-1/8	TB19614	29.77
SD-5NF	1/2	1/4	1/2	2-13/64	TB19615	48.84
SD-6NF	5/8	1/4	5/8	2-5/16	TB19616	73.55

\* One Piece

**TAKE 55% OFF LIST PRICE!**

For technical information, please see page 224.

END MILLS  
DRILL MILLS  
CHAMFER MILLS  
DRILLS  
REAMERS  
BURS

## SE - EGG SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SE-61	3/32	3/32	1/8	1-1/2	TB19145	10.53	TB19153	10.53
* SE-41	1/8	1/8	7/32	1-1/2	TB19456	9.97	TB19464	9.97
* SE-41L2	1/8	1/8	7/32	2	TB19146	14.94	TB19154	14.94
* SE-41L3	1/8	1/8	7/32	3	TB19147	16.54	TB19155	16.54
SE-53	3/16	1/8	9/32	1-25/32	TB19457	21.94	TB19465	21.94
* SE-81	3/16	3/16	9/32	2	TB19148	24.09	TB19156	24.09
* SE-11	3/16	1/4	5/16	2	TB19149	21.67	TB19157	21.67
SE-51	1/4	1/8	3/8	1-7/8	TB19458	14.80	TB19466	14.80
* SE-1	1/4	1/4	3/8	2	TB19459	23.69	TB19467	23.69
SE-1L6	1/4	1/4	3/8	6-3/8	TB19150	31.98	TB19158	31.98
SE-3	3/8	1/4	5/8	2-3/8	TB19460	24.94	TB19468	24.94
SE-3L6	3/8	1/4	5/8	6-5/8	TB19151	35.83	TB19159	35.83
SE-5	1/2	1/4	7/8	2-5/8	TB19461	34.88	TB19469	34.88
SE-5L6	1/2	1/4	7/8	6-7/8	TB19152	53.75	TB19160	53.75
SE-6	5/8	1/4	1	2-3/4	TB19462	55.09	TB19470	55.09
SE-7	3/4	1/4	1	2-3/4	TB19463	77.06	TB19471	77.06

\* One Piece

**TAKE 55% OFF  
LIST PRICE!**

## 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	33.07
SE-5NF	1/2	1/4	7/8	2-5/8	TB19607	57.56
SE-6NF	5/8	1/4	1	2-3/4	TB19608	81.54
SE-7NF	3/4	1/4	1	2-3/4	TB19609	116.69

For technical information, please see page 224.

# Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## SF - ROUND NOSE TREE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SF-61	3/32	3/32	1/4	1-1/2	TB19161	10.53	TB19165	10.53
* SF-41	1/8	1/8	1/4	1-1/2	TB19381	9.97	TB19395	9.97
* SF-42	1/8	1/8	1/2	1-1/2	TB19382	9.97	TB19396	9.97
* SF-42L2	1/8	1/8	1/2	2	TB19162	14.94	TB19166	14.94
* SF-42L3	1/8	1/8	1/2	3	TB19163	16.54	TB19167	16.54
SF-53	3/16	1/8	1/2	2	TB19383	21.94	TB19397	21.94
* SF-81	3/16	3/16	1/2	2	TB19164	24.09	TB19168	24.09
SF-51	1/4	1/8	1/2	2	TB19384	14.80	TB19398	14.80
* SF-1	1/4	1/4	3/4	2	TB19385	21.61	TB19399	21.61
SF-1L6	1/4	1/4	1/2	6-1/2	TB19580	41.30	TB19583	41.30
SF-3	3/8	1/4	3/4	2-1/2	TB19386	24.11	TB19400	24.11
SF-3L6	3/8	1/4	3/4	6-3/4	TB19581	52.32	TB19584	52.32
SF-4	7/16	1/4	1	2-3/4	TB19387	50.41	TB19401	50.41
SF-13	1/2	1/4	3/4	2-1/2	TB19389	53.67	TB19402	53.67
SF-5	1/2	1/4	1	2-3/4	TB19390	36.20	TB19403	36.20
SF-5L6	1/2	1/4	1	7	TB19582	77.15	TB19585	77.15
SF-6	5/8	1/4	1	2-3/4	TB19391	55.41	TB19404	55.41
SF-7	3/4	1/4	1	2-3/4	TB19392	77.42	TB19405	77.42
SF-14	3/4	1/4	1-1/4	3	TB19393	140.98	TB19406	140.98
SF-15	3/4	1/4	1-1/2	3-1/4	TB19394	165.55	TB19407	165.55

\* One Piece

## 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	24.35
SF-3NF	3/8	1/4	3/4	2-1/2	TB19602	32.20
SF-5NF	1/2	1/4	1	2-3/4	TB19603	56.97
SF-6NF	5/8	1/4	1	2-3/4	TB19604	86.93
SF-14NF	3/4	1/4	1-1/4	3	TB19605	105.75

\* One Piece

**TAKE 55% OFF LIST PRICE!**

For technical information, please see page 224.

## SG - POINTED TREE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SG-61	3/32	3/32	1/4	1-1/2	TB19930	10.53	TB19938	10.53
* SG-41	1/8	1/8	1/4	1-1/2	TB19408	9.94	TB19421	9.94
* SG-42	1/8	1/8	5/16	1-1/2	TB19409	9.94	TB19422	9.94
* SG-43	1/8	1/8	3/8	1-1/2	TB19410	9.94	TB19423	9.94
* SG-44	1/8	1/8	1/2	1-1/2	TB19411	13.83	TB19424	13.83
* SG-44L2	1/8	1/8	1/2	2	TB19931	14.94	TB19939	14.94
* SG-44L3	1/8	1/8	1/2	3	TB19932	16.54	TB19940	16.54
SG-53	3/16	1/8	1/2	2	TB19412	21.94	TB19425	21.94
* SG-81	3/16	3/16	1/2	2	TB19933	24.09	TB19941	24.09
SG-51	1/4	1/8	1/2	2	TB19413	14.80	TB19426	14.80
* SG-1	1/4	1/4	5/8	2	TB19414	22.02	TB19427	22.02
SG-1L6	1/4	1/4	1/2	6-1/2	TB19934	30.21	TB19942	30.21
SG-2	5/16	1/4	3/4	2-1/2	TB19415	34.91	TB19428	34.91
SG-3	3/8	1/4	3/4	2-1/2	TB19416	24.84	TB19429	24.84
SG-3L6	3/8	1/4	3/4	6-3/4	TB19935	38.04	TB19943	38.04
SG-13	1/2	1/4	3/4	2-1/2	TB19417	52.66	TB19430	52.66
SG-5	1/2	1/4	1	2-3/4	TB19418	36.48	TB19431	36.48
SG-5L6	1/2	1/4	1	7	TB19936	49.62	TB19944	49.62
SG-6	5/8	1/4	1	2-3/4	TB19419	56.57	TB19432	56.57
SG-7	3/4	1/4	1	2-3/4	TB19420	75.70	TB19433	75.70
SG-15	3/4	1/4	1-1/2	3-1/4	TB19937	90.96	TB19945	90.96

\* One Piece

**TAKE 55% OFF  
LIST PRICE!**

## SH - FLAME SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
SH-41	1/8	1/8	1/4	1-1/2	TB19519	9.97	TB19525	9.97
SH41L2	1/8	1/8	1/4	2	TB19950	14.94	TB19954	14.94
* SH41L3	1/8	1/8	1/4	3	TB19951	16.54	TB19955	16.54
* SH-53	3/16	1/8	3/8	1-7/8	TB19520	21.94	TB19526	21.94
* SH-1	1/4	1/4	5/8	2	TB19810	23.41	TB19812	23.41
SH-2	5/16	1/4	3/4	2-1/2	TB19521	26.99	TB19527	26.99
* SH-2L6	5/16	1/4	3/4	6-3/4	TB19952	35.83	TB19956	35.83
SH-5	1/2	1/4	1-1/4	3	TB19522	52.32	TB19528	52.32
SH-5L6	1/2	1/4	1-1/4	7-1/4	TB19953	57.89	TB19957	57.89
SH-6	5/8	1/4	1-7/16	3-3/16	TB19523	123.32	TB19529	123.32
SH-7	3/4	1/4	1-5/8	3-3/8	TB19524	156.68	TB19530	156.68

\* One Piece

For technical information, please see page 224.

# Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## SJ - 60° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SJ-42	1/8	1/8	3/32	1-1/2	TB19554	9.97	TB19558	9.97
* SJ-1	1/4	1/4	3/16	2	TB19555	19.38	TB19559	19.38
SJ-3	3/8	1/4	5/16	2-3/16	TB19556	23.76	TB19560	23.76
SJ-5	1/2	1/4	7/16	2-19/64	TB19557	32.58	TB19561	32.58
SJ-6	5/8	1/4	9/16	2-5/16	TB19960	39.31	TB19963	39.31
SJ-7	3/4	1/4	11/16	2-7/16	TB19961	51.55	TB19964	51.55
SJ-9	1	1/4	15/16	2-11/16	TB19962	103.70	TB19965	103.70

\* One Piece

## SK - 90° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SK-42	1/8	1/8	1/16	1-1/2	TB19546	9.97	TB19550	9.97
* SK-1	1/4	1/4	1/8	2	TB19547	19.38	TB19551	19.38
SK-3	3/8	1/4	3/16	2-1/16	TB19548	20.04	TB19552	20.04
SK-5	1/2	1/4	1/4	2-1/8	TB19549	31.40	TB19553	31.40
SK-6	5/8	1/4	5/16	2-3/16	TB19970	39.31	TB19972	39.31
SK-7	3/4	1/4	3/8	2-1/4	TB19694	63.96	TB19695	63.96
SK-9	1	1/4	1/2	2-1/4	TB19971	97.41	TB19973	97.41

\* One Piece



*All orders acknowledged via email within 15 minutes*

For technical information, please see page 224.

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

**BURS**

## SL - INCLUDED ANGLE WITH RADIUS END



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SL-41	1/8	1/8	3/8	1-1/2	TB19472	9.94	TB19482	9.94
* SL-42	1/8	1/8	1/2	1-1/2	TB19473	9.94	TB19483	9.94
* SL-42L2	1/8	1/8	1/2	2	TB19980	14.94	TB19992	14.94
* SL-42L3	1/8	1/8	1/2	3	TB19981	16.54	TB19993	16.54
SL-53	3/16	1/8	1/2	2	TB19474	21.94	TB19484	21.94
* SL-81	3/16	3/16	7/16	2	TB19982	24.09	TB19994	24.09
* SL-1	1/4	1/4	5/8	2	TB19475	20.18	TB19485	20.18
SL-1L6	1/4	1/4	5/8	6-5/8	TB19586	42.31	TB19589	42.31
SL-2	5/16	1/4	7/8	2-3/4	TB19476	38.59	TB19486	38.59
SL-3	3/8	1/4	1-1/16	2-15/16	TB19477	27.93	TB19487	27.93
SL-3L6	3/8	1/4	1-1/16	7-1/16	TB19587	66.66	TB19590	66.66
SL-4	1/2	1/4	1-1/8	3	TB19478	56.59	TB19488	56.59
SL-4L6	1/2	1/4	1-1/4	7-1/4	TB19588	81.67	TB19591	81.67
SL-6	5/8	1/4	1-5/16	3-3/16	TB19480	90.76	TB19490	90.76
SL-7	3/4	1/4	1-1/2	3-3/8	TB19481	124.20	TB19491	124.20

\* One Piece

## SL - INCLUDED ANGLE WITH RADIUS END - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	LIST PRICE
SL-3NF	3/8	1/4	1-1/16	2-15/16	TB19617	49.87
SL-4NF	1/2	1/4	1-1/4	3	TB19610	57.11
SL-5NF	5/8	1/4	1-3/16	3-5/16	TB19618	103.90
SL-6NF	5/8	1/4	1-5/16	3-3/16	TB19611	115.01
SL-7NF	3/4	1/4	1-1/2	3-3/8	TB19612	142.86



## SM - POINTED CONE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SM-61	3/32	3/32	1/4	1-1/2	TB19061	10.53	TB19064	10.53
* SM-41	1/8	1/8	11/32	1-1/2	TB19434	9.97	TB19445	9.97
* SM-42	1/8	1/8	7/16	1-1/2	TB19435	9.97	TB19446	9.97
* SM-42L2	1/8	1/8	7/16	2	TB19062	14.94	TB19065	14.94
* SM-42L3	1/8	1/8	7/16	3	TB19063	16.54	TB19066	16.54
* SM-43	1/8	1/8	5/8	1-1/2	TB19436	9.97	TB19447	9.97
SM-53	3/16	1/8	1/2	2	TB19437	21.94	TB19448	21.94
SM-51	1/4	1/8	1/2	2-1/8	TB19438	14.80	TB19449	14.80
* SM-1	1/4	1/4	1/2	2	TB19439	18.97	TB19450	18.97
* SM-2	1/4	1/4	3/4	2	TB19440	29.39	TB19451	29.39
* SM-3	1/4	1/4	1	2	TB19441	21.19	TB19452	21.19
SM-4	3/8	1/4	5/8	2-1/2	TB19442	28.24	TB19453	28.24
SM-5	1/2	1/4	7/8	2-3/4	TB19443	39.53	TB19454	39.53
SM-6	5/8	1/4	1	2-7/8	TB19444	89.29	TB19455	89.29

\* One Piece

For technical information, please see page 224.

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

# Carbide Burs

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## SN - INVERTED TAPER



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	LIST PRICE	DOUBLE CUT	LIST PRICE
* SN-61	3/32	3/32	1/8	1-1/2	TB19069	10.53	TB19075	10.53
* SN-41	3/32	1/8	1/8	1-1/2	TB19531	9.97	TB19076	9.97
* SN-42	1/8	1/8	3/16	1-1/2	TB19532	9.97	TB19537	9.97
SN-53	3/16	1/8	1/4	1-3/4	TB19533	21.94	TB19538	21.94
* SN-81	3/16	3/16	1/4	2	TB19070	24.09	TB19077	24.09
SN-51	1/4	1/8	1/4	1-3/4	TB19534	14.80	TB19539	14.80
* SN-1	1/4	1/4	5/16	2	TB19535	19.28	TB19540	19.28
SN-2	3/8	1/4	3/8	2-1/8	TB19071	27.12	TB19078	27.12
SN-4	1/2	1/4	1/2	2-1/4	TB19536	56.28	TB19541	56.28
SN-6	5/8	1/4	3/4	2-1/2	TB19072	49.78	TB19079	49.78
SN-7	3/4	1/4	5/8	2-3/8	TB19073	60.09	TB19080	60.09

\* One Piece



## 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	146.87
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	276.55

For technical information, please see page 224.



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

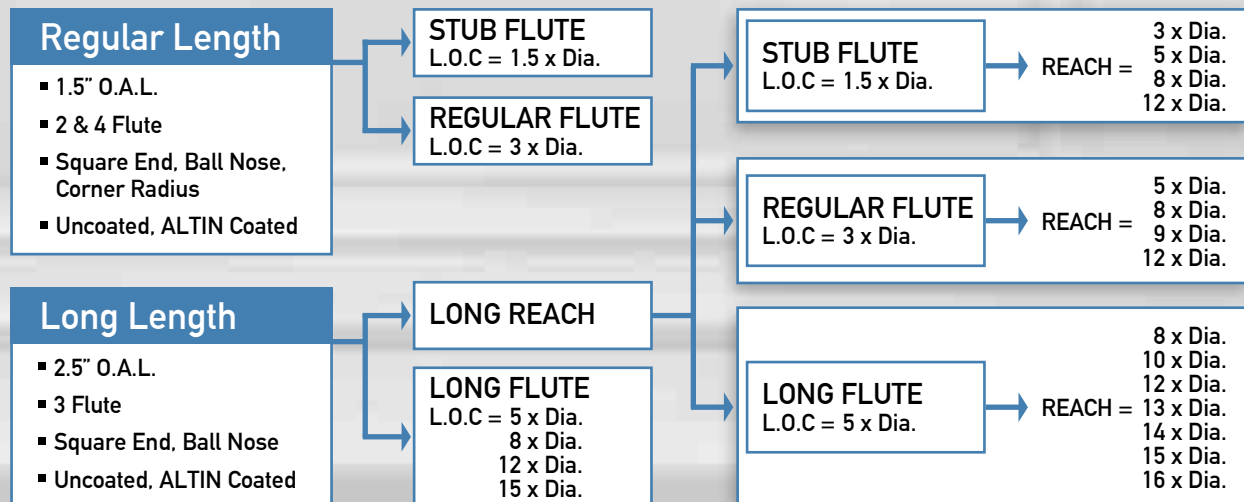
**TITAN USA offers the industry's highest quality, Made in the USA, Carbide Micro End Mills**



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"

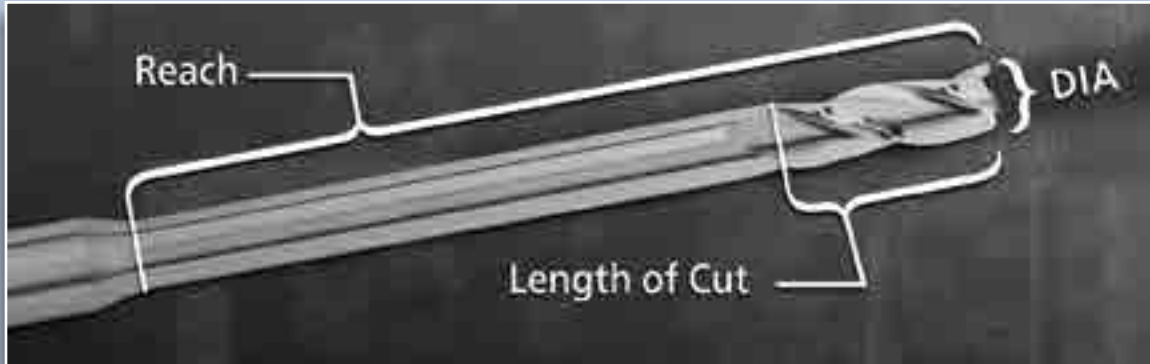
Our Micro End Mills are available in the following:






# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS




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.

Also available with ALTIN coating



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

2 FLUTE - STUB FLUTE - SQUARE END - 30° HELIX  
LOC = 1.5 X DIA



**SERIES 520**  
UNCOATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	LOC	ITEM#	LIST PRICE
0.005	0.008	TC52005	59.96
0.010	0.015	TC52010	53.74
0.015	0.023	TC52015	33.63
0.020	0.030	TC52020	30.57
0.025	0.038	TC52025	30.57
0.030	0.045	TC52030	28.69
0.031	0.047	TC52031	26.89
0.035	0.053	TC52035	26.89
0.040	0.060	TC52040	26.89
0.045	0.068	TC52045	26.23
0.047	0.071	TC52047	26.23
0.050	0.075	TC52050	26.23
0.055	0.083	TC52055	26.23

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC52060	26.23
0.062	0.093	TC52062	26.23
0.065	0.098	TC52065	26.23
0.070	0.105	TC52070	26.23
0.075	0.113	TC52075	26.23
0.078	0.117	TC52078	26.23
0.080	0.120	TC52080	26.23
0.085	0.128	TC52085	26.23
0.090	0.135	TC52090	26.23
0.093	0.140	TC52093	26.23
0.095	0.143	TC52095	26.23
0.100	0.150	TC52100	26.23



**SERIES 522**  
ALTiN COATED

DIA	LOC	ITEM#	LIST PRICE
0.005	0.008	TC52205	71.94
0.010	0.015	TC52210	64.47
0.015	0.023	TC52215	40.37
0.020	0.030	TC52220	36.68
0.025	0.038	TC52225	36.68
0.030	0.045	TC52230	34.43
0.031	0.047	TC52231	32.24
0.035	0.053	TC52235	32.24
0.040	0.060	TC52240	32.24
0.045	0.068	TC52245	31.47
0.047	0.071	TC52247	31.47
0.050	0.075	TC52250	31.47
0.055	0.083	TC52255	31.47

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC52260	31.47
0.062	0.093	TC52262	31.47
0.065	0.098	TC52265	31.47
0.070	0.105	TC52270	31.47
0.075	0.113	TC52275	31.47
0.078	0.117	TC52278	31.47
0.080	0.120	TC52280	31.47
0.085	0.128	TC52285	31.47
0.090	0.135	TC52290	31.47
0.093	0.140	TC52293	31.47
0.095	0.143	TC52295	31.47
0.100	0.150	TC52300	31.47

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 ISO H6

REGULAR LENGTH  
LONG REACH STUB FL  
LONG REACH REG FL  
LONG REACH LONG FL  
LONG LENGTH LONG FL

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

**2 FLUTE - STUB FLUTE - BALL NOSE - 30° HELIX  
LOC = 1.5 X DIA**



**SERIES 530  
UNCOATED**

DIA	LOC	ITEM#	LIST PRICE
0.005	0.008	TC53005	74.93
0.010	0.015	TC53010	67.18
0.015	0.023	TC53015	42.03
0.020	0.030	TC53020	38.21
0.025	0.038	TC53025	38.21
0.030	0.045	TC53030	35.85
0.031	0.047	TC53031	33.63
0.035	0.053	TC53035	33.63
0.040	0.060	TC53040	33.63
0.045	0.068	TC53045	32.79
0.047	0.071	TC53047	32.79
0.050	0.075	TC53050	32.79
0.055	0.083	TC53055	32.79

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC53060	32.79
0.062	0.093	TC53062	32.79
0.065	0.098	TC53065	32.79
0.070	0.105	TC53070	32.79
0.075	0.113	TC53075	32.79
0.078	0.117	TC53078	32.79
0.080	0.120	TC53080	32.79
0.085	0.128	TC53085	32.79
0.090	0.135	TC53090	32.79
0.093	0.140	TC53093	32.79
0.095	0.143	TC53095	32.79
0.100	0.150	TC53100	32.79



**SERIES 532  
ALTiN COATED**

DIA	LOC	ITEM#	LIST PRICE
0.005	0.008	TC53205	89.94
0.010	0.015	TC53210	80.59
0.015	0.023	TC53215	50.44
0.020	0.030	TC53220	45.85
0.025	0.038	TC53225	45.85
0.030	0.045	TC53230	43.01
0.031	0.047	TC53231	40.37
0.035	0.053	TC53235	40.37
0.040	0.060	TC53240	40.37
0.045	0.068	TC53245	39.39
0.047	0.071	TC53247	39.39
0.050	0.075	TC53250	39.39
0.055	0.083	TC53255	39.39

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC53260	39.39
0.062	0.093	TC53262	39.39
0.065	0.098	TC53265	39.39
0.070	0.105	TC53270	39.39
0.075	0.113	TC53275	39.39
0.078	0.117	TC53278	39.39
0.080	0.120	TC53280	39.39
0.085	0.128	TC53285	39.39
0.090	0.135	TC53290	39.39
0.093	0.140	TC53293	39.39
0.095	0.143	TC53295	39.39
0.100	0.150	TC53300	39.39

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	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

REGULAR LENGTH  
LONG REACH STUB FL  
LONG REACH REG FL  
LONG REACH LONG FL  
LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

2 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 560  
UNCOATED**

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	ITEM#	LIST PRICE
0.005	0.015	TC56005	52.14
0.006	0.018	TC56006	52.14
0.007	0.021	TC56007	52.14
0.008	0.024	TC56008	52.14
0.009	0.027	TC56009	46.72
0.010	0.030	TC56010	46.72
0.011	0.033	TC56011	41.83
0.012	0.036	TC56012	41.83
0.013	0.039	TC56013	34.60
0.014	0.042	TC56014	34.60
0.015	0.045	TC56015	29.25
0.016	0.048	TC56016	29.25
0.017	0.051	TC56017	29.25
0.018	0.054	TC56018	29.25
0.019	0.057	TC56019	29.25
0.020	0.060	TC56020	26.57
0.021	0.063	TC56021	26.57
0.022	0.066	TC56022	26.57
0.023	0.069	TC56023	26.57
0.024	0.072	TC56024	26.57
0.025	0.075	TC56025	26.57
0.026	0.078	TC56026	24.94
0.027	0.081	TC56027	24.94
0.028	0.084	TC56028	24.94
0.029	0.087	TC56029	24.94
0.030	0.090	TC56030	24.94
0.031	0.093	TC56031	23.38
0.032	0.096	TC56032	23.38
0.033	0.099	TC56033	23.38
0.034	0.102	TC56034	23.38
0.035	0.105	TC56035	23.38
0.036	0.108	TC56036	23.38
0.037	0.111	TC56037	23.38
0.038	0.114	TC56038	23.38
0.039	0.117	TC56039	23.38
0.040	0.120	TC56040	23.38

DIA	LOC	ITEM#	LIST PRICE
0.041	0.123	TC56041	23.38
0.042	0.126	TC56042	23.38
0.043	0.129	TC56043	23.38
0.044	0.132	TC56044	22.79
0.045	0.135	TC56045	22.79
0.046	0.138	TC56046	22.79
0.047	0.141	TC56047	22.79
0.048	0.144	TC56048	22.79
0.049	0.147	TC56049	22.79
0.050	0.150	TC56050	22.79
0.051	0.153	TC56051	22.79
0.052	0.156	TC56052	22.79
0.053	0.159	TC56053	22.79
0.054	0.162	TC56054	22.79
0.055	0.165	TC56055	22.79
0.056	0.168	TC56056	22.79
0.057	0.171	TC56057	22.79
0.058	0.174	TC56058	22.79
0.059	0.177	TC56059	22.79
0.060	0.180	TC56060	22.79
0.061	0.183	TC56061	22.79
0.062	0.186	TC56062	22.79
0.063	0.189	TC56063	22.79
0.064	0.192	TC56064	22.79
0.065	0.195	TC56065	22.79
0.066	0.198	TC56066	22.79
0.067	0.201	TC56067	22.79
0.068	0.204	TC56068	22.79
0.069	0.207	TC56069	22.79
0.070	0.210	TC56070	22.79
0.071	0.213	TC56071	22.79
0.072	0.216	TC56072	22.79
0.073	0.219	TC56073	22.79
0.074	0.222	TC56074	22.79
0.075	0.225	TC56075	22.79
0.076	0.228	TC56076	22.79

DIA	LOC	ITEM#	LIST PRICE
0.077	0.231	TC56077	22.79
0.078	0.234	TC56078	22.79
0.079	0.237	TC56079	22.79
0.080	0.240	TC56080	22.79
0.081	0.243	TC56081	22.79
0.082	0.246	TC56082	22.79
0.083	0.249	TC56083	22.79
0.084	0.252	TC56084	22.79
0.085	0.255	TC56085	22.79
0.086	0.258	TC56086	22.79
0.087	0.261	TC56087	22.79
0.088	0.264	TC56088	22.79
0.089	0.267	TC56089	22.79
0.090	0.270	TC56090	22.79
0.091	0.273	TC56091	22.79
0.092	0.276	TC56092	22.79
0.093	0.279	TC56093	22.79
0.094	0.282	TC56094	22.79
0.095	0.285	TC56095	22.79
0.096	0.288	TC56096	22.79
0.097	0.291	TC56097	22.79
0.098	0.294	TC56098	22.79
0.099	0.297	TC56099	22.79
0.100	0.300	TC56100	22.79
0.101	0.303	TC56101	22.79
0.102	0.306	TC56102	22.79
0.103	0.309	TC56103	22.79
0.104	0.312	TC56104	22.79
0.105	0.315	TC56105	22.79
0.106	0.318	TC56106	22.79
0.107	0.321	TC56107	22.79
0.108	0.324	TC56108	22.79
0.109	0.327	TC56109	22.79
0.110	0.330	TC56110	22.79
0.115	0.345	TC56115	22.79
0.120	0.360	TC56120	22.79

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 ISO H6

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



2 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



**SERIES 562**  
ALTIN COATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	LOC	ITEM#	LIST PRICE
0.005	0.015	TC56205	62.56
0.006	0.018	TC56206	62.56
0.007	0.021	TC56207	62.56
0.008	0.024	TC56208	62.56
0.009	0.027	TC56209	56.07
0.010	0.030	TC56210	56.07
0.011	0.033	TC56211	50.20
0.012	0.036	TC56212	50.20
0.013	0.039	TC56213	41.51
0.014	0.042	TC56214	41.51
0.015	0.045	TC56215	35.09
0.016	0.048	TC56216	35.09
0.017	0.051	TC56217	35.09
0.018	0.054	TC56218	35.09
0.019	0.057	TC56219	35.09
0.020	0.060	TC56220	31.89
0.021	0.063	TC56221	31.89
0.022	0.066	TC56222	31.89
0.023	0.069	TC56223	31.89
0.024	0.072	TC56224	31.89
0.025	0.075	TC56225	31.89
0.026	0.078	TC56226	29.94
0.027	0.081	TC56227	29.94
0.028	0.084	TC56228	29.94
0.029	0.087	TC56229	29.94
0.030	0.090	TC56230	29.94
0.031	0.093	TC56231	28.03
0.032	0.096	TC56232	28.03
0.033	0.099	TC56233	28.03
0.034	0.102	TC56234	28.03
0.035	0.105	TC56235	28.03
0.036	0.108	TC56236	28.03
0.037	0.111	TC56237	28.03
0.038	0.114	TC56238	28.03
0.039	0.117	TC56239	28.03
0.040	0.120	TC56240	28.03

DIA	LOC	ITEM#	LIST PRICE
0.041	0.123	TC56241	28.03
0.042	0.126	TC56242	28.03
0.043	0.129	TC56243	28.03
0.044	0.132	TC56244	27.37
0.045	0.135	TC56245	27.37
0.046	0.138	TC56246	27.37
0.047	0.141	TC56247	27.37
0.048	0.144	TC56248	27.37
0.049	0.147	TC56249	27.37
0.050	0.150	TC56250	27.37
0.051	0.153	TC56251	27.37
0.052	0.156	TC56252	27.37
0.053	0.159	TC56253	27.37
0.054	0.162	TC56254	27.37
0.055	0.165	TC56255	27.37
0.056	0.168	TC56256	27.37
0.057	0.171	TC56257	27.37
0.058	0.174	TC56258	27.37
0.059	0.177	TC56259	27.37
0.060	0.180	TC56260	27.37
0.061	0.183	TC56261	27.37
0.062	0.186	TC56262	27.37
0.063	0.189	TC56263	27.37
0.064	0.192	TC56264	27.37
0.065	0.195	TC56265	27.37
0.066	0.198	TC56266	27.37
0.067	0.201	TC56267	27.37
0.068	0.204	TC56268	27.37
0.069	0.207	TC56269	27.37
0.070	0.210	TC56270	27.37
0.071	0.213	TC56271	27.37
0.072	0.216	TC56272	27.37
0.073	0.219	TC56273	27.37
0.074	0.222	TC56274	27.37
0.075	0.225	TC56275	27.37
0.076	0.228	TC56276	27.37

DIA	LOC	ITEM#	LIST PRICE
0.077	0.231	TC56277	27.37
0.078	0.234	TC56278	27.37
0.079	0.237	TC56279	27.37
0.080	0.240	TC56280	27.37
0.081	0.243	TC56281	27.37
0.082	0.246	TC56282	27.37
0.083	0.249	TC56283	27.37
0.084	0.252	TC56284	27.37
0.085	0.255	TC56285	27.37
0.086	0.258	TC56286	27.37
0.087	0.261	TC56287	27.37
0.088	0.264	TC56288	27.37
0.089	0.267	TC56289	27.37
0.090	0.270	TC56290	27.37
0.091	0.273	TC56291	27.37
0.092	0.276	TC56292	27.37
0.093	0.279	TC56293	27.37
0.094	0.282	TC56294	27.37
0.095	0.285	TC56295	27.37
0.096	0.288	TC56296	27.37
0.097	0.291	TC56297	27.37
0.098	0.294	TC56298	27.37
0.099	0.297	TC56299	27.37
0.100	0.300	TC56300	27.37
0.101	0.303	TC56301	27.37
0.102	0.306	TC56302	27.37
0.103	0.309	TC56303	27.37
0.104	0.312	TC56304	27.37
0.105	0.315	TC56305	27.37
0.106	0.318	TC56306	27.37
0.107	0.321	TC56307	27.37
0.108	0.324	TC56308	27.37
0.109	0.327	TC56309	27.37
0.110	0.330	TC56310	27.37
0.115	0.345	TC56315	27.37
0.120	0.360	TC56320	27.37

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

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 ISO H6



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

2 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 570  
UNCOATED**

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	ITEM#	LIST PRICE
0.005	0.015	TC57005	65.17
0.006	0.018	TC57006	65.17
0.007	0.021	TC57007	65.17
0.008	0.024	TC57008	65.17
0.009	0.027	TC57009	58.43
0.010	0.030	TC57010	58.43
0.011	0.033	TC57011	52.28
0.012	0.036	TC57012	52.28
0.013	0.039	TC57013	43.32
0.014	0.042	TC57014	43.32
0.015	0.045	TC57015	36.54
0.016	0.048	TC57016	36.54
0.017	0.051	TC57017	36.54
0.018	0.054	TC57018	36.54
0.019	0.057	TC57019	36.54
0.020	0.060	TC57020	33.24
0.021	0.063	TC57021	33.24
0.022	0.066	TC57022	33.24
0.023	0.069	TC57023	33.24
0.024	0.072	TC57024	33.24
0.025	0.075	TC57025	33.24
0.026	0.078	TC57026	31.20
0.027	0.081	TC57027	31.20
0.028	0.084	TC57028	31.20
0.029	0.087	TC57029	31.20
0.030	0.090	TC57030	31.20
0.031	0.093	TC57031	29.25
0.032	0.096	TC57032	29.25
0.033	0.099	TC57033	29.25
0.034	0.102	TC57034	29.25
0.035	0.105	TC57035	29.25
0.036	0.108	TC57036	29.25
0.037	0.111	TC57037	29.25
0.038	0.114	TC57038	29.25
0.039	0.117	TC57039	29.25
0.040	0.120	TC57040	29.25

DIA	LOC	ITEM#	LIST PRICE
0.041	0.123	TC57041	29.25
0.042	0.126	TC57042	29.25
0.043	0.129	TC57043	29.25
0.044	0.132	TC57044	28.52
0.045	0.135	TC57045	28.52
0.046	0.138	TC57046	28.52
0.047	0.141	TC57047	28.52
0.048	0.144	TC57048	28.52
0.049	0.147	TC57049	28.52
0.050	0.150	TC57050	28.52
0.051	0.153	TC57051	28.52
0.052	0.156	TC57052	28.52
0.053	0.159	TC57053	28.52
0.054	0.162	TC57054	28.52
0.055	0.165	TC57055	28.52
0.056	0.168	TC57056	28.52
0.057	0.171	TC57057	28.52
0.058	0.174	TC57058	28.52
0.059	0.177	TC57059	28.52
0.060	0.180	TC57060	28.52
0.061	0.183	TC57061	28.52
0.062	0.186	TC57062	28.52
0.063	0.189	TC57063	28.52
0.064	0.192	TC57064	28.52
0.065	0.195	TC57065	28.52
0.066	0.198	TC57066	28.52
0.067	0.201	TC57067	28.52
0.068	0.204	TC57068	28.52
0.069	0.207	TC57069	28.52
0.070	0.210	TC57070	28.52
0.071	0.213	TC57071	28.52
0.072	0.216	TC57072	28.52
0.073	0.219	TC57073	28.52
0.074	0.222	TC57074	28.52
0.075	0.225	TC57075	28.52
0.076	0.228	TC57076	28.52

DIA	LOC	ITEM#	LIST PRICE
0.077	0.231	TC57077	28.52
0.078	0.234	TC57078	28.52
0.079	0.237	TC57079	28.52
0.080	0.240	TC57080	28.52
0.081	0.243	TC57081	28.52
0.082	0.246	TC57082	28.52
0.083	0.249	TC57083	28.52
0.084	0.252	TC57084	28.52
0.085	0.255	TC57085	28.52
0.086	0.258	TC57086	28.52
0.087	0.261	TC57087	28.52
0.088	0.264	TC57088	28.52
0.089	0.267	TC57089	28.52
0.090	0.270	TC57090	28.52
0.091	0.273	TC57091	28.52
0.092	0.276	TC57092	28.52
0.093	0.279	TC57093	28.52
0.094	0.282	TC57094	28.52
0.095	0.285	TC57095	28.52
0.096	0.288	TC57096	28.52
0.097	0.291	TC57097	28.52
0.098	0.294	TC57098	28.52
0.099	0.297	TC57099	28.52
0.100	0.300	TC57100	28.52
0.101	0.303	TC57101	28.52
0.102	0.306	TC57102	28.52
0.103	0.309	TC57103	28.52
0.104	0.312	TC57104	28.52
0.105	0.315	TC57105	28.52
0.106	0.318	TC57106	28.52
0.107	0.321	TC57107	28.52
0.108	0.324	TC57108	28.52
0.109	0.327	TC57109	28.52
0.110	0.330	TC57110	28.52
0.115	0.345	TC57115	28.52
0.120	0.360	TC57120	28.52

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

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+0.0005, -0.0005	-0.0001, -0.0003 ISO H6	+0.0002, -0.0002

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



2 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 572**  
ALTiN COATED

DIA	LOC	ITEM#	LIST PRICE
0.005	0.015	TC57205	78.20
0.006	0.018	TC57206	78.20
0.007	0.021	TC57207	78.20
0.008	0.024	TC57208	78.20
0.009	0.027	TC57209	70.10
0.010	0.030	TC57210	70.10
0.011	0.033	TC57211	62.77
0.012	0.036	TC57212	62.77
0.013	0.039	TC57213	51.97
0.014	0.042	TC57214	51.97
0.015	0.045	TC57215	43.84
0.016	0.048	TC57216	43.84
0.017	0.051	TC57217	43.84
0.018	0.054	TC57218	43.84
0.019	0.057	TC57219	43.84
0.020	0.060	TC57220	39.88
0.021	0.063	TC57221	39.88
0.022	0.066	TC57222	39.88
0.023	0.069	TC57223	39.88
0.024	0.072	TC57224	39.88
0.025	0.075	TC57225	39.88
0.026	0.078	TC57226	37.41
0.027	0.081	TC57227	37.41
0.028	0.084	TC57228	37.41
0.029	0.087	TC57229	37.41
0.030	0.090	TC57230	37.41
0.031	0.093	TC57231	35.09
0.032	0.096	TC57232	35.09
0.033	0.099	TC57233	35.09
0.034	0.102	TC57234	35.09
0.035	0.105	TC57235	35.09
0.036	0.108	TC57236	35.09
0.037	0.111	TC57237	35.09
0.038	0.114	TC57238	35.09
0.039	0.117	TC57239	35.09
0.040	0.120	TC57240	35.09

DIA	LOC	ITEM#	LIST PRICE
0.041	0.123	TC57241	35.09
0.042	0.126	TC57242	35.09
0.043	0.129	TC57243	35.09
0.044	0.132	TC57244	34.25
0.045	0.135	TC57245	34.25
0.046	0.138	TC57246	34.25
0.047	0.141	TC57247	34.25
0.048	0.144	TC57248	34.25
0.049	0.147	TC57249	34.25
0.050	0.150	TC57250	34.25
0.051	0.153	TC57251	34.25
0.052	0.156	TC57252	34.25
0.053	0.159	TC57253	34.25
0.054	0.162	TC57254	34.25
0.055	0.165	TC57255	34.25
0.056	0.168	TC57256	34.25
0.057	0.171	TC57257	34.25
0.058	0.174	TC57258	34.25
0.059	0.177	TC57259	34.25
0.060	0.180	TC57260	34.25
0.061	0.183	TC57261	34.25
0.062	0.186	TC57262	34.25
0.063	0.189	TC57263	34.25
0.064	0.192	TC57264	34.25
0.065	0.195	TC57265	34.25
0.066	0.198	TC57266	34.25
0.067	0.201	TC57267	34.25
0.068	0.204	TC57268	34.25
0.069	0.207	TC57269	34.25
0.070	0.210	TC57270	34.25
0.071	0.213	TC57271	34.25
0.072	0.216	TC57272	34.25
0.073	0.219	TC57273	34.25
0.074	0.222	TC57274	34.25
0.075	0.225	TC57275	34.25
0.076	0.228	TC57276	34.25

DIA	LOC	ITEM#	LIST PRICE
0.077	0.231	TC57277	34.25
0.078	0.234	TC57278	34.25
0.079	0.237	TC57279	34.25
0.080	0.240	TC57280	34.25
0.081	0.243	TC57281	34.25
0.082	0.246	TC57282	34.25
0.083	0.249	TC57283	34.25
0.084	0.252	TC57284	34.25
0.085	0.255	TC57285	34.25
0.086	0.258	TC57286	34.25
0.087	0.261	TC57287	34.25
0.088	0.264	TC57288	34.25
0.089	0.267	TC57289	34.25
0.090	0.270	TC57290	34.25
0.091	0.273	TC57291	34.25
0.092	0.276	TC57292	34.25
0.093	0.279	TC57293	34.25
0.094	0.282	TC57294	34.25
0.095	0.285	TC57295	34.25
0.096	0.288	TC57296	34.25
0.097	0.291	TC57297	34.25
0.098	0.294	TC57298	34.25
0.099	0.297	TC57299	34.25
0.100	0.300	TC57300	34.25
0.101	0.303	TC57301	34.25
0.102	0.306	TC57302	34.25
0.103	0.309	TC57303	34.25
0.104	0.312	TC57304	34.25
0.105	0.315	TC57305	34.25
0.106	0.318	TC57306	34.25
0.107	0.321	TC57307	34.25
0.108	0.324	TC57308	34.25
0.109	0.327	TC57309	34.25
0.110	0.330	TC57310	34.25
0.115	0.345	TC57315	34.25
0.120	0.360	TC57320	34.25

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	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

4 FLUTE - STUB FLUTE - SQUARE END - 30° HELIX  
LOC = 1.5 X DIA



**SERIES 540**  
UNCOATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	LOC	ITEM#	LIST PRICE
0.010	0.015	TC54010	53.74
0.015	0.023	TC54015	33.63
0.020	0.030	TC54020	30.57
0.025	0.038	TC54025	30.57
0.030	0.045	TC54030	28.69
0.031	0.047	TC54031	26.89
0.035	0.053	TC54035	26.89
0.040	0.060	TC54040	26.89
0.045	0.068	TC54045	26.23
0.047	0.071	TC54047	26.23
0.050	0.075	TC54050	26.23
0.055	0.083	TC54055	26.23

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC54060	26.23
0.062	0.093	TC54062	26.23
0.065	0.098	TC54065	26.23
0.070	0.105	TC54070	26.23
0.075	0.113	TC54075	26.23
0.078	0.117	TC54078	26.23
0.080	0.120	TC54080	26.23
0.085	0.128	TC54085	26.23
0.090	0.135	TC54090	26.23
0.093	0.140	TC54093	26.23
0.095	0.143	TC54095	26.23
0.100	0.150	TC54100	26.23



**SERIES 542**  
ALUMIN COATED

DIA	LOC	ITEM#	LIST PRICE
0.010	0.015	TC54210	64.47
0.015	0.023	TC54215	40.37
0.020	0.030	TC54220	36.68
0.025	0.038	TC54225	36.68
0.030	0.045	TC54230	34.43
0.031	0.047	TC54231	32.24
0.035	0.053	TC54235	32.24
0.040	0.060	TC54240	32.24
0.045	0.068	TC54245	31.47
0.047	0.071	TC54247	31.47
0.050	0.075	TC54250	31.47
0.055	0.083	TC54255	31.47

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC54260	31.47
0.062	0.093	TC54262	31.47
0.065	0.098	TC54265	31.47
0.070	0.105	TC54270	31.47
0.075	0.113	TC54275	31.47
0.078	0.117	TC54278	31.47
0.080	0.120	TC54280	31.47
0.085	0.128	TC54285	31.47
0.090	0.135	TC54290	31.47
0.093	0.140	TC54293	31.47
0.095	0.143	TC54295	31.47
0.100	0.150	TC54300	31.47

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	+0.0005, -0.0005	-0.0001, -0.0003 ISO H6

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**4 FLUTE - STUB FLUTE - BALL NOSE - 30° HELIX  
LOC = 1.5 X DIA**



**SERIES 551  
UNCOATED**

DIA	LOC	ITEM#	LIST PRICE
0.010	0.015	TC55010	58.43
0.015	0.023	TC55015	36.54
0.020	0.030	TC55020	33.24
0.025	0.038	TC55025	33.24
0.030	0.045	TC55030	31.20
0.031	0.047	TC55031	29.25
0.035	0.053	TC55035	29.25
0.040	0.060	TC55040	29.25
0.045	0.068	TC55045	28.52
0.047	0.071	TC55047	28.52
0.050	0.075	TC55050	28.52
0.055	0.083	TC55055	28.52

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC55060	28.52
0.062	0.093	TC55062	28.52
0.065	0.098	TC55065	28.52
0.070	0.105	TC55070	28.52
0.075	0.113	TC55075	28.52
0.078	0.117	TC55078	28.52
0.080	0.120	TC55080	28.52
0.085	0.128	TC55085	28.52
0.090	0.135	TC55090	28.52
0.093	0.140	TC55093	28.52
0.095	0.143	TC55095	28.52
0.100	0.150	TC55100	28.52



**SERIES 552  
ALTIN COATED**

DIA	LOC	ITEM#	LIST PRICE
0.010	0.015	TC55210	80.59
0.015	0.023	TC55215	50.44
0.020	0.030	TC55220	45.85
0.025	0.038	TC55225	45.85
0.030	0.045	TC55230	43.01
0.031	0.047	TC55231	40.37
0.035	0.053	TC55235	40.37
0.040	0.060	TC55240	40.37
0.045	0.068	TC55245	39.39
0.047	0.071	TC55247	39.39
0.050	0.075	TC55250	39.39
0.055	0.083	TC55255	39.39

DIA	LOC	ITEM#	LIST PRICE
0.060	0.090	TC55260	39.39
0.062	0.093	TC55262	39.39
0.065	0.098	TC55265	39.39
0.070	0.105	TC55270	39.39
0.075	0.113	TC55275	39.39
0.078	0.117	TC55278	39.39
0.080	0.120	TC55280	39.39
0.085	0.128	TC55285	39.39
0.090	0.135	TC55290	39.39
0.093	0.140	TC55293	39.39
0.095	0.143	TC55295	39.39
0.100	0.150	TC55300	39.39

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	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

REGULAR LENGTH  
LONG REACH STUB FL  
LONG REACH REG FL  
LONG REACH LONG FL  
LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

4 FLUTE - STUB FLUTE -  CORNER RADIUS - 30° HELIX  
LOC = 1.5 X DIA

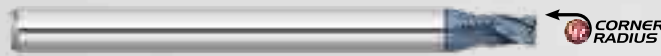


**SERIES 502**  
UNCOATED

DIA	LOC	RAD	ITEM#	LIST PRICE
0.015	0.023	0.003	TC50203	71.11
0.020	0.030	0.005	TC50205	66.39
0.025	0.038	0.005	TC50207	66.39
0.030	0.045	0.005	TC50209	47.42
0.030	0.045	0.010	TC50211	47.42
0.031	0.047	0.005	TC50213	47.42
0.031	0.047	0.010	TC50215	47.42
0.035	0.053	0.005	TC50217	47.42
0.035	0.053	0.010	TC50219	47.42
0.040	0.060	0.005	TC50221	47.42
0.040	0.060	0.010	TC50223	47.42
0.045	0.068	0.005	TC50225	47.42
0.045	0.068	0.010	TC50227	47.42
0.045	0.068	0.015	TC50229	47.42

DIA	LOC	RAD	ITEM#	LIST PRICE
0.047	0.071	0.005	TC50231	47.42
0.047	0.071	0.010	TC50233	47.42
0.047	0.071	0.015	TC50235	47.42
0.050	0.075	0.005	TC50237	47.42
0.050	0.075	0.010	TC50239	47.42
0.050	0.075	0.015	TC50241	47.42
0.060	0.090	0.005	TC50249	47.42
0.060	0.090	0.010	TC50251	47.42
0.060	0.090	0.015	TC50253	47.42
0.062	0.093	0.005	TC50255	47.42
0.062	0.093	0.010	TC50257	47.42
0.062	0.093	0.015	TC50259	47.42
0.075	0.113	0.005	TC50273	47.42
0.075	0.113	0.010	TC50275	47.42

DIA	LOC	RAD	ITEM#	LIST PRICE
0.075	0.113	0.015	TC50277	47.42
0.078	0.117	0.005	TC50279	47.42
0.078	0.117	0.010	TC50281	47.42
0.078	0.117	0.015	TC50283	47.42
0.090	0.135	0.005	TC50297	47.42
0.090	0.135	0.010	TC50299	47.42
0.090	0.135	0.015	TC50301	47.42
0.093	0.140	0.005	TC50303	47.42
0.093	0.140	0.010	TC50305	47.42
0.093	0.140	0.015	TC50307	47.42
0.100	0.150	0.005	TC50315	47.42
0.100	0.150	0.010	TC50317	47.42
0.100	0.150	0.015	TC50319	47.42



**SERIES 504**  
ALTIN COATED

DIA	LOC	RAD	ITEM#	LIST PRICE
0.015	0.023	0.003	TC50404	88.17
0.020	0.030	0.005	TC50406	82.30
0.025	0.038	0.005	TC50408	82.30
0.030	0.045	0.005	TC50410	58.78
0.030	0.045	0.010	TC50412	58.78
0.031	0.047	0.005	TC50414	58.78
0.031	0.047	0.010	TC50416	58.78
0.035	0.053	0.005	TC50418	58.78
0.035	0.053	0.010	TC50420	58.78
0.040	0.060	0.005	TC50422	58.78
0.040	0.060	0.010	TC50424	58.78
0.045	0.068	0.005	TC50426	58.78
0.045	0.068	0.010	TC50428	58.78
0.045	0.068	0.015	TC50430	58.78

DIA	LOC	RAD	ITEM#	LIST PRICE
0.047	0.071	0.005	TC50432	58.78
0.047	0.071	0.010	TC50434	58.78
0.047	0.071	0.015	TC50436	58.78
0.050	0.075	0.005	TC50438	58.78
0.050	0.075	0.010	TC50440	58.78
0.050	0.075	0.015	TC50442	58.78
0.060	0.090	0.005	TC50450	58.78
0.060	0.090	0.010	TC50452	58.78
0.060	0.090	0.015	TC50454	58.78
0.062	0.093	0.005	TC50456	58.78
0.062	0.093	0.010	TC50458	58.78
0.062	0.093	0.015	TC50460	58.78
0.075	0.113	0.005	TC50474	58.78
0.075	0.113	0.010	TC50476	58.78

DIA	LOC	RAD	ITEM#	LIST PRICE
0.075	0.113	0.015	TC50478	58.78
0.078	0.117	0.005	TC50480	58.78
0.078	0.117	0.010	TC50482	58.78
0.078	0.117	0.015	TC50484	58.78
0.090	0.135	0.005	TC50498	58.78
0.090	0.135	0.010	TC50500	58.78
0.090	0.135	0.015	TC50502	58.78
0.093	0.140	0.005	TC50504	58.78
0.093	0.140	0.010	TC50506	58.78
0.093	0.140	0.015	TC50508	58.78
0.100	0.150	0.005	TC50516	58.78
0.100	0.150	0.010	TC50518	58.78
0.100	0.150	0.015	TC50520	58.78

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.002, -0.002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL


LONG LENGTH LONG FL

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

4 FLUTE - REGULAR FLUTE -  CORNER RADIUS - 30° HELIX  
LOC = 3 X DIA



## SERIES 506 UNCOATED

DIA	LOC	RAD	ITEM#	LIST PRICE
0.015	0.045	0.003	TC50603	71.11
0.020	0.060	0.005	TC50605	66.39
0.025	0.075	0.005	TC50607	66.39
0.030	0.090	0.005	TC50609	47.42
0.030	0.090	0.010	TC50611	47.42
0.031	0.093	0.005	TC50613	47.42
0.031	0.093	0.010	TC50615	47.42
0.035	0.105	0.005	TC50617	47.42
0.035	0.105	0.010	TC50619	47.42
0.040	0.120	0.005	TC50621	47.42
0.040	0.120	0.010	TC50623	47.42
0.045	0.135	0.005	TC50625	47.42
0.045	0.135	0.010	TC50627	47.42
0.045	0.135	0.015	TC50629	47.42

DIA	LOC	RAD	ITEM#	LIST PRICE
0.047	0.141	0.005	TC50631	47.42
0.047	0.141	0.010	TC50633	47.42
0.047	0.141	0.015	TC50635	47.42
0.050	0.150	0.005	TC50637	47.42
0.050	0.150	0.010	TC50639	47.42
0.050	0.150	0.015	TC50641	47.42
0.060	0.180	0.005	TC50649	47.42
0.060	0.180	0.010	TC50651	47.42
0.060	0.180	0.015	TC50653	47.42
0.062	0.186	0.005	TC50655	47.42
0.062	0.186	0.010	TC50657	47.42
0.062	0.186	0.015	TC50659	47.42
0.075	0.225	0.005	TC50673	47.42
0.075	0.225	0.010	TC50675	47.42

DIA	LOC	RAD	ITEM#	LIST PRICE
0.075	0.225	0.015	TC50677	47.42
0.078	0.234	0.005	TC50679	47.42
0.078	0.234	0.010	TC50681	47.42
0.078	0.234	0.015	TC50683	47.42
0.090	0.270	0.005	TC50697	47.42
0.090	0.270	0.010	TC50699	47.42
0.090	0.270	0.015	TC50701	47.42
0.093	0.279	0.005	TC50703	47.42
0.093	0.279	0.010	TC50705	47.42
0.093	0.279	0.015	TC50707	47.42
0.100	0.300	0.005	TC50715	47.42
0.100	0.300	0.010	TC50717	47.42
0.100	0.300	0.015	TC50719	47.42



## SERIES 508 ALTiN COATED

DIA	LOC	RAD	ITEM#	LIST PRICE
0.015	0.045	0.003	TC50804	88.17
0.020	0.060	0.005	TC50806	82.30
0.025	0.075	0.005	TC50808	82.30
0.030	0.090	0.005	TC50810	58.78
0.030	0.090	0.010	TC50812	58.78
0.031	0.093	0.005	TC50814	58.78
0.031	0.093	0.010	TC50816	58.78
0.035	0.105	0.005	TC50818	58.78
0.035	0.105	0.010	TC50820	58.78
0.040	0.120	0.005	TC50822	58.78
0.040	0.120	0.010	TC50824	58.78
0.045	0.135	0.005	TC50826	58.78
0.045	0.135	0.010	TC50828	58.78
0.045	0.135	0.015	TC50830	58.78

DIA	LOC	RAD	ITEM#	LIST PRICE
0.047	0.141	0.005	TC50832	58.78
0.047	0.141	0.010	TC50834	58.78
0.047	0.141	0.015	TC50836	58.78
0.050	0.150	0.005	TC50838	58.78
0.050	0.150	0.010	TC50840	58.78
0.050	0.150	0.015	TC50842	58.78
0.060	0.180	0.005	TC50850	58.78
0.060	0.180	0.010	TC50852	58.78
0.060	0.180	0.015	TC50854	58.78
0.062	0.186	0.005	TC50856	58.78
0.062	0.186	0.010	TC50858	58.78
0.062	0.186	0.015	TC50860	58.78
0.075	0.225	0.005	TC50874	58.78
0.075	0.225	0.010	TC50876	58.78

DIA	LOC	RAD	ITEM#	LIST PRICE
0.075	0.225	0.015	TC50878	58.78
0.078	0.234	0.005	TC50880	58.78
0.078	0.234	0.010	TC50882	58.78
0.078	0.234	0.015	TC50884	58.78
0.090	0.270	0.005	TC50898	58.78
0.090	0.270	0.010	TC50900	58.78
0.090	0.270	0.015	TC50902	58.78
0.093	0.279	0.005	TC50904	58.78
0.093	0.279	0.010	TC50906	58.78
0.093	0.279	0.015	TC50908	58.78
0.100	0.300	0.005	TC50916	58.78
0.100	0.300	0.010	TC50918	58.78
0.100	0.300	0.015	TC50920	58.78

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	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

4 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 580**  
UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	ITEM#	LIST PRICE
0.010	0.030	TC58010	46.72
0.011	0.033	TC58011	41.83
0.012	0.036	TC58012	41.83
0.013	0.039	TC58013	34.60
0.014	0.042	TC58014	34.60
0.015	0.045	TC58015	29.25
0.016	0.048	TC58016	29.25
0.017	0.051	TC58017	29.25
0.018	0.054	TC58018	29.25
0.019	0.057	TC58019	29.25
0.020	0.060	TC58020	26.57
0.021	0.063	TC58021	26.57
0.022	0.066	TC58022	26.57
0.023	0.069	TC58023	26.57
0.024	0.072	TC58024	26.57
0.025	0.075	TC58025	26.57
0.026	0.078	TC58026	24.94
0.027	0.081	TC58027	24.94
0.028	0.084	TC58028	24.94
0.029	0.087	TC58029	24.94
0.030	0.090	TC58030	24.94
0.031	0.093	TC58031	23.38
0.032	0.096	TC58032	23.38
0.033	0.099	TC58033	23.38
0.034	0.102	TC58034	23.38
0.035	0.105	TC58035	23.38
0.036	0.108	TC58036	23.38
0.037	0.111	TC58037	23.38
0.038	0.114	TC58038	23.38
0.039	0.117	TC58039	23.38
0.040	0.120	TC58040	23.38
0.041	0.123	TC58041	23.38
0.042	0.126	TC58042	23.38
0.043	0.129	TC58043	23.38
0.044	0.132	TC58044	22.79

DIA	LOC	ITEM#	LIST PRICE
0.045	0.135	TC58045	22.79
0.046	0.138	TC58046	22.79
0.047	0.141	TC58047	22.79
0.048	0.144	TC58048	22.79
0.049	0.147	TC58049	22.79
0.050	0.150	TC58050	22.79
0.051	0.153	TC58051	22.79
0.052	0.156	TC58052	22.79
0.053	0.159	TC58053	22.79
0.054	0.162	TC58054	22.79
0.055	0.165	TC58055	22.79
0.056	0.168	TC58056	22.79
0.057	0.171	TC58057	22.79
0.058	0.174	TC58058	22.79
0.059	0.177	TC58059	22.79
0.060	0.180	TC58060	22.79
0.061	0.183	TC58061	22.79
0.062	0.186	TC58062	22.79
0.063	0.189	TC58063	22.79
0.064	0.192	TC58064	22.79
0.065	0.195	TC58065	22.79
0.066	0.198	TC58066	22.79
0.067	0.201	TC58067	22.79
0.068	0.204	TC58068	22.79
0.069	0.207	TC58069	22.79
0.070	0.210	TC58070	22.79
0.071	0.213	TC58071	22.79
0.072	0.216	TC58072	22.79
0.073	0.219	TC58073	22.79
0.074	0.222	TC58074	22.79
0.075	0.225	TC58075	22.79
0.076	0.228	TC58076	22.79
0.077	0.231	TC58077	22.79
0.078	0.234	TC58078	22.79
0.079	0.237	TC58079	22.79

DIA	LOC	ITEM#	LIST PRICE
0.080	0.240	TC58080	22.79
0.081	0.243	TC58081	22.79
0.082	0.246	TC58082	22.79
0.083	0.249	TC58083	22.79
0.084	0.252	TC58084	22.79
0.085	0.255	TC58085	22.79
0.086	0.258	TC58086	22.79
0.087	0.261	TC58087	22.79
0.088	0.264	TC58088	22.79
0.089	0.267	TC58089	22.79
0.090	0.270	TC58090	22.79
0.091	0.273	TC58091	22.79
0.092	0.276	TC58092	22.79
0.093	0.279	TC58093	22.79
0.094	0.282	TC58094	22.79
0.095	0.285	TC58095	22.79
0.096	0.288	TC58096	22.79
0.097	0.291	TC58097	22.79
0.098	0.294	TC58098	22.79
0.099	0.297	TC58099	22.79
0.100	0.300	TC58100	22.79
0.101	0.303	TC58101	22.79
0.102	0.306	TC58102	22.79
0.103	0.309	TC58103	22.79
0.104	0.312	TC58104	22.79
0.105	0.315	TC58105	22.79
0.106	0.318	TC58106	22.79
0.107	0.321	TC58107	22.79
0.108	0.324	TC58108	22.79
0.109	0.327	TC58109	22.79
0.110	0.330	TC58110	22.79
0.115	0.345	TC58115	22.79
0.120	0.360	TC58120	22.79

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	+0.005, -0.005	-0.001, -0.003 ISO H6

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



4 FLUTE - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



**SERIES 582**  
ALTiN COATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	LOC	ITEM#	LIST PRICE
0.010	0.030	TC58210	56.07
0.011	0.033	TC58211	50.20
0.012	0.036	TC58212	50.20
0.013	0.039	TC58213	41.51
0.014	0.042	TC58214	41.51
0.015	0.045	TC58215	35.09
0.016	0.048	TC58216	35.09
0.017	0.051	TC58217	35.09
0.018	0.054	TC58218	35.09
0.019	0.057	TC58219	35.09
0.020	0.060	TC58220	31.89
0.021	0.063	TC58221	31.89
0.022	0.066	TC58222	31.89
0.023	0.069	TC58223	31.89
0.024	0.072	TC58224	31.89
0.025	0.075	TC58225	31.89
0.026	0.078	TC58226	29.94
0.027	0.081	TC58227	29.94
0.028	0.084	TC58228	29.94
0.029	0.087	TC58229	29.94
0.030	0.090	TC58230	29.94
0.031	0.093	TC58231	28.03
0.032	0.096	TC58232	28.03
0.033	0.099	TC58233	28.03
0.034	0.102	TC58234	28.03
0.035	0.105	TC58235	28.03
0.036	0.108	TC58236	28.03
0.037	0.111	TC58237	28.03
0.038	0.114	TC58238	28.03
0.039	0.117	TC58239	28.03
0.040	0.120	TC58240	28.03
0.041	0.123	TC58241	28.03
0.042	0.126	TC58242	28.03
0.043	0.129	TC58243	28.03
0.044	0.132	TC58244	27.37

DIA	LOC	ITEM#	LIST PRICE
0.045	0.135	TC58245	27.37
0.046	0.138	TC58246	27.37
0.047	0.141	TC58247	27.37
0.048	0.144	TC58248	27.37
0.049	0.147	TC58249	27.37
0.050	0.150	TC58250	27.37
0.051	0.153	TC58251	27.37
0.052	0.156	TC58252	27.37
0.053	0.159	TC58253	27.37
0.054	0.162	TC58254	27.37
0.055	0.165	TC58255	27.37
0.056	0.168	TC58256	27.37
0.057	0.171	TC58257	27.37
0.058	0.174	TC58258	27.37
0.059	0.177	TC58259	27.37
0.060	0.180	TC58260	27.37
0.061	0.183	TC58261	27.37
0.062	0.186	TC58262	27.37
0.063	0.189	TC58263	27.37
0.064	0.192	TC58264	27.37
0.065	0.195	TC58265	27.37
0.066	0.198	TC58266	27.37
0.067	0.201	TC58267	27.37
0.068	0.204	TC58268	27.37
0.069	0.207	TC58269	27.37
0.070	0.210	TC58270	27.37
0.071	0.213	TC58271	27.37
0.072	0.216	TC58272	27.37
0.073	0.219	TC58273	27.37
0.074	0.222	TC58274	27.37
0.075	0.225	TC58275	27.37
0.076	0.228	TC58276	27.37
0.077	0.231	TC58277	27.37
0.078	0.234	TC58278	27.37
0.079	0.237	TC58279	27.37

DIA	LOC	ITEM#	LIST PRICE
0.080	0.240	TC58280	27.37
0.081	0.243	TC58281	27.37
0.082	0.246	TC58282	27.37
0.083	0.249	TC58283	27.37
0.084	0.252	TC58284	27.37
0.085	0.255	TC58285	27.37
0.086	0.258	TC58286	27.37
0.087	0.261	TC58287	27.37
0.088	0.264	TC58288	27.37
0.089	0.267	TC58289	27.37
0.090	0.270	TC58290	27.37
0.091	0.273	TC58291	27.37
0.092	0.276	TC58292	27.37
0.093	0.279	TC58293	27.37
0.094	0.282	TC58294	27.37
0.095	0.285	TC58295	27.37
0.096	0.288	TC58296	27.37
0.097	0.291	TC58297	27.37
0.098	0.294	TC58298	27.37
0.099	0.297	TC58299	27.37
0.100	0.300	TC58300	27.37
0.101	0.303	TC58301	27.37
0.102	0.306	TC58302	27.37
0.103	0.309	TC58303	27.37
0.104	0.312	TC58304	27.37
0.105	0.315	TC58305	27.37
0.106	0.318	TC58306	27.37
0.107	0.321	TC58307	27.37
0.108	0.324	TC58308	27.37
0.109	0.327	TC58309	27.37
0.110	0.330	TC58310	27.37
0.115	0.345	TC58315	27.37
0.120	0.360	TC58320	27.37

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 ISO H6

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

4 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 590**  
UNCOATED

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	ITEM#	LIST PRICE
0.010	0.030	TC59010	58.43
0.011	0.033	TC59011	52.28
0.012	0.036	TC59012	52.28
0.013	0.039	TC59013	43.32
0.014	0.042	TC59014	43.32
0.015	0.045	TC59015	36.54
0.016	0.048	TC59016	36.54
0.017	0.051	TC59017	36.54
0.018	0.054	TC59018	36.54
0.019	0.057	TC59019	36.54
0.020	0.060	TC59020	33.24
0.021	0.063	TC59021	33.24
0.022	0.066	TC59022	33.24
0.023	0.069	TC59023	33.24
0.024	0.072	TC59024	33.24
0.025	0.075	TC59025	33.24
0.026	0.078	TC59026	31.20
0.027	0.081	TC59027	31.20
0.028	0.084	TC59028	31.20
0.029	0.087	TC59029	31.20
0.030	0.090	TC59030	31.20
0.031	0.093	TC59031	29.25
0.032	0.096	TC59032	29.25
0.033	0.099	TC59033	29.25
0.034	0.102	TC59034	29.25
0.035	0.105	TC59035	29.25
0.036	0.108	TC59036	29.25
0.037	0.111	TC59037	29.25
0.038	0.114	TC59038	29.25
0.039	0.117	TC59039	29.25
0.040	0.120	TC59040	29.25
0.041	0.123	TC59041	29.25
0.042	0.126	TC59042	29.25
0.043	0.129	TC59043	29.25
0.044	0.132	TC59044	28.52

DIA	LOC	ITEM#	LIST PRICE
0.045	0.135	TC59045	28.52
0.046	0.138	TC59046	28.52
0.047	0.141	TC59047	28.52
0.048	0.144	TC59048	28.52
0.049	0.147	TC59049	28.52
0.050	0.150	TC59050	28.52
0.051	0.153	TC59051	28.52
0.052	0.156	TC59052	28.52
0.053	0.159	TC59053	28.52
0.054	0.162	TC59054	28.52
0.055	0.165	TC59055	28.52
0.056	0.168	TC59056	28.52
0.057	0.171	TC59057	28.52
0.058	0.174	TC59058	28.52
0.059	0.177	TC59059	28.52
0.060	0.180	TC59060	28.52
0.061	0.183	TC59061	28.52
0.062	0.186	TC59062	28.52
0.063	0.189	TC59063	28.52
0.064	0.192	TC59064	28.52
0.065	0.195	TC59065	28.52
0.066	0.198	TC59066	28.52
0.067	0.201	TC59067	28.52
0.068	0.204	TC59068	28.52
0.069	0.207	TC59069	28.52
0.070	0.210	TC59070	28.52
0.071	0.213	TC59071	28.52
0.072	0.216	TC59072	28.52
0.073	0.219	TC59073	28.52
0.074	0.222	TC59074	28.52
0.075	0.225	TC59075	28.52
0.076	0.228	TC59076	28.52
0.077	0.231	TC59077	28.52
0.078	0.234	TC59078	28.52
0.079	0.237	TC59079	28.52

DIA	LOC	ITEM#	LIST PRICE
0.080	0.240	TC59080	28.52
0.081	0.243	TC59081	28.52
0.082	0.246	TC59082	28.52
0.083	0.249	TC59083	28.52
0.084	0.252	TC59084	28.52
0.085	0.255	TC59085	28.52
0.086	0.258	TC59086	28.52
0.087	0.261	TC59087	28.52
0.088	0.264	TC59088	28.52
0.089	0.267	TC59089	28.52
0.090	0.270	TC59090	28.52
0.091	0.273	TC59091	28.52
0.092	0.276	TC59092	28.52
0.093	0.279	TC59093	28.52
0.094	0.282	TC59094	28.52
0.095	0.285	TC59095	28.52
0.096	0.288	TC59096	28.52
0.097	0.291	TC59097	28.52
0.098	0.294	TC59098	28.52
0.099	0.297	TC59099	28.52
0.100	0.300	TC59100	28.52
0.101	0.303	TC59101	28.52
0.102	0.306	TC59102	28.52
0.103	0.309	TC59103	28.52
0.104	0.312	TC59104	28.52
0.105	0.315	TC59105	28.52
0.106	0.318	TC59106	28.52
0.107	0.321	TC59107	28.52
0.108	0.324	TC59108	28.52
0.109	0.327	TC59109	28.52
0.110	0.330	TC59110	28.52
0.115	0.345	TC59115	28.52
0.120	0.360	TC59120	28.52

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

TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

4 FLUTE - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA



**SERIES 592**  
ALTiN COATED

DIA	LOC	ITEM#	LIST PRICE
0.010	0.030	TC59210	70.10
0.011	0.033	TC59211	62.77
0.012	0.036	TC59212	62.77
0.013	0.039	TC59213	51.97
0.014	0.042	TC59214	51.97
0.015	0.045	TC59215	43.84
0.016	0.048	TC59216	43.84
0.017	0.051	TC59217	43.84
0.018	0.054	TC59218	43.84
0.019	0.057	TC59219	43.84
0.020	0.060	TC59220	39.88
0.021	0.063	TC59221	39.88
0.022	0.066	TC59222	39.88
0.023	0.069	TC59223	39.88
0.024	0.072	TC59224	39.88
0.025	0.075	TC59225	39.88
0.026	0.078	TC59226	37.41
0.027	0.081	TC59227	37.41
0.028	0.084	TC59228	37.41
0.029	0.087	TC59229	37.41
0.030	0.090	TC59230	37.41
0.031	0.093	TC59231	35.09
0.032	0.096	TC59232	35.09
0.033	0.099	TC59233	35.09
0.034	0.102	TC59234	35.09
0.035	0.105	TC59235	35.09
0.036	0.108	TC59236	35.09
0.037	0.111	TC59237	35.09
0.038	0.114	TC59238	35.09
0.039	0.117	TC59239	35.09
0.040	0.120	TC59240	35.09
0.041	0.123	TC59241	35.09
0.042	0.126	TC59242	35.09
0.043	0.129	TC59243	35.09
0.044	0.132	TC59244	34.25

DIA	LOC	ITEM#	LIST PRICE
0.045	0.135	TC59245	34.25
0.046	0.138	TC59246	34.25
0.047	0.141	TC59247	34.25
0.048	0.144	TC59248	34.25
0.049	0.147	TC59249	34.25
0.050	0.150	TC59250	34.25
0.051	0.153	TC59251	34.25
0.052	0.156	TC59252	34.25
0.053	0.159	TC59253	34.25
0.054	0.162	TC59254	34.25
0.055	0.165	TC59255	34.25
0.056	0.168	TC59256	34.25
0.057	0.171	TC59257	34.25
0.058	0.174	TC59258	34.25
0.059	0.177	TC59259	34.25
0.060	0.180	TC59260	34.25
0.061	0.183	TC59261	34.25
0.062	0.186	TC59262	34.25
0.063	0.189	TC59263	34.25
0.064	0.192	TC59264	34.25
0.065	0.195	TC59265	34.25
0.066	0.198	TC59266	34.25
0.067	0.201	TC59267	34.25
0.068	0.204	TC59268	34.25
0.069	0.207	TC59269	34.25
0.070	0.210	TC59270	34.25
0.071	0.213	TC59271	34.25
0.072	0.216	TC59272	34.25
0.073	0.219	TC59273	34.25
0.074	0.222	TC59274	34.25
0.075	0.225	TC59275	34.25
0.076	0.228	TC59276	34.25
0.077	0.231	TC59277	34.25
0.078	0.234	TC59278	34.25
0.079	0.237	TC59279	34.25

DIA	LOC	ITEM#	LIST PRICE
0.080	0.240	TC59280	34.25
0.081	0.243	TC59281	34.25
0.082	0.246	TC59282	34.25
0.083	0.249	TC59283	34.25
0.084	0.252	TC59284	34.25
0.085	0.255	TC59285	34.25
0.086	0.258	TC59286	34.25
0.087	0.261	TC59287	34.25
0.088	0.264	TC59288	34.25
0.089	0.267	TC59289	34.25
0.090	0.270	TC59290	34.25
0.091	0.273	TC59291	34.25
0.092	0.276	TC59292	34.25
0.093	0.279	TC59293	34.25
0.094	0.282	TC59294	34.25
0.095	0.285	TC59295	34.25
0.096	0.288	TC59296	34.25
0.097	0.291	TC59297	34.25
0.098	0.294	TC59298	34.25
0.099	0.297	TC59299	34.25
0.100	0.300	TC59300	34.25
0.101	0.303	TC59301	34.25
0.102	0.306	TC59302	34.25
0.103	0.309	TC59303	34.25
0.104	0.312	TC59304	34.25
0.105	0.315	TC59305	34.25
0.106	0.318	TC59306	34.25
0.107	0.321	TC59307	34.25
0.108	0.324	TC59308	34.25
0.109	0.327	TC59309	34.25
0.110	0.330	TC59310	34.25
0.115	0.345	TC59315	34.25
0.120	0.360	TC59320	34.25

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	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - STUB FLUTE - SQUARE END - 30° HELIX  
 LOC = 1.5 X DIA



SERIES 583  
 UNCOATED

**TAKE 55% OFF  
 LIST PRICE!**

REGULAR  
 LENGTH

LONG REACH  
 STUB FL

LONG REACH  
 REG FL

LONG REACH  
 LONG FL

LONG LENGTH  
 LONG FL

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.015	3	0.030	TC54310	75.57
0.010	0.015	5	0.050	TC54313	75.57
0.010	0.015	8	0.080	TC54316	75.57
0.010	0.015	12	0.125	TC54319	79.74
0.015	0.022	3	0.045	TC54322	62.68
0.015	0.022	5	0.078	TC54325	62.68
0.015	0.022	8	0.125	TC54328	62.68
0.015	0.022	12	0.187	TC54331	64.86
0.020	0.030	3	0.060	TC54334	60.10
0.020	0.030	5	0.100	TC54337	60.10
0.020	0.030	8	0.160	TC54340	60.10
0.020	0.030	12	0.250	TC54343	62.48
0.025	0.037	3	0.075	TC54346	57.72
0.025	0.037	5	0.125	TC54349	57.72
0.025	0.037	8	0.203	TC54352	57.72
0.025	0.037	12	0.312	TC54355	59.70
0.030	0.045	3	0.090	TC54358	57.72
0.030	0.045	5	0.156	TC54361	57.72
0.030	0.045	8	0.250	TC54364	57.72
0.030	0.045	12	0.375	TC54367	59.70
0.031	0.046	3	0.093	TC54370	57.72
0.031	0.046	5	0.156	TC54373	57.72
0.031	0.046	8	0.250	TC54376	57.72
0.031	0.046	12	0.375	TC54379	59.70
0.035	0.052	3	0.105	TC54382	57.72
0.035	0.052	5	0.187	TC54385	57.72
0.035	0.052	8	0.281	TC54388	57.72
0.035	0.052	12	0.425	TC54391	59.70
0.040	0.060	3	0.120	TC54394	57.72
0.040	0.060	5	0.203	TC54397	57.72
0.040	0.060	8	0.325	TC54400	57.72
0.040	0.060	12	0.480	TC54403	59.70

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.045	0.067	3	0.135	TC54406	56.53
0.045	0.067	5	0.225	TC54409	56.53
0.045	0.067	8	0.375	TC54412	56.53
0.045	0.067	12	0.550	TC54415	58.32
0.047	0.070	3	0.141	TC54418	56.53
0.047	0.070	5	0.250	TC54421	56.53
0.047	0.070	8	0.375	TC54424	56.53
0.047	0.070	12	0.570	TC54427	58.32
0.050	0.075	3	0.150	TC54430	56.53
0.050	0.075	5	0.250	TC54433	56.53
0.050	0.075	8	0.400	TC54436	56.53
0.050	0.075	12	0.600	TC54439	58.32
0.055	0.082	3	0.165	TC54442	56.53
0.055	0.082	5	0.275	TC54445	56.53
0.055	0.082	8	0.450	TC54448	56.53
0.055	0.082	12	0.660	TC54451	58.32
0.060	0.090	3	0.180	TC54454	56.53
0.060	0.090	5	0.312	TC54457	56.53
0.060	0.090	8	0.500	TC54460	56.53
0.060	0.090	12	0.720	TC54463	58.32
0.062	0.093	3	0.186	TC54466	56.53
0.062	0.093	5	0.312	TC54469	56.53
0.062	0.093	8	0.500	TC54472	56.53
0.062	0.093	12	0.750	TC54475	58.32
0.065	0.097	3	0.195	TC54478	56.53
0.065	0.097	5	0.325	TC54481	56.53
0.065	0.097	8	0.530	TC54484	56.53
0.065	0.097	12	0.800	TC54487	58.32
0.070	0.105	3	0.210	TC54490	56.53
0.070	0.105	5	0.375	TC54493	56.53
0.070	0.105	8	0.570	TC54496	56.53
0.070	0.105	12	0.850	TC54499	58.32

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.075	0.112	3	0.225	TC54502	56.53
0.075	0.112	5	0.375	TC54505	56.53
0.075	0.112	8	0.625	TC54508	56.53
0.075	0.112	12	0.900	TC54511	58.32
0.078	0.117	3	0.234	TC54514	56.53
0.078	0.117	5	0.406	TC54517	56.53
0.078	0.117	8	0.625	TC54520	56.53
0.078	0.117	12	0.940	TC54523	58.32
0.080	0.120	3	0.240	TC54526	56.53
0.080	0.120	5	0.406	TC54529	56.53
0.080	0.120	8	0.650	TC54532	56.53
0.080	0.120	12	0.960	TC54535	58.32
0.085	0.127	3	0.255	TC54538	56.53
0.085	0.127	5	0.425	TC54541	56.53
0.085	0.127	8	0.700	TC54544	56.53
0.085	0.127	12	1.020	TC54547	58.32
0.090	0.135	3	0.270	TC54550	56.53
0.090	0.135	5	0.450	TC54553	56.53
0.090	0.135	8	0.750	TC54556	56.53
0.090	0.135	12	1.080	TC54559	58.32
0.093	0.139	3	0.279	TC54562	56.53
0.093	0.139	5	0.500	TC54565	56.53
0.093	0.139	8	0.750	TC54568	56.53
0.093	0.139	12	1.125	TC54571	58.32
0.095	0.142	3	0.285	TC54574	56.53
0.095	0.142	5	0.500	TC54577	56.53
0.095	0.142	8	0.750	TC54580	56.53
0.095	0.142	12	1.150	TC54583	58.32
0.100	0.150	3	0.300	TC54586	56.53
0.100	0.150	5	0.500	TC54589	56.53
0.100	0.150	8	0.800	TC54592	56.53
0.100	0.150	12	1.200	TC54595	58.32

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	+ .0005, -.0005	-.0001, -.0003 ISO H6	+ .010, -.000



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



3 FLUTE - LONG REACH - STUB FLUTE - SQUARE END - 30° HELIX  
LOC = 1.5 X DIA

**TAKE 55% OFF LIST PRICE!**



**SERIES 585**  
ALTIN COATED

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.015	3	0.030	TC59501	90.69
0.010	0.015	5	0.050	TC59504	90.69
0.010	0.015	8	0.080	TC59507	90.69
0.010	0.015	12	0.125	TC59510	95.69
0.015	0.022	3	0.045	TC59513	75.22
0.015	0.022	5	0.078	TC59516	75.22
0.015	0.022	8	0.125	TC59519	75.22
0.015	0.022	12	0.187	TC59522	77.83
0.020	0.030	3	0.060	TC59525	72.12
0.020	0.030	5	0.100	TC59528	72.12
0.020	0.030	8	0.160	TC59531	72.12
0.020	0.030	12	0.250	TC59534	74.98
0.025	0.037	3	0.075	TC59537	69.27
0.025	0.037	5	0.125	TC59540	69.27
0.025	0.037	8	0.203	TC59543	69.27
0.025	0.037	12	0.312	TC59546	71.65
0.030	0.045	3	0.090	TC59549	69.27
0.030	0.045	5	0.156	TC59552	69.27
0.030	0.045	8	0.250	TC59555	69.27
0.030	0.045	12	0.375	TC59558	71.65
0.031	0.046	3	0.093	TC59561	69.27
0.031	0.046	5	0.156	TC59564	69.27
0.031	0.046	8	0.250	TC59567	69.27
0.031	0.046	12	0.375	TC59570	71.65
0.035	0.052	3	0.105	TC59573	69.27
0.035	0.052	5	0.187	TC59576	69.27
0.035	0.052	8	0.281	TC59579	69.27
0.035	0.052	12	0.425	TC59582	71.65
0.040	0.060	3	0.120	TC59585	69.27
0.040	0.060	5	0.203	TC59588	69.27
0.040	0.060	8	0.325	TC59591	69.27
0.040	0.060	12	0.480	TC59594	71.65

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.045	0.067	3	0.135	TC59597	67.84
0.045	0.067	5	0.225	TC59600	67.84
0.045	0.067	8	0.375	TC59603	67.84
0.045	0.067	12	0.550	TC59606	69.98
0.047	0.070	3	0.141	TC59609	67.84
0.047	0.070	5	0.250	TC59612	67.84
0.047	0.070	8	0.375	TC59615	67.84
0.047	0.070	12	0.570	TC59618	69.98
0.050	0.075	3	0.150	TC59621	67.84
0.050	0.075	5	0.250	TC59624	67.84
0.050	0.075	8	0.400	TC59627	67.84
0.050	0.075	12	0.600	TC59630	69.98
0.055	0.082	3	0.165	TC59633	67.84
0.055	0.082	5	0.275	TC59636	67.84
0.055	0.082	8	0.450	TC59639	67.84
0.055	0.082	12	0.660	TC59642	69.98
0.060	0.090	3	0.180	TC59645	67.84
0.060	0.090	5	0.312	TC59648	67.84
0.060	0.090	8	0.500	TC59651	67.84
0.060	0.090	12	0.720	TC59654	69.98
0.062	0.093	3	0.186	TC59657	67.84
0.062	0.093	5	0.312	TC59660	67.84
0.062	0.093	8	0.500	TC59663	67.84
0.062	0.093	12	0.750	TC59666	69.98
0.065	0.097	3	0.195	TC59669	67.84
0.065	0.097	5	0.325	TC59672	67.84
0.065	0.097	8	0.530	TC59675	67.84
0.065	0.097	12	0.800	TC59678	69.98
0.070	0.105	3	0.210	TC59681	67.84
0.070	0.105	5	0.375	TC59684	67.84
0.070	0.105	8	0.570	TC59687	67.84
0.070	0.105	12	0.850	TC59690	69.98

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.075	0.112	3	0.225	TC59693	67.84
0.075	0.112	5	0.375	TC59696	67.84
0.075	0.112	8	0.625	TC59699	67.84
0.075	0.112	12	0.900	TC59702	69.98
0.078	0.117	3	0.234	TC59705	67.84
0.078	0.117	5	0.406	TC59708	67.84
0.078	0.117	8	0.625	TC59711	67.84
0.078	0.117	12	0.940	TC59714	69.98
0.080	0.120	3	0.240	TC59717	67.84
0.080	0.120	5	0.406	TC59720	67.84
0.080	0.120	8	0.650	TC59723	67.84
0.080	0.120	12	0.960	TC59726	69.98
0.085	0.127	3	0.255	TC59729	67.84
0.085	0.127	5	0.425	TC59732	67.84
0.085	0.127	8	0.700	TC59735	67.84
0.085	0.127	12	1.020	TC59738	69.98
0.090	0.135	3	0.270	TC59741	67.84
0.090	0.135	5	0.450	TC59744	67.84
0.090	0.135	8	0.750	TC59747	67.84
0.090	0.135	12	1.080	TC59750	69.98
0.093	0.139	3	0.279	TC59753	67.84
0.093	0.139	5	0.500	TC59756	67.84
0.093	0.139	8	0.750	TC59759	67.84
0.093	0.139	12	1.125	TC59762	69.98
0.095	0.142	3	0.285	TC59765	67.84
0.095	0.142	5	0.500	TC59768	67.84
0.095	0.142	8	0.750	TC59771	67.84
0.095	0.142	12	1.150	TC59774	69.98
0.100	0.150	3	0.300	TC59777	67.84
0.100	0.150	5	0.500	TC59780	67.84
0.100	0.150	8	0.800	TC59783	67.84
0.100	0.150	12	1.200	TC59786	69.98

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, -.0005	-.0001, -.0003 ISO H6	+0.010, -.000

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - STUB FLUTE - BALL NOSE - 30° HELIX  
LOC = 1.5 X DIA



SERIES 587  
UNCOATED



REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.015	3	0.030	TC55400	94.81
0.010	0.015	5	0.050	TC55403	94.81
0.010	0.015	8	0.080	TC55406	98.98
0.010	0.015	12	0.125	TC55409	111.28
0.015	0.022	3	0.045	TC55412	81.13
0.015	0.022	5	0.078	TC55415	81.13
0.015	0.022	8	0.125	TC55418	81.13
0.015	0.022	12	0.187	TC55421	83.11
0.020	0.030	3	0.060	TC55424	78.55
0.020	0.030	5	0.100	TC55427	78.55
0.020	0.030	8	0.160	TC55430	78.55
0.020	0.030	12	0.250	TC55433	80.73
0.025	0.037	3	0.075	TC55436	67.84
0.025	0.037	5	0.125	TC55439	67.84
0.025	0.037	8	0.203	TC55442	67.84
0.025	0.037	12	0.312	TC55445	69.82
0.030	0.045	3	0.090	TC55448	67.84
0.030	0.045	5	0.156	TC55451	67.84
0.030	0.045	8	0.250	TC55454	67.84
0.030	0.045	12	0.375	TC55457	69.82
0.031	0.046	3	0.093	TC55460	67.84
0.031	0.046	5	0.156	TC55463	67.84
0.031	0.046	8	0.250	TC55466	67.84
0.031	0.046	12	0.375	TC55469	69.82
0.035	0.052	3	0.105	TC55472	67.84
0.035	0.052	5	0.187	TC55475	67.84
0.035	0.052	8	0.281	TC55478	67.84
0.035	0.052	12	0.425	TC55481	69.82
0.040	0.060	3	0.120	TC55484	67.84
0.040	0.060	5	0.203	TC55487	67.84
0.040	0.060	8	0.325	TC55490	67.84
0.040	0.060	12	0.480	TC55493	69.82

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.045	0.067	3	0.135	TC55496	66.25
0.045	0.067	5	0.225	TC55499	66.25
0.045	0.067	8	0.375	TC55502	66.25
0.045	0.067	12	0.550	TC55505	68.04
0.047	0.070	3	0.141	TC55508	66.25
0.047	0.070	5	0.250	TC55511	66.25
0.047	0.070	8	0.375	TC55514	66.25
0.047	0.070	12	0.570	TC55517	68.04
0.050	0.075	3	0.150	TC55520	66.25
0.050	0.075	5	0.250	TC55523	66.25
0.050	0.075	8	0.400	TC55526	66.25
0.050	0.075	12	0.600	TC55529	68.04
0.055	0.082	3	0.165	TC55532	66.25
0.055	0.082	5	0.275	TC55535	66.25
0.055	0.082	8	0.450	TC55538	66.25
0.055	0.082	12	0.660	TC55541	68.04
0.060	0.090	3	0.180	TC55544	66.25
0.060	0.090	5	0.312	TC55547	66.25
0.060	0.090	8	0.500	TC55550	66.25
0.060	0.090	12	0.720	TC55553	68.04
0.062	0.093	3	0.186	TC55556	66.25
0.062	0.093	5	0.312	TC55559	66.25
0.062	0.093	8	0.500	TC55562	66.25
0.062	0.093	12	0.750	TC55565	68.04
0.065	0.097	3	0.195	TC55568	66.25
0.065	0.097	5	0.325	TC55571	66.25
0.065	0.097	8	0.530	TC55574	66.25
0.065	0.097	12	0.780	TC55577	68.04
0.070	0.105	3	0.210	TC55580	66.25
0.070	0.105	5	0.375	TC55583	66.25
0.070	0.105	8	0.570	TC55586	66.25
0.070	0.105	12	0.840	TC55589	68.04

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.075	0.112	3	0.225	TC55592	66.25
0.075	0.112	5	0.375	TC55595	66.25
0.075	0.112	8	0.625	TC55598	66.25
0.075	0.112	12	0.900	TC55601	68.04
0.078	0.117	3	0.234	TC55604	66.25
0.078	0.117	5	0.406	TC55607	66.25
0.078	0.117	8	0.625	TC55610	66.25
0.078	0.117	12	0.940	TC55613	68.04
0.080	0.120	3	0.240	TC55616	66.25
0.080	0.120	5	0.406	TC55619	66.25
0.080	0.120	8	0.650	TC55622	66.25
0.080	0.120	12	0.960	TC55625	68.04
0.085	0.127	3	0.255	TC55628	66.25
0.085	0.127	5	0.425	TC55631	66.25
0.085	0.127	8	0.700	TC55634	66.25
0.085	0.127	12	1.020	TC55637	68.04
0.090	0.135	3	0.270	TC55640	66.25
0.090	0.135	5	0.450	TC55643	66.25
0.090	0.135	8	0.750	TC55646	66.25
0.090	0.135	12	1.080	TC55649	68.04
0.093	0.139	3	0.279	TC55652	66.25
0.093	0.139	5	0.500	TC55655	66.25
0.093	0.139	8	0.750	TC55658	66.25
0.093	0.139	12	1.125	TC55661	68.04
0.095	0.142	3	0.285	TC55664	66.25
0.095	0.142	5	0.500	TC55667	66.25
0.095	0.142	8	0.750	TC55670	66.25
0.095	0.142	12	1.150	TC55673	68.04
0.100	0.150	3	0.300	TC55676	66.25
0.100	0.150	5	0.500	TC55679	66.25
0.100	0.150	8	0.800	TC55682	66.25
0.100	0.150	12	1.200	TC55685	68.04

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**3 FLUTE - LONG REACH - STUB FLUTE - BALL NOSE - 30° HELIX**  
**LOC = 1.5 X DIA**



**SERIES 589**  
**ALTiN COATED**

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.015	3	0.030	TC55701	113.78
0.010	0.015	5	0.050	TC55704	113.78
0.010	0.015	8	0.080	TC55707	118.77
0.010	0.015	12	0.125	TC55710	133.53
0.015	0.022	3	0.045	TC55713	97.35
0.015	0.022	5	0.078	TC55716	97.35
0.015	0.022	8	0.125	TC55719	97.35
0.015	0.022	12	0.187	TC55722	99.73
0.020	0.030	3	0.060	TC55725	94.26
0.020	0.030	5	0.100	TC55728	94.26
0.020	0.030	8	0.160	TC55731	94.26
0.020	0.030	12	0.250	TC55734	96.88
0.025	0.037	3	0.075	TC55737	81.40
0.025	0.037	5	0.125	TC55740	81.40
0.025	0.037	8	0.203	TC55743	81.40
0.025	0.037	12	0.312	TC55746	83.79
0.030	0.045	3	0.090	TC55749	81.40
0.030	0.045	5	0.156	TC55752	81.40
0.030	0.045	8	0.250	TC55755	81.40
0.030	0.045	12	0.375	TC55758	83.79
0.031	0.046	3	0.093	TC55761	81.40
0.031	0.046	5	0.156	TC55764	81.40
0.031	0.046	8	0.250	TC55767	81.40
0.031	0.046	12	0.375	TC55770	83.79
0.035	0.052	3	0.105	TC55773	81.40
0.035	0.052	5	0.187	TC55776	81.40
0.035	0.052	8	0.281	TC55779	81.40
0.035	0.052	12	0.425	TC55782	83.79
0.040	0.060	3	0.120	TC55785	81.40
0.040	0.060	5	0.203	TC55788	81.40
0.040	0.060	8	0.325	TC55791	81.40
0.040	0.060	12	0.480	TC55794	83.79

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.045	0.067	3	0.135	TC55797	79.50
0.045	0.067	5	0.225	TC55800	79.50
0.045	0.067	8	0.375	TC55803	79.50
0.045	0.067	12	0.550	TC55806	81.64
0.047	0.070	3	0.141	TC55809	79.50
0.047	0.070	5	0.250	TC55812	79.50
0.047	0.070	8	0.375	TC55815	79.50
0.047	0.070	12	0.570	TC55818	81.64
0.050	0.075	3	0.150	TC55821	79.50
0.050	0.075	5	0.250	TC55824	79.50
0.050	0.075	8	0.400	TC55827	79.50
0.050	0.075	12	0.600	TC55830	81.64
0.055	0.082	3	0.165	TC55833	79.50
0.055	0.082	5	0.275	TC55836	79.50
0.055	0.082	8	0.450	TC55839	79.50
0.055	0.082	12	0.660	TC55842	81.64
0.060	0.090	3	0.180	TC55845	79.50
0.060	0.090	5	0.312	TC55848	79.50
0.060	0.090	8	0.500	TC55851	79.50
0.060	0.090	12	0.720	TC55854	81.64
0.062	0.093	3	0.186	TC55857	79.50
0.062	0.093	5	0.312	TC55860	79.50
0.062	0.093	8	0.500	TC55863	79.50
0.062	0.093	12	0.750	TC55866	81.64
0.065	0.097	3	0.195	TC55869	79.50
0.065	0.097	5	0.325	TC55872	79.50
0.065	0.097	8	0.530	TC55875	79.50
0.065	0.097	12	0.780	TC55878	81.64
0.070	0.105	3	0.210	TC55881	79.50
0.070	0.105	5	0.375	TC55884	79.50
0.070	0.105	8	0.570	TC55887	79.50
0.070	0.105	12	0.840	TC55890	81.64

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.075	0.112	3	0.225	TC55893	79.50
0.075	0.112	5	0.375	TC55896	79.50
0.075	0.112	8	0.625	TC55899	79.50
0.075	0.112	12	0.900	TC55902	81.64
0.078	0.117	3	0.234	TC55905	79.50
0.078	0.117	5	0.406	TC55908	79.50
0.078	0.117	8	0.625	TC55911	79.50
0.078	0.117	12	0.940	TC55914	81.64
0.080	0.120	3	0.240	TC55917	79.50
0.080	0.120	5	0.406	TC55920	79.50
0.080	0.120	8	0.650	TC55923	79.50
0.080	0.120	12	0.960	TC55926	81.64
0.085	0.127	3	0.255	TC55929	79.50
0.085	0.127	5	0.425	TC55932	79.50
0.085	0.127	8	0.700	TC55935	79.50
0.085	0.127	12	1.020	TC55938	81.64
0.090	0.135	3	0.270	TC55941	79.50
0.090	0.135	5	0.450	TC55944	79.50
0.090	0.135	8	0.750	TC55947	79.50
0.090	0.135	12	1.080	TC55950	81.64
0.093	0.139	3	0.279	TC55953	79.50
0.093	0.139	5	0.500	TC55956	79.50
0.093	0.139	8	0.750	TC55959	79.50
0.093	0.139	12	1.125	TC55962	81.64
0.095	0.142	3	0.285	TC55965	79.50
0.095	0.142	5	0.500	TC55968	79.50
0.095	0.142	8	0.750	TC55971	79.50
0.095	0.142	12	1.150	TC55974	81.64
0.100	0.150	3	0.300	TC55977	79.50
0.100	0.150	5	0.500	TC55980	79.50
0.100	0.150	8	0.800	TC55983	79.50
0.100	0.150	12	1.200	TC55986	81.64

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -.000	+0.0002, -.0002



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



SERIES 574  
UNCOATED

**TAKE 55% OFF  
LIST PRICE!**

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.030	5	0.050	TC57400	75.57
0.010	0.030	8	0.080	TC57403	75.57
0.010	0.030	12	0.125	TC57406	79.74
0.015	0.045	5	0.078	TC57409	62.68
0.015	0.045	8	0.128	TC57412	62.68
0.015	0.045	12	0.187	TC57415	64.86
0.020	0.060	5	0.100	TC57418	60.10
0.020	0.060	8	0.170	TC57421	60.10
0.020	0.060	12	0.250	TC57424	62.48
0.025	0.075	5	0.125	TC57427	57.72
0.025	0.075	8	0.213	TC57430	57.72
0.025	0.075	12	0.312	TC57433	59.90
0.030	0.090	5	0.156	TC57436	57.72
0.030	0.090	9	0.270	TC57439	57.72
0.030	0.090	12	0.375	TC57442	59.70
0.031	0.093	5	0.156	TC57445	57.72
0.031	0.093	9	0.279	TC57448	57.72
0.031	0.093	12	0.375	TC57451	59.70
0.035	0.105	5	0.175	TC57454	57.72
0.035	0.105	9	0.315	TC57457	57.72
0.035	0.105	12	0.420	TC57460	59.70
0.040	0.120	5	0.203	TC57463	57.72
0.040	0.120	9	0.360	TC57466	57.72
0.040	0.120	12	0.480	TC57469	59.70
0.045	0.135	5	0.225	TC57472	56.53
0.045	0.135	9	0.405	TC57475	56.53
0.045	0.135	12	0.540	TC57478	59.70
0.047	0.141	5	0.250	TC57481	56.53
0.047	0.141	9	0.423	TC57484	56.53
0.047	0.141	12	0.570	TC57487	58.32
0.050	0.150	5	0.250	TC57490	56.53
0.050	0.150	8	0.400	TC57493	56.53
0.050	0.150	12	0.600	TC57496	58.32
0.055	0.165	5	0.275	TC57499	56.53
0.055	0.165	8	0.440	TC57502	56.53
0.055	0.165	12	0.660	TC57505	58.32

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.180	5	0.312	TC57508	56.53
0.060	0.180	8	0.500	TC57511	56.53
0.060	0.180	12	0.720	TC57514	58.32
0.062	0.186	5	0.312	TC57517	56.53
0.062	0.186	8	0.500	TC57520	56.53
0.062	0.186	12	0.750	TC57523	58.32
0.065	0.195	5	0.325	TC57526	56.53
0.065	0.195	8	0.500	TC57529	56.53
0.065	0.195	12	0.780	TC57532	58.32
0.070	0.210	5	0.350	TC57535	56.53
0.070	0.210	8	0.560	TC57538	56.53
0.070	0.210	12	0.850	TC57541	58.32
0.075	0.225	5	0.375	TC57544	56.53
0.075	0.225	8	0.600	TC57547	56.53
0.075	0.225	12	0.900	TC57550	58.32
0.078	0.234	5	0.390	TC57553	56.53
0.078	0.234	8	0.624	TC57556	56.53
0.078	0.234	12	0.940	TC57559	58.32
0.080	0.240	5	0.400	TC57562	56.53
0.080	0.240	8	0.640	TC57565	56.53
0.080	0.240	12	0.960	TC57568	58.32
0.085	0.255	5	0.425	TC57571	56.53
0.085	0.255	8	0.680	TC57574	56.53
0.085	0.255	12	1.020	TC57577	58.32
0.090	0.270	5	0.450	TC57580	56.53
0.090	0.270	8	0.720	TC57583	56.53
0.090	0.270	12	1.080	TC57586	58.32
0.093	0.279	5	0.500	TC57589	56.53
0.093	0.279	8	0.744	TC57592	56.53
0.093	0.279	12	1.125	TC57595	58.32
0.095	0.285	5	0.475	TC57598	56.53
0.095	0.285	8	0.760	TC57601	56.53
0.095	0.285	12	1.140	TC57604	58.32
0.100	0.300	5	0.500	TC57607	56.53
0.100	0.300	8	0.800	TC57610	56.53
0.100	0.300	12	1.200	TC57613	58.32

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 ISO H6	+0.010, -0.000

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



3 FLUTE - LONG REACH - REGULAR FLUTE - SQUARE END - 30° HELIX  
LOC = 3 X DIA



SERIES 576  
ALTiN COATED

**TAKE 55% OFF  
LIST PRICE!**

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.030	5	0.050	TC57701	90.69
0.010	0.030	8	0.080	TC57704	90.69
0.010	0.030	12	0.125	TC57707	95.69
0.015	0.045	5	0.078	TC57710	75.22
0.015	0.045	8	0.128	TC57713	75.22
0.015	0.045	12	0.187	TC57716	77.83
0.020	0.060	5	0.100	TC57719	72.12
0.020	0.060	8	0.170	TC57722	72.12
0.020	0.060	12	0.250	TC57725	74.98
0.025	0.075	5	0.125	TC57728	69.27
0.025	0.075	8	0.213	TC57731	69.27
0.025	0.075	12	0.312	TC57734	71.88
0.030	0.090	5	0.156	TC57737	69.27
0.030	0.090	9	0.270	TC57740	69.27
0.030	0.090	12	0.375	TC57743	71.65
0.031	0.093	5	0.156	TC57746	69.27
0.031	0.093	9	0.279	TC57749	69.27
0.031	0.093	12	0.375	TC57752	71.65
0.035	0.105	5	0.175	TC57755	69.27
0.035	0.105	9	0.315	TC57758	69.27
0.035	0.105	12	0.420	TC57761	71.65
0.040	0.120	5	0.203	TC57764	69.27
0.040	0.120	9	0.360	TC57767	69.27
0.040	0.120	12	0.480	TC57770	71.65
0.045	0.135	5	0.225	TC57773	67.84
0.045	0.135	9	0.405	TC57776	67.84
0.045	0.135	12	0.540	TC57779	71.65
0.047	0.141	5	0.250	TC57782	67.84
0.047	0.141	9	0.423	TC57785	67.84
0.047	0.141	12	0.570	TC57788	69.98
0.050	0.150	5	0.250	TC57791	67.84
0.050	0.150	8	0.400	TC57794	67.84
0.050	0.150	12	0.600	TC57797	69.98
0.055	0.165	5	0.275	TC57800	67.84
0.055	0.165	8	0.440	TC57803	67.84
0.055	0.165	12	0.660	TC57806	69.98

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.180	5	0.312	TC57809	67.84
0.060	0.180	8	0.500	TC57812	67.84
0.060	0.180	12	0.720	TC57815	69.98
0.062	0.186	5	0.312	TC57818	67.84
0.062	0.186	8	0.500	TC57821	67.84
0.062	0.186	12	0.750	TC57824	69.98
0.065	0.195	5	0.325	TC57827	67.84
0.065	0.195	8	0.500	TC57830	67.84
0.065	0.195	12	0.780	TC57833	69.98
0.070	0.210	5	0.350	TC57836	67.84
0.070	0.210	8	0.560	TC57839	67.84
0.070	0.210	12	0.850	TC57842	69.98
0.075	0.225	5	0.375	TC57845	67.84
0.075	0.225	8	0.600	TC57848	67.84
0.075	0.225	12	0.900	TC57851	69.98
0.078	0.234	5	0.390	TC57854	67.84
0.078	0.234	8	0.624	TC57857	67.84
0.078	0.234	12	0.940	TC57860	69.98
0.080	0.240	5	0.400	TC57863	67.84
0.080	0.240	8	0.640	TC57866	67.84
0.080	0.240	12	0.960	TC57869	69.98
0.085	0.255	5	0.425	TC57872	67.84
0.085	0.255	8	0.680	TC57875	67.84
0.085	0.255	12	1.020	TC57878	69.98
0.090	0.270	5	0.450	TC57881	67.84
0.090	0.270	8	0.720	TC57884	67.84
0.090	0.270	12	1.080	TC57887	69.98
0.093	0.279	5	0.500	TC57890	67.84
0.093	0.279	8	0.744	TC57893	67.84
0.093	0.279	12	1.125	TC57896	69.98
0.095	0.285	5	0.475	TC57899	67.84
0.095	0.285	8	0.760	TC57902	67.84
0.095	0.285	12	1.140	TC57905	69.98
0.100	0.300	5	0.500	TC57908	67.84
0.100	0.300	8	0.800	TC57911	67.84
0.100	0.300	12	1.200	TC57914	69.98

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	+ .0005, -.0005	-.0001, -.0003 ISO H6	+ .010, -.000

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA



SERIES 578  
UNCOATED

**TAKE 55% OFF  
LIST PRICE!**

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.030	5	0.050	TC58400	102.35
0.010	0.030	8	0.080	TC58403	102.35
0.010	0.030	12	0.125	TC58406	104.14
0.015	0.045	5	0.078	TC58409	82.12
0.015	0.045	8	0.128	TC58412	82.12
0.015	0.045	12	0.187	TC58415	83.90
0.020	0.060	5	0.100	TC58418	78.95
0.020	0.060	8	0.170	TC58421	78.95
0.020	0.060	12	0.250	TC58424	80.73
0.025	0.075	5	0.125	TC58427	72.20
0.025	0.075	8	0.213	TC58430	72.20
0.025	0.075	12	0.312	TC58433	73.99
0.030	0.090	5	0.156	TC58436	72.20
0.030	0.090	9	0.270	TC58439	72.20
0.030	0.090	12	0.375	TC58442	73.99
0.031	0.093	5	0.156	TC58445	72.20
0.031	0.093	9	0.279	TC58448	72.20
0.031	0.093	12	0.375	TC58451	73.99
0.035	0.105	5	0.175	TC58454	72.20
0.035	0.105	8	0.280	TC58457	72.20
0.035	0.105	12	0.420	TC58460	73.99
0.040	0.120	5	0.200	TC58463	72.20
0.040	0.120	8	0.320	TC58466	72.20
0.040	0.120	12	0.480	TC58469	73.99
0.045	0.135	5	0.225	TC58472	69.82
0.045	0.135	8	0.360	TC58475	69.82
0.045	0.135	12	0.540	TC58478	71.61
0.047	0.141	5	0.250	TC58481	69.82
0.047	0.141	8	0.376	TC58484	69.82
0.047	0.141	12	0.570	TC58487	71.61
0.050	0.150	5	0.250	TC58490	69.82
0.050	0.150	8	0.400	TC58493	69.82
0.050	0.150	12	0.600	TC58496	71.61
0.055	0.165	5	0.275	TC58499	69.82
0.055	0.165	8	0.440	TC58502	69.82
0.055	0.165	12	0.660	TC58505	71.61

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.180	5	0.300	TC58508	69.82
0.060	0.180	8	0.500	TC58511	69.82
0.060	0.180	12	0.720	TC58514	71.61
0.062	0.186	5	0.312	TC58517	69.82
0.062	0.186	8	0.500	TC58520	69.82
0.062	0.186	12	0.750	TC58523	71.61
0.065	0.195	5	0.325	TC58526	69.82
0.065	0.195	8	0.500	TC58529	69.82
0.065	0.195	12	0.780	TC58532	71.61
0.070	0.210	5	0.350	TC58535	69.82
0.070	0.210	8	0.560	TC58538	69.82
0.070	0.210	12	0.840	TC58541	71.61
0.075	0.225	5	0.375	TC58544	69.82
0.075	0.225	8	0.600	TC58547	69.82
0.075	0.225	12	0.900	TC58550	71.61
0.078	0.234	5	0.390	TC58553	69.82
0.078	0.234	8	0.624	TC58556	69.82
0.078	0.234	12	0.940	TC58559	71.61
0.080	0.240	5	0.400	TC58562	69.82
0.080	0.240	8	0.640	TC58565	69.82
0.080	0.240	12	0.960	TC58568	71.61
0.085	0.255	5	0.425	TC58571	69.82
0.085	0.255	8	0.680	TC58574	69.82
0.085	0.255	12	1.020	TC58577	71.61
0.090	0.270	5	0.450	TC58580	69.82
0.090	0.270	8	0.720	TC58583	69.82
0.090	0.270	12	1.080	TC58586	71.61
0.093	0.279	5	0.500	TC58589	69.82
0.093	0.279	8	0.744	TC58592	69.82
0.093	0.279	12	1.125	TC58595	71.61
0.095	0.285	5	0.475	TC58598	69.82
0.095	0.285	8	0.760	TC58601	69.82
0.095	0.285	12	1.140	TC58604	71.61
0.100	0.300	5	0.500	TC58607	69.82
0.100	0.300	8	0.800	TC58610	69.82
0.100	0.300	12	1.200	TC58613	71.61

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

**3 FLUTE - LONG REACH - REGULAR FLUTE - BALL NOSE - 30° HELIX  
LOC = 3 X DIA**



**SERIES 579  
ALTiN COATED**

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.030	5	0.050	TC58701	122.82
0.010	0.030	8	0.080	TC58704	122.82
0.010	0.030	12	0.125	TC58707	124.96
0.015	0.045	5	0.078	TC58710	98.54
0.015	0.045	8	0.128	TC58713	98.54
0.015	0.045	12	0.187	TC58716	100.68
0.020	0.060	5	0.100	TC58719	94.73
0.020	0.060	8	0.170	TC58722	94.73
0.020	0.060	12	0.250	TC58725	96.88
0.025	0.075	5	0.125	TC58728	86.64
0.025	0.075	8	0.213	TC58731	86.64
0.025	0.075	12	0.312	TC58734	88.78
0.030	0.090	5	0.156	TC58737	86.64
0.030	0.090	9	0.270	TC58740	86.64
0.030	0.090	12	0.375	TC58743	88.78
0.031	0.093	5	0.156	TC58746	86.64
0.031	0.093	9	0.279	TC58749	86.64
0.031	0.093	12	0.375	TC58752	88.78
0.035	0.105	5	0.175	TC58755	86.64
0.035	0.105	8	0.280	TC58758	86.64
0.035	0.105	12	0.420	TC58761	88.78
0.040	0.120	5	0.200	TC58764	86.64
0.040	0.120	8	0.320	TC58767	86.64
0.040	0.120	12	0.480	TC58770	88.78
0.045	0.135	5	0.225	TC58773	83.79
0.045	0.135	8	0.360	TC58776	83.79
0.045	0.135	12	0.540	TC58779	85.93
0.047	0.141	5	0.250	TC58782	83.79
0.047	0.141	8	0.376	TC58785	83.79
0.047	0.141	12	0.570	TC58788	85.93
0.050	0.150	5	0.250	TC58791	83.79
0.050	0.150	8	0.400	TC58794	83.79
0.050	0.150	12	0.600	TC58797	85.93
0.055	0.165	5	0.275	TC58800	83.79
0.055	0.165	8	0.440	TC58803	83.79
0.055	0.165	12	0.660	TC58806	85.93

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.180	5	0.300	TC58809	83.79
0.060	0.180	8	0.500	TC58812	83.79
0.060	0.180	12	0.720	TC58815	85.93
0.062	0.186	5	0.312	TC58818	83.79
0.062	0.186	8	0.500	TC58821	83.79
0.062	0.186	12	0.750	TC58824	85.93
0.065	0.195	5	0.325	TC58827	83.79
0.065	0.195	8	0.500	TC58830	83.79
0.065	0.195	12	0.780	TC58833	85.93
0.070	0.210	5	0.350	TC58836	83.79
0.070	0.210	8	0.560	TC58839	83.79
0.070	0.210	12	0.840	TC58842	85.93
0.075	0.225	5	0.375	TC58845	83.79
0.075	0.225	8	0.600	TC58848	83.79
0.075	0.225	12	0.900	TC58851	85.93
0.078	0.234	5	0.390	TC58854	83.79
0.078	0.234	8	0.624	TC58857	83.79
0.078	0.234	12	0.940	TC58860	85.93
0.080	0.240	5	0.400	TC58863	83.79
0.080	0.240	8	0.640	TC58866	83.79
0.080	0.240	12	0.960	TC58869	85.93
0.085	0.255	5	0.425	TC58872	83.79
0.085	0.255	8	0.680	TC58875	83.79
0.085	0.255	12	1.020	TC58878	85.93
0.090	0.270	5	0.450	TC58881	83.79
0.090	0.270	8	0.720	TC58884	83.79
0.090	0.270	12	1.080	TC58887	85.93
0.093	0.279	5	0.500	TC58890	83.79
0.093	0.279	8	0.744	TC58893	83.79
0.093	0.279	12	1.125	TC58896	85.93
0.095	0.285	5	0.475	TC58899	83.79
0.095	0.285	8	0.760	TC58902	83.79
0.095	0.285	12	1.140	TC58905	85.93
0.100	0.300	5	0.500	TC58908	83.79
0.100	0.300	8	0.800	TC58911	83.79
0.100	0.300	12	1.200	TC58914	85.93

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - LONG FLUTE - SQUARE END - 30° HELIX  
LOC = 5 X DIA



SERIES 554  
UNCOATED

**TAKE 55% OFF  
LIST PRICE!**

REGULAR  
LENGTH

LONG REACH  
STUB FL

LONG REACH  
REG FL

LONG REACH  
LONG FL

LONG LENGTH  
LONG FL

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.050	10	0.100	TC54650	76.76
0.010	0.050	15	0.150	TC54653	94.81
0.015	0.075	10	0.150	TC54656	64.07
0.015	0.075	15	0.225	TC54659	81.52
0.020	0.100	10	0.200	TC54662	61.69
0.020	0.100	15	0.300	TC54665	78.55
0.025	0.125	10	0.250	TC54668	59.11
0.025	0.125	15	0.375	TC54671	76.17
0.030	0.150	10	0.300	TC54674	59.11
0.030	0.150	15	0.450	TC54677	76.17
0.031	0.155	10	0.310	TC54680	59.11
0.031	0.155	15	0.470	TC54683	76.17
0.035	0.175	10	0.350	TC54686	59.11
0.035	0.175	15	0.525	TC54689	76.17
0.040	0.200	10	0.400	TC54692	59.11
0.040	0.200	15	0.600	TC54695	76.17
0.045	0.225	10	0.450	TC54698	57.92
0.045	0.225	15	0.675	TC54701	72.40
0.047	0.250	10	0.500	TC54704	57.92
0.047	0.250	15	0.710	TC54707	72.40
0.050	0.300	10	0.500	TC54710	57.92
0.050	0.300	15	0.750	TC54713	72.40
0.055	0.385	10	0.550	TC54716	57.92
0.055	0.385	15	0.825	TC54719	72.40

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.312	10	0.625	TC54722	57.92
0.060	0.500	16	1.000	TC54725	57.92
0.062	0.312	10	0.625	TC54728	57.92
0.062	0.500	16	1.000	TC54731	57.92
0.065	0.325	10	0.650	TC54734	57.92
0.065	0.500	15	1.000	TC54737	57.92
0.070	0.350	10	0.700	TC54740	57.92
0.070	0.500	14	1.000	TC54743	57.92
0.075	0.375	10	0.750	TC54746	57.92
0.075	0.500	13	1.000	TC54749	57.92
0.078	0.406	10	0.800	TC54752	57.92
0.078	0.406	15	1.187	TC54755	57.92
0.080	0.400	10	0.800	TC54758	57.92
0.080	0.750	15	1.250	TC54761	57.92
0.085	0.425	10	0.850	TC54764	57.92
0.085	0.750	14	1.250	TC54767	57.92
0.090	0.450	10	0.900	TC54770	57.92
0.090	0.750	13	1.250	TC54773	57.92
0.093	0.500	10	0.950	TC54776	57.92
0.093	0.500	15	1.400	TC54779	57.92
0.095	0.500	10	0.950	TC54782	57.92
0.095	0.750	13	1.250	TC54785	57.92
0.100	0.500	10	1.000	TC54788	57.92
0.100	0.750	12	1.250	TC54791	57.92



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 ISO H6	+0.010, -0.000



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**3 FLUTE - LONG REACH - LONG FLUTE - SQUARE END - 30° HELIX**  
**LOC = 5 X DIA**

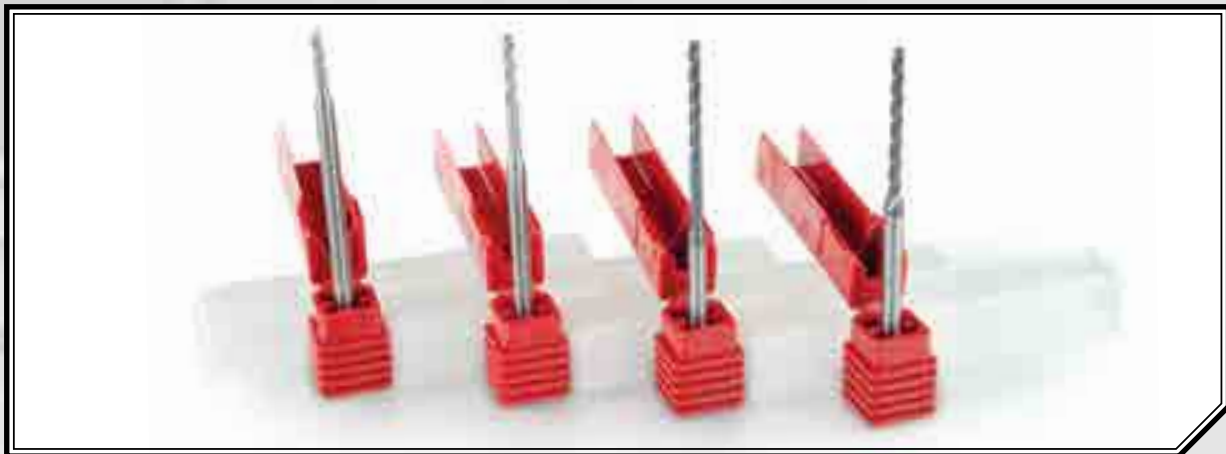


**SERIES 555**  
 ALTIM COATED

**TAKE 55% OFF LIST PRICE!**

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.050	10	0.100	TC54801	92.12
0.010	0.050	15	0.150	TC54804	113.78
0.015	0.075	10	0.150	TC54807	76.88
0.015	0.075	15	0.225	TC54810	97.83
0.020	0.100	10	0.200	TC54813	74.03
0.020	0.100	15	0.300	TC54816	94.26
0.025	0.125	10	0.250	TC54819	70.93
0.025	0.125	15	0.375	TC54822	91.40
0.030	0.150	10	0.300	TC54825	70.93
0.030	0.150	15	0.450	TC54828	91.40
0.031	0.155	10	0.310	TC54831	70.93
0.031	0.155	15	0.470	TC54834	91.40
0.035	0.175	10	0.350	TC54837	70.93
0.035	0.175	15	0.525	TC54840	91.40
0.040	0.200	10	0.400	TC54843	70.93
0.040	0.200	15	0.600	TC54846	91.40
0.045	0.225	10	0.450	TC54849	69.50
0.045	0.225	15	0.675	TC54852	86.88
0.047	0.250	10	0.500	TC54855	69.50
0.047	0.250	15	0.710	TC54858	86.88
0.050	0.300	10	0.500	TC54861	69.50
0.050	0.300	15	0.750	TC54864	86.88
0.055	0.385	10	0.550	TC54867	69.50
0.055	0.385	15	0.825	TC54870	86.88

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.312	10	0.625	TC54873	69.50
0.060	0.500	16	1.000	TC54876	69.50
0.062	0.312	10	0.625	TC54879	69.50
0.062	0.500	16	1.000	TC54882	69.50
0.065	0.325	10	0.650	TC54885	69.50
0.065	0.500	15	1.000	TC54888	69.50
0.070	0.350	10	0.700	TC54891	69.50
0.070	0.500	14	1.000	TC54894	69.50
0.075	0.375	10	0.750	TC54897	69.50
0.075	0.500	13	1.000	TC54900	69.50
0.078	0.406	10	0.800	TC54903	69.50
0.078	0.406	15	1.187	TC54906	69.50
0.080	0.400	10	0.800	TC54909	69.50
0.080	0.750	15	1.250	TC54912	69.50
0.085	0.425	10	0.850	TC54915	69.50
0.085	0.750	14	1.250	TC54918	69.50
0.090	0.450	10	0.900	TC54921	69.50
0.090	0.750	13	1.250	TC54924	69.50
0.093	0.500	10	0.950	TC54927	69.50
0.093	0.500	15	1.400	TC54930	69.50
0.095	0.500	10	0.950	TC54933	69.50
0.095	0.750	13	1.250	TC54936	69.50
0.100	0.500	10	1.000	TC54939	69.50
0.100	0.750	12	1.250	TC54942	69.50



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 ISO H6	+0.010, -0.000

REGULAR LENGTH  
 LONG REACH STUB FL  
 LONG REACH REG FL  
 LONG REACH LONG FL  
 LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

3 FLUTE - LONG REACH - LONG FLUTE - BALL NOSE - 30° HELIX  
LOC = 5 X DIA



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 558**  
UNCOATED

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.050	10	0.100	TC52750	96.00
0.010	0.050	15	0.150	TC52753	96.00
0.015	0.075	10	0.150	TC52756	82.32
0.015	0.075	15	0.225	TC52759	82.32
0.020	0.100	10	0.200	TC52762	79.74
0.020	0.100	15	0.300	TC52765	79.74
0.025	0.125	10	0.250	TC52768	69.03
0.025	0.125	15	0.375	TC52771	69.03
0.030	0.150	10	0.300	TC52774	69.03
0.030	0.150	15	0.450	TC52777	69.03
0.031	0.155	10	0.310	TC52780	69.03
0.031	0.155	15	0.470	TC52783	69.03
0.035	0.175	10	0.350	TC52786	69.03
0.035	0.175	15	0.525	TC52789	69.03
0.040	0.200	10	0.400	TC52792	69.03
0.040	0.200	15	0.600	TC52795	69.03
0.045	0.225	10	0.450	TC52798	67.24
0.045	0.225	15	0.675	TC52801	67.24
0.047	0.250	10	0.500	TC52804	67.24
0.047	0.250	15	0.710	TC52807	67.24
0.050	0.300	10	0.500	TC52810	67.24
0.050	0.300	15	0.750	TC52813	67.24
0.055	0.385	10	0.550	TC52816	67.24
0.055	0.385	15	0.825	TC52819	67.24

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.312	10	0.625	TC52822	67.24
0.060	0.500	16	1.000	TC52825	67.24
0.062	0.312	10	0.625	TC52828	67.24
0.062	0.500	16	1.000	TC52831	67.24
0.065	0.325	10	0.650	TC52834	67.24
0.065	0.500	15	1.000	TC52837	67.24
0.070	0.350	10	0.700	TC52840	67.24
0.070	0.500	14	1.000	TC52843	67.24
0.075	0.375	10	0.750	TC52846	67.24
0.075	0.500	13	1.000	TC52849	67.24
0.078	0.406	10	0.800	TC52852	67.24
0.078	0.406	15	1.187	TC52855	67.24
0.080	0.400	10	0.800	TC52858	67.24
0.080	0.750	15	1.250	TC52861	67.24
0.085	0.425	10	0.850	TC52864	67.24
0.085	0.750	14	1.250	TC52867	67.24
0.090	0.450	10	0.900	TC52870	67.24
0.090	0.750	13	1.250	TC52873	67.24
0.093	0.500	10	0.950	TC52876	67.24
0.093	0.500	15	1.400	TC52879	67.24
0.095	0.500	10	0.950	TC52882	67.24
0.095	0.750	13	1.250	TC52885	67.24
0.100	0.500	10	1.000	TC52888	67.24
0.100	0.750	12	1.250	TC52891	67.24



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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**3 FLUTE - LONG REACH - LONG FLUTE - BALL NOSE - 30° HELIX  
LOC = 5 X DIA**



**SERIES 559  
ALTiN COATED**

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.010	0.050	10	0.100	TC52900	115.20
0.010	0.050	15	0.150	TC52902	115.20
0.015	0.075	10	0.150	TC52904	98.78
0.015	0.075	15	0.225	TC52906	98.78
0.020	0.100	10	0.200	TC52908	95.69
0.020	0.100	15	0.300	TC52910	95.69
0.025	0.125	10	0.250	TC52912	82.83
0.025	0.125	15	0.375	TC52914	82.83
0.030	0.150	10	0.300	TC52916	82.83
0.030	0.150	15	0.450	TC52918	82.83
0.031	0.155	10	0.310	TC52920	82.83
0.031	0.155	15	0.470	TC52922	82.83
0.035	0.175	10	0.350	TC52924	82.83
0.035	0.175	15	0.525	TC52926	82.83
0.040	0.200	10	0.400	TC52928	82.83
0.040	0.200	15	0.600	TC52930	82.83
0.045	0.225	10	0.450	TC52932	80.69
0.045	0.225	15	0.675	TC52934	80.69
0.047	0.250	10	0.500	TC52936	80.69
0.047	0.250	15	0.710	TC52938	80.69
0.050	0.300	10	0.500	TC52940	80.69
0.050	0.300	15	0.750	TC52942	80.69
0.055	0.385	10	0.550	TC52944	80.69
0.055	0.385	15	0.825	TC52946	80.69

DIA	LOC	xDIA	REACH	ITEM#	LIST PRICE
0.060	0.312	10	0.625	TC52948	80.69
0.060	0.500	16	1.000	TC52950	80.69
0.062	0.312	10	0.625	TC52952	80.69
0.062	0.500	16	1.000	TC52954	80.69
0.065	0.325	10	0.650	TC52956	80.69
0.065	0.500	15	1.000	TC52958	80.69
0.070	0.350	10	0.700	TC52960	80.69
0.070	0.500	14	1.000	TC52962	80.69
0.075	0.375	10	0.750	TC52964	80.69
0.075	0.500	13	1.000	TC52966	80.69
0.078	0.406	10	0.800	TC52968	80.69
0.078	0.406	15	1.187	TC52970	80.69
0.080	0.400	10	0.800	TC52972	80.69
0.080	0.750	15	1.250	TC52974	80.69
0.085	0.425	10	0.850	TC52976	80.69
0.085	0.750	14	1.250	TC52978	80.69
0.090	0.450	10	0.900	TC52980	80.69
0.090	0.750	13	1.250	TC52982	80.69
0.093	0.500	10	0.950	TC52984	80.69
0.093	0.500	15	1.400	TC52986	80.69
0.095	0.500	10	0.950	TC52988	80.69
0.095	0.750	13	1.250	TC52990	80.69
0.100	0.500	10	1.000	TC52992	80.69
0.100	0.750	12	1.250	TC52994	80.69



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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**TAKE 55% OFF LIST PRICE!**

**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	61.69
0.010	8	0.080	TC53421	103.54
0.010	12	0.120	TC53422	122.98
0.015	5	0.078	TC53423	57.32
0.015	8	0.125	TC53424	98.98
0.015	12	0.187	TC53425	121.79
0.020	5	0.100	TC53426	49.19
0.020	8	0.160	TC53427	88.91
0.020	12	0.250	TC53428	116.83
0.025	5	0.125	TC53429	47.01
0.025	8	0.203	TC53430	88.91
0.025	12	0.312	TC53431	103.34
0.030	5	0.150	TC53432	45.22
0.030	8	0.250	TC53433	76.19
0.030	12	0.375	TC53434	98.19
0.031	5	0.156	TC53435	45.22
0.031	8	0.250	TC53436	72.73
0.031	12	0.375	TC53437	98.19
0.035	5	0.175	TC53438	45.22
0.035	8	0.280	TC53439	72.73
0.035	12	0.425	TC53440	98.19
0.040	5	0.200	TC53441	45.22
0.040	8	0.325	TC53442	72.73
0.040	12	0.480	TC53443	98.19
0.045	5	0.225	TC53444	45.22
0.045	8	0.375	TC53445	72.73
0.045	12	0.550	TC53446	97.59
0.047	5	0.250	TC53447	45.22
0.047	8	0.375	TC53448	72.73
0.047	12	0.570	TC53449	97.59
0.050	5	0.250	TC53450	45.22
0.050	8	0.400	TC53451	72.73
0.050	12	0.600	TC53452	98.19
0.055	5	0.275	TC53453	45.22
0.055	8	0.440	TC53454	72.73
0.055	12	0.660	TC53455	98.19
0.060	5	0.312	TC53456	40.27
0.060	8	0.500	TC53457	45.22
0.060	12	0.720	TC53458	98.19
0.062	5	0.312	TC53459	40.27
0.062	8	0.500	TC53460	45.03
0.062	12	0.750	TC53461	76.96

DIA	xDIA	LOC	ITEM#	LIST PRICE
0.062	15	0.950	TC53462	105.33
0.065	5	0.325	TC53463	40.27
0.065	8	0.500	TC53464	45.03
0.065	12	0.780	TC53465	76.96
0.070	5	0.375	TC53466	40.27
0.070	8	0.560	TC53467	45.03
0.070	12	0.850	TC53468	76.96
0.075	5	0.375	TC53469	40.27
0.075	8	0.625	TC53470	45.03
0.075	12	0.900	TC53471	76.96
0.078	5	0.406	TC53472	40.27
0.078	8	0.625	TC53473	45.03
0.078	12	0.940	TC53474	76.96
0.078	15	1.187	TC53475	105.33
0.080	5	0.406	TC53476	40.27
0.080	8	0.750	TC53477	45.03
0.080	12	0.960	TC53478	76.96
0.085	5	0.425	TC53479	40.27
0.085	8	0.750	TC53480	45.03
0.085	12	1.020	TC53481	76.96
0.090	5	0.450	TC53482	40.27
0.090	8	0.750	TC53483	45.03
0.090	12	1.080	TC53484	76.96
0.093	5	0.500	TC53485	40.27
0.093	8	0.750	TC53486	45.03
0.093	12	1.125	TC53487	76.96
0.093	15	1.400	TC53488	109.49
0.095	5	0.500	TC53489	40.27
0.095	8	0.750	TC53490	45.03
0.095	12	1.140	TC53491	76.96
0.100	5	0.500	TC53492	40.27
0.100	8	0.800	TC53493	45.03
0.100	12	1.200	TC53494	76.96
0.109	5	0.570	TC53495	40.27
0.109	8	0.900	TC53496	45.03
0.109	12	1.320	TC53497	76.96
0.118	5	0.625	TC53498	40.27
0.118	8	0.950	TC53499	45.03
0.118	12	1.375	TC53500	76.96
0.120	5	0.600	TC53501	40.27
0.120	8	1.000	TC53502	45.03
0.120	12	1.500	TC53503	76.96

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 ISO H6

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**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	74.03
0.010	8	0.080	TC53603	124.25
0.010	12	0.120	TC53604	147.58
0.015	5	0.078	TC53605	68.79
0.015	8	0.125	TC53606	118.77
0.015	12	0.187	TC53607	146.15
0.020	5	0.100	TC53608	59.03
0.020	8	0.160	TC53609	106.70
0.020	12	0.250	TC53610	140.20
0.025	5	0.125	TC53611	56.41
0.025	8	0.203	TC53612	106.70
0.025	12	0.312	TC53613	124.01
0.030	5	0.150	TC53614	54.27
0.030	8	0.250	TC53615	91.43
0.030	12	0.375	TC53616	117.82
0.031	5	0.156	TC53617	54.27
0.031	8	0.250	TC53618	87.28
0.031	12	0.375	TC53619	117.82
0.035	5	0.175	TC53620	54.27
0.035	8	0.280	TC53621	87.28
0.035	12	0.425	TC53622	117.82
0.040	5	0.200	TC53623	54.27
0.040	8	0.325	TC53624	87.28
0.040	12	0.480	TC53625	117.82
0.045	5	0.225	TC53626	54.27
0.045	8	0.375	TC53627	87.28
0.045	12	0.550	TC53628	117.11
0.047	5	0.250	TC53629	54.27
0.047	8	0.375	TC53630	87.28
0.047	12	0.570	TC53631	117.11
0.050	5	0.250	TC53632	54.27
0.050	8	0.400	TC53633	87.28
0.050	12	0.600	TC53634	117.82
0.055	5	0.275	TC53635	54.27
0.055	8	0.440	TC53636	87.28
0.055	12	0.660	TC53637	117.82
0.060	5	0.312	TC53638	48.32
0.060	8	0.500	TC53639	54.27
0.060	12	0.720	TC53640	117.82
0.062	5	0.312	TC53641	48.32
0.062	8	0.500	TC53642	54.03
0.062	12	0.750	TC53643	92.35

DIA	xDIA	LOC	ITEM#	LIST PRICE
0.062	15	0.950	TC53644	126.39
0.065	5	0.325	TC53645	48.32
0.065	8	0.500	TC53646	54.03
0.065	12	0.780	TC53647	92.35
0.070	5	0.375	TC53648	48.32
0.070	8	0.560	TC53649	54.03
0.070	12	0.850	TC53650	92.35
0.075	5	0.375	TC53651	48.32
0.075	8	0.625	TC53652	54.03
0.075	12	0.900	TC53653	92.35
0.078	5	0.406	TC53654	48.32
0.078	8	0.625	TC53655	54.03
0.078	12	0.940	TC53656	92.35
0.078	15	1.187	TC53657	126.39
0.080	5	0.406	TC53658	48.32
0.080	8	0.750	TC53659	54.03
0.080	12	0.960	TC53660	92.35
0.085	5	0.425	TC53661	48.32
0.085	8	0.750	TC53662	54.03
0.085	12	1.020	TC53663	92.35
0.090	5	0.450	TC53664	48.32
0.090	8	0.750	TC53665	54.03
0.090	12	1.080	TC53666	92.35
0.093	5	0.500	TC53667	48.32
0.093	8	0.750	TC53668	54.03
0.093	12	1.125	TC53669	92.35
0.093	15	1.400	TC53670	131.39
0.095	5	0.500	TC53671	48.32
0.095	8	0.750	TC53672	54.03
0.095	12	1.140	TC53673	92.35
0.100	5	0.500	TC53674	48.32
0.100	8	0.800	TC53675	54.03
0.100	12	1.200	TC53676	92.35
0.109	5	0.570	TC53677	48.32
0.109	8	0.900	TC53678	54.03
0.109	12	1.320	TC53679	92.35
0.118	5	0.625	TC53680	48.32
0.118	8	0.950	TC53681	54.03
0.118	12	1.375	TC53682	92.35
0.120	5	0.600	TC53683	48.32
0.120	8	1.000	TC53684	54.03
0.120	12	1.500	TC53685	92.35

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 ISO H6

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

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



**TAKE 55% OFF LIST PRICE!**

**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	70.61
0.010	8	0.080	TC53731	118.62
0.010	12	0.120	TC53732	138.85
0.015	5	0.078	TC53733	65.66
0.015	8	0.125	TC53734	113.66
0.015	12	0.187	TC53735	140.44
0.020	5	0.100	TC53736	56.53
0.020	8	0.160	TC53737	105.52
0.020	12	0.250	TC53738	131.91
0.025	5	0.125	TC53739	53.75
0.025	8	0.203	TC53740	102.75
0.025	12	0.312	TC53741	126.95
0.030	5	0.150	TC53742	51.97
0.030	8	0.250	TC53743	85.01
0.030	12	0.375	TC53744	124.96
0.031	5	0.156	TC53745	51.97
0.031	8	0.250	TC53746	81.86
0.031	12	0.375	TC53747	112.67
0.035	5	0.175	TC53748	51.97
0.035	8	0.281	TC53749	85.01
0.035	12	0.425	TC53750	112.67
0.040	5	0.200	TC53751	51.97
0.040	8	0.325	TC53752	85.01
0.040	12	0.480	TC53753	112.67
0.045	5	0.225	TC53754	51.97
0.045	8	0.375	TC53755	85.01
0.045	12	0.550	TC53756	112.67
0.047	5	0.250	TC53757	51.97
0.047	8	0.375	TC53758	85.01
0.047	12	0.570	TC53759	112.67
0.050	5	0.250	TC53760	51.97
0.050	8	0.400	TC53761	85.01
0.050	12	0.600	TC53762	112.67
0.055	5	0.275	TC53763	46.02
0.055	8	0.440	TC53764	55.54
0.055	12	0.660	TC53765	105.13
0.060	5	0.312	TC53766	46.02
0.060	8	0.500	TC53767	51.97
0.060	12	0.720	TC53768	95.61
0.062	5	0.312	TC53769	46.02
0.062	8	0.500	TC53770	51.37
0.062	12	0.750	TC53771	88.27

DIA	xDIA	LOC	ITEM#	LIST PRICE
0.062	15	0.950	TC53772	120.80
0.065	5	0.325	TC53773	46.02
0.065	8	0.500	TC53774	51.37
0.065	12	0.780	TC53775	88.27
0.070	5	0.375	TC53776	46.02
0.070	8	0.560	TC53777	51.37
0.070	12	0.900	TC53778	88.27
0.075	5	0.375	TC53779	46.02
0.075	8	0.625	TC53780	51.37
0.075	12	0.900	TC53781	88.27
0.078	5	0.406	TC53782	46.02
0.078	8	0.625	TC53783	51.37
0.078	12	0.940	TC53784	88.27
0.078	15	1.187	TC53785	120.80
0.080	5	0.406	TC53786	46.02
0.080	8	0.750	TC53787	51.37
0.080	12	0.960	TC53788	88.27
0.085	5	0.425	TC53789	46.02
0.085	8	0.750	TC53790	51.37
0.085	12	1.020	TC53791	88.27
0.090	5	0.450	TC53792	46.02
0.090	8	0.750	TC53793	51.37
0.090	12	1.080	TC53794	88.27
0.093	5	0.500	TC53795	46.02
0.093	8	0.750	TC53796	51.37
0.093	12	1.125	TC53797	88.27
0.093	15	1.400	TC53798	123.38
0.095	5	0.500	TC53799	46.02
0.095	8	0.750	TC53800	51.37
0.095	12	1.140	TC53801	88.27
0.100	5	0.500	TC53802	46.02
0.100	8	0.800	TC53803	51.37
0.100	12	1.200	TC53804	88.27
0.109	5	0.570	TC53805	46.02
0.109	8	0.900	TC53806	51.37
0.109	12	1.320	TC53807	88.27
0.118	5	0.625	TC53808	46.02
0.118	8	0.950	TC53809	51.37
0.118	12	1.375	TC53810	88.27
0.120	5	0.600	TC53811	46.02
0.120	8	1.000	TC53812	51.37
0.120	12	1.500	TC53813	88.27

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

# Carbide Micro End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**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	84.74
0.010	8	0.080	TC53862	142.34
0.010	12	0.120	TC53863	166.62
0.015	5	0.078	TC53864	78.79
0.015	8	0.125	TC53865	136.39
0.015	12	0.187	TC53866	168.52
0.020	5	0.100	TC53867	67.84
0.020	8	0.160	TC53868	126.63
0.020	12	0.250	TC53869	158.29
0.025	5	0.125	TC53870	64.50
0.025	8	0.203	TC53871	123.30
0.025	12	0.312	TC53872	152.34
0.030	5	0.150	TC53873	62.36
0.030	8	0.250	TC53874	102.01
0.030	12	0.375	TC53875	149.96
0.031	5	0.156	TC53876	62.36
0.031	8	0.250	TC53877	98.23
0.031	12	0.375	TC53878	135.20
0.035	5	0.175	TC53879	62.36
0.035	8	0.281	TC53880	102.01
0.035	12	0.425	TC53881	135.20
0.040	5	0.200	TC53882	62.36
0.040	8	0.325	TC53883	102.01
0.040	12	0.480	TC53884	135.20
0.045	5	0.225	TC53885	62.36
0.045	8	0.375	TC53886	102.01
0.045	12	0.550	TC53887	135.20
0.047	5	0.250	TC53888	62.36
0.047	8	0.375	TC53889	102.01
0.047	12	0.570	TC53890	135.20
0.050	5	0.250	TC53891	62.36
0.050	8	0.400	TC53892	102.01
0.050	12	0.600	TC53893	135.20
0.055	5	0.275	TC53894	55.22
0.055	8	0.440	TC53895	66.65
0.055	12	0.660	TC53896	126.15
0.060	5	0.312	TC53897	55.22
0.060	8	0.500	TC53898	62.36
0.060	12	0.720	TC53899	114.73
0.062	5	0.312	TC53900	55.22
0.062	8	0.500	TC53901	61.65
0.062	12	0.750	TC53902	105.92

DIA	xDIA	LOC	ITEM#	LIST PRICE
0.062	15	0.950	TC53903	144.96
0.065	5	0.325	TC53904	55.22
0.065	8	0.500	TC53905	61.65
0.065	12	0.780	TC53906	105.92
0.070	5	0.375	TC53907	55.22
0.070	8	0.560	TC53908	61.65
0.070	12	0.900	TC53909	105.92
0.075	5	0.375	TC53910	55.22
0.075	8	0.625	TC53911	61.65
0.075	12	0.900	TC53912	105.92
0.078	5	0.406	TC53913	55.22
0.078	8	0.625	TC53914	61.65
0.078	12	0.940	TC53915	105.92
0.078	15	1.187	TC53916	144.96
0.080	5	0.406	TC53917	55.22
0.080	8	0.750	TC53918	61.65
0.080	12	0.960	TC53919	105.92
0.085	5	0.425	TC53920	55.22
0.085	8	0.750	TC53921	61.65
0.085	12	1.020	TC53922	105.92
0.090	5	0.450	TC53923	55.22
0.090	8	0.750	TC53924	61.65
0.090	12	1.080	TC53925	105.92
0.093	5	0.500	TC53926	55.22
0.093	8	0.750	TC53927	61.65
0.093	12	1.125	TC53928	105.92
0.093	15	1.400	TC53929	148.05
0.095	5	0.500	TC53930	55.22
0.095	8	0.750	TC53931	61.65
0.095	12	1.140	TC53932	105.92
0.100	5	0.500	TC53933	55.22
0.100	8	0.800	TC53934	61.65
0.100	12	1.200	TC53935	105.92
0.109	5	0.570	TC53936	55.22
0.109	8	0.900	TC53937	61.65
0.109	12	1.320	TC53938	105.92
0.118	5	0.625	TC53939	55.22
0.118	8	0.950	TC53940	61.65
0.118	12	1.375	TC53941	105.92
0.120	5	0.600	TC53942	55.22
0.120	8	1.000	TC53943	61.65
0.120	12	1.500	TC53944	105.92

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	RADIUS
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000	+0.0002, -0.0002

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

## COARSE PITCH - NON CENTER CUTTING - 30° HELIX



**SERIES 826**  
ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE63504	94.34
5/16	3/8	3/4	2-1/2	3	TE63509	103.03
3/8	3/8	3/4	2-1/2	4	TE63514	107.63
7/16	3/8	1	2-11/16	4	TE63519	108.26
1/2	1/2	1	3	4	TE63528	110.23
1/2	1/2	1-1/4	3-1/4	4	TE63529	114.00
5/8	5/8	1-5/8	3-3/4	4	TE63536	145.07
3/4	3/4	1-5/8	3-7/8	4	TE63545	159.66
7/8	3/4	1-7/8	4-1/8	5	TE63554	221.24
1	1	2	4-1/2	5	TE63566	213.85
1-1/8	1	2	4-1/2	6	TE63571	332.10
1-1/4	1-1/4	2	4-1/2	6	TE63575	360.42
1-1/2	1-1/4	2	4-1/2	6	TE63583	422.71
2	1-1/4	2	4-1/2	8	TE63592	587.36

**TAKE 55% OFF LIST PRICE!**

## FINE PITCH - NON CENTER CUTTING - 30° HELIX



**SERIES 831**  
ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/4	3/8	5/8	2-7/16	3	TE66204	94.34
5/16	3/8	3/4	2-1/2	3	TE66209	103.03
3/8	3/8	3/4	2-1/2	4	TE66214	108.26
7/16	3/8	1	2-11/16	4	TE66219	108.81
1/2	1/2	1-1/4	3-1/4	4	TE66229	110.23
5/8	5/8	1-5/8	3-3/4	4	TE66236	145.07
3/4	3/4	1-5/8	3-7/8	4	TE66245	159.66
7/8	3/4	1-7/8	4-1/8	5	TE66254	208.86
1	1	2	4-1/2	5	TE66266	214.01
1-1/8	1	2	4-1/2	6	TE66271	354.79
1-1/4	1-1/4	2	4-1/2	6	TE66275	360.42
1-1/2	1-1/4	2	4-1/2	6	TE66283	445.36
2	1-1/4	2	4-1/2	8	TE66292	627.79

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

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	+0.0000, -0.0005



# M42 Cobalt End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

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



**SERIES 807**  
UNCOATED



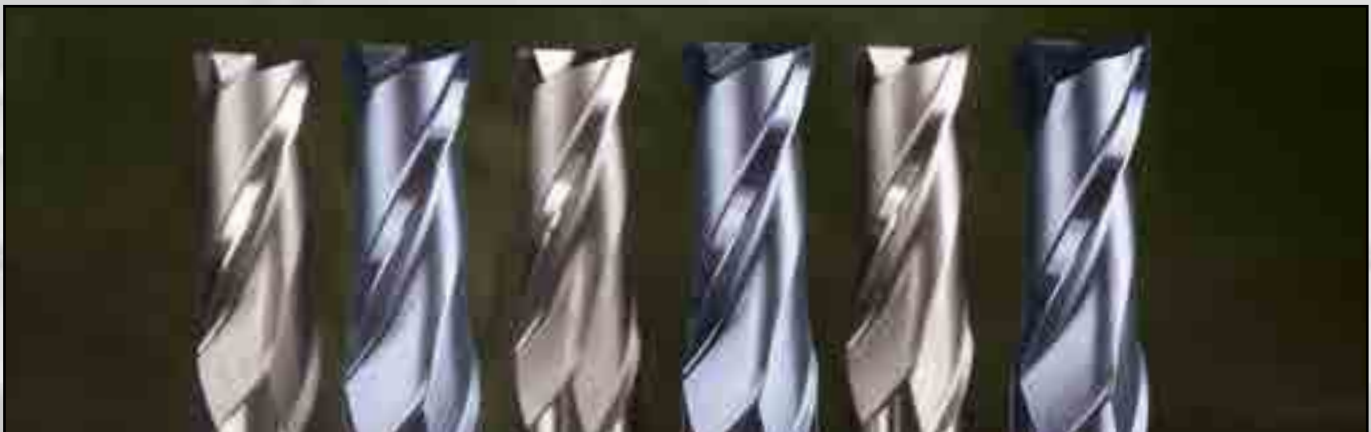
**SERIES 808**  
ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	2	TE82701	36.07
3/16	3/8	9/32	2-5/16	2	TE82705	36.07
1/4	3/8	1/2	2-5/16	2	TE82709	36.07
5/16	3/8	9/16	2-5/16	2	TE82713	36.07
3/8	3/8	9/16	2-5/16	2	TE82715	36.07
7/16	3/8	13/16	2-1/2	2	TE82717	49.83
1/2	3/8	13/16	2-1/2	2	TE82719	49.83
1/2	1/2	1	3	2	TE82721	52.70
9/16	1/2	1-1/8	3-1/8	2	TE82723	59.31
5/8	1/2	1-1/8	3-1/8	2	TE82725	66.42
5/8	5/8	1-5/16	3-7/16	2	TE82727	67.47
3/4	1/2	1-5/16	3-5/16	2	TE82729	77.13
3/4	5/8	1-5/16	3-7/16	2	TE82731	77.13
3/4	3/4	1-5/16	3-9/16	2	TE82733	77.13
13/16	5/8	1-1/2	3-5/8	2	TE82735	94.82
13/16	3/4	1-1/2	3-3/4	2	TE82737	95.37
7/8	3/4	1-1/2	3-3/4	2	TE82741	105.69
7/8	7/8	1-1/2	3-3/4	2	TE82743	105.69
15/16	5/8	1-1/2	3-5/8	2	TE82745	114.86
15/16	3/4	1-1/2	3-3/4	2	TE82747	121.65
1	3/4	1-1/2	3-3/4	2	TE82753	107.52
1	1	1-5/8	4-1/8	2	TE82757	122.43
1-1/8	1	1-5/8	4-1/8	2	TE82761	179.06
1-1/4	1	1-5/8	4-1/8	2	TE82765	199.63
1-1/2	1-1/4	1-5/8	4-1/8	2	TE82773	238.76

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	2-5/16	2	TE82802	45.09
3/16	3/8	9/32	2-5/16	2	TE82806	45.09
1/4	3/8	1/2	2-5/16	2	TE82810	45.09
5/16	3/8	9/16	2-5/16	2	TE82814	45.09
3/8	3/8	9/16	2-5/16	2	TE82816	45.09
7/16	3/8	13/16	2-1/2	2	TE82818	62.29
1/2	3/8	13/16	2-1/2	2	TE82820	62.29
1/2	1/2	1	3	2	TE82822	65.90
9/16	1/2	1-1/8	3-1/8	2	TE82824	74.16
5/8	1/2	1-1/8	3-1/8	2	TE82826	83.04
5/8	5/8	1-5/16	3-7/16	2	TE82828	84.34
3/4	1/2	1-5/16	3-5/16	2	TE82830	96.52
3/4	5/8	1-5/16	3-7/16	2	TE82832	96.52
3/4	3/4	1-5/16	3-9/16	2	TE82834	96.52
13/16	5/8	1-1/2	3-5/8	2	TE82836	118.52
13/16	3/4	1-1/2	3-3/4	2	TE82838	118.94
7/8	3/4	1-1/2	3-3/4	2	TE82842	132.09
7/8	7/8	1-1/2	3-3/4	2	TE82844	132.09
15/16	5/8	1-1/2	3-5/8	2	TE82846	143.55
15/16	3/4	1-1/2	3-3/4	2	TE82848	152.10
1	3/4	1-1/2	3-3/4	2	TE82854	134.41
1	1	1-5/8	4-1/8	2	TE82858	153.05
1-1/8	1	1-5/8	4-1/8	2	TE82862	223.84
1-1/4	1	1-5/8	4-1/8	2	TE82866	249.53
1-1/2	1-1/4	1-5/8	4-1/8	2	TE82874	298.46

For coating information, please see page 6.

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



COBALT END MILLS



# M42 Cobalt End Mills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**

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



**SERIES 812**  
UNCOATED



**SERIES 813**  
ALTiN COATED

COBALT END MILLS

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM #	LIST PRICE
1/8	3/8	3/8	2-5/16	4	TE81201	36.81
5/32	3/8	3/8	2-5/16	4	TE81203	50.43
3/16	3/8	1/2	2-3/8	4	TE81205	36.81
7/32	3/8	1/2	2-3/8	4	TE81207	50.43
1/4	3/8	5/8	2-7/16	4	TE81209	36.81
9/32	3/8	11/16	2-1/2	4	TE81211	50.43
5/16	3/8	3/4	2-1/2	4	TE81213	36.81
11/32	3/8	3/4	2-1/2	4	TE81215	51.50
3/8	3/8	3/4	2-1/2	4	TE81217	36.81
13/32	3/8	1	2-11/16	4	TE81219	75.24
7/16	3/8	1	2-11/16	4	TE81221	49.73
15/32	3/8	1	2-11/16	4	TE81223	88.23
1/2	3/8	1	2-11/16	4	TE81225	49.73
1/2	1/2	1-1/4	3-1/4	4	TE81227	49.73
17/32	1/2	1-3/8	3-3/8	4	TE81229	93.22
9/16	1/2	1-3/8	3-3/8	4	TE81231	59.67
5/8	1/2	1-3/8	3-3/8	4	TE81233	64.99
5/8	5/8	1-5/8	3-3/4	4	TE81235	72.17
11/16	1/2	1-5/8	3-5/8	4	TE81237	75.30
11/16	5/8	1-5/8	3-3/4	4	TE81239	76.74
3/4	1/2	1-5/8	3-5/8	4	TE81241	88.30
3/4	5/8	1-5/8	3-3/4	4	TE81243	88.30
3/4	3/4	1-5/8	3-7/8	4	TE81245	91.23
13/16	3/4	1-7/8	4-1/8	4	TE81247	103.11
7/8	3/4	1-7/8	4-1/8	4	TE81249	102.75
7/8	7/8	1-7/8	4-1/8	4	TE81251	102.75
15/16	3/4	1-7/8	4-1/8	4	TE81253	131.96
1	3/4	1-7/8	4-1/8	4	TE81257	116.95
1	1	2	4-1/2	4	TE81261	123.87
1-1/8	3/4	1-5/8	3-7/8	6	TE81265	176.71
1-1/4	1	2	4-1/2	6	TE81269	189.41
1-1/4	1-1/4	2	4-1/2	6	TE81273	193.07
1-3/8	3/4	2	4-1/4	6	TE81275	317.93
1-1/2	1	2	4-1/2	6	TE81277	340.06
1-1/2	1-1/4	2	4-1/2	4	TE81279	274.49
1-5/8	1-1/4	2	4-1/2	6	TE81283	425.99
2	1-1/4	2	4-1/2	6	TE81291	439.89

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM #	LIST PRICE
1/8	3/8	3/8	2-5/16	4	TE81302	46.01
5/32	3/8	3/8	2-5/16	4	TE81304	63.03
3/16	3/8	1/2	2-3/8	4	TE81306	46.01
7/32	3/8	1/2	2-3/8	4	TE81308	63.03
1/4	3/8	5/8	2-7/16	4	TE81310	46.01
9/32	3/8	11/16	2-1/2	4	TE81312	63.03
5/16	3/8	3/4	2-1/2	4	TE81314	46.01
11/32	3/8	3/4	2-1/2	4	TE81316	64.38
3/8	3/8	3/4	2-1/2	4	TE81318	46.01
13/32	3/8	11/16	2-1/2	4	TE81320	94.07
7/16	3/8	1	2-11/16	4	TE81322	62.18
15/32	3/8	1	2-11/16	4	TE81324	99.28
1/2	3/8	1	2-11/16	4	TE81326	62.18
1/2	1/2	1-1/4	3-1/4	4	TE81328	62.18
17/32	1/2	1-3/8	3-3/8	4	TE81330	116.52
9/16	1/2	1-3/8	3-3/8	4	TE81332	74.58
5/8	1/2	1-3/8	3-3/8	4	TE81334	81.21
5/8	5/8	1-5/8	3-3/4	4	TE81336	90.22
11/16	1/2	1-5/8	3-5/8	4	TE81338	94.13
11/16	5/8	1-5/8	3-3/4	4	TE81340	95.93
3/4	1/2	1-5/8	3-5/8	4	TE81342	114.21
3/4	5/8	1-5/8	3-3/4	4	TE81344	114.21
3/4	3/4	1-5/8	3-7/8	4	TE81346	114.21
13/16	3/4	1-7/8	4-1/8	4	TE81348	128.93
7/8	3/4	1-7/8	4-1/8	4	TE81350	128.47
7/8	7/8	1-7/8	4-1/8	4	TE81352	128.47
15/16	3/4	1-7/8	4-1/8	4	TE81354	164.96
1	3/4	1-7/8	4-1/8	4	TE81358	146.19
1	1	2	4-1/2	4	TE81362	154.81
1-1/8	3/4	1-5/8	3-7/8	6	TE81366	220.25
1-1/4	1	2	4-1/2	6	TE81370	236.77
1-1/4	1-1/4	2	4-1/2	6	TE81374	241.34
1-3/8	3/4	2	4-1/4	6	TE81376	328.32
1-1/2	1	2	4-1/2	6	TE81378	368.85
1-1/2	1-1/4	2	4-1/2	4	TE81380	302.35
1-5/8	1-1/4	2	4-1/2	6	TE81384	481.06
2	1-1/4	2	4-1/2	6	TE81392	545.51

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 PRICE!**

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



**SERIES 817**  
UNCOATED

**SERIES 818**  
ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	2	TE81701	55.18
5/32	3/8	7/16	3-1/8	2	TE81703	58.57
3/16	3/8	7/16	3-1/8	2	TE81705	55.25
7/32	3/8	1/2	3-1/8	2	TE81707	58.61
1/4	3/8	1/2	3-1/8	2	TE81709	55.25
9/32	3/8	9/16	3-1/8	2	TE81711	58.61
5/16	3/8	9/16	3-1/8	2	TE81713	55.25
11/32	3/8	9/16	3-1/8	2	TE81715	58.61
3/8	3/8	9/16	3-1/8	2	TE81717	55.25
13/32	1/2	13/16	3-3/4	2	TE81719	89.30
7/16	1/2	13/16	3-3/4	2	TE81721	83.99
1/2	1/2	13/16	3-3/4	2	TE81725	83.99
9/16	5/8	1-1/8	4-1/2	2	TE81727	105.39
5/8	5/8	1-1/8	4-1/2	2	TE81729	105.39
3/4	3/4	1-5/16	5	2	TE81733	132.71
7/8	7/8	1-9/16	5-1/2	2	TE81737	166.99
1	1	1-5/8	5-7/8	2	TE81741	205.40

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	2	TE81802	68.98
5/32	3/8	7/16	3-1/8	2	TE81804	73.23
3/16	3/8	7/16	3-1/8	2	TE81806	69.02
7/32	3/8	1/2	3-1/8	2	TE81808	73.26
1/4	3/8	1/2	3-1/8	2	TE81810	69.02
9/32	3/8	9/16	3-1/8	2	TE81812	73.26
5/16	3/8	9/16	3-1/8	2	TE81814	69.02
11/32	3/8	9/16	3-1/8	2	TE81816	73.26
3/8	3/8	9/16	3-1/8	2	TE81818	69.02
13/32	1/2	13/16	3-3/4	2	TE81820	47.92
7/16	1/2	13/16	3-3/4	2	TE81822	104.97
1/2	1/2	13/16	3-3/4	2	TE81826	104.97
9/16	5/8	1-1/8	4-1/2	2	TE81828	131.73
5/8	5/8	1-1/8	4-1/2	2	TE81830	131.73
3/4	3/4	1-5/16	5	2	TE81834	165.94
7/8	7/8	1-9/16	5-1/2	2	TE81838	208.73
1	1	1-5/8	5-7/8	2	TE81842	256.75

## 4 FLUTE - DOUBLE END - SQUARE END - 30° HELIX



**SERIES 823**  
UNCOATED

**SERIES 824**  
ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	4	TE82301	55.74
5/32	3/8	7/16	3-1/8	4	TE82303	58.86
3/16	3/8	1/2	3-1/8	4	TE82305	55.74
7/32	3/8	9/16	3-1/4	4	TE82307	58.86
1/4	3/8	5/8	3-3/8	4	TE82309	55.74
9/32	3/8	11/16	3-3/8	4	TE82311	58.86
5/16	3/8	3/4	3-1/2	4	TE82313	55.74
11/32	3/8	3/4	3-1/2	4	TE82315	58.86
3/8	3/8	3/4	3-1/2	4	TE82317	55.74
13/32	1/2	1	4-1/8	4	TE82319	86.54
7/16	1/2	1	4-1/8	4	TE82321	84.16
1/2	1/2	1	4-1/8	4	TE82325	84.16
9/16	5/8	1-3/8	5	4	TE82327	103.60
5/8	5/8	1-3/8	5	4	TE82329	103.60
3/4	3/4	1-5/8	5-5/8	4	TE82333	130.49
7/8	7/8	1-7/8	6-1/8	4	TE82337	174.23
1	1	1-7/8	6-3/8	4	TE82341	202.30

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	LIST PRICE
1/8	3/8	3/8	3-1/16	4	TE82402	69.69
5/32	3/8	7/16	3-1/8	4	TE82404	73.58
3/16	3/8	1/2	3-1/8	4	TE82406	69.69
7/32	3/8	9/16	3-1/4	4	TE82408	73.58
1/4	3/8	5/8	3-3/8	4	TE82410	69.69
9/32	3/8	11/16	3-3/8	4	TE82412	73.58
5/16	3/8	3/4	3-1/2	4	TE82414	69.69
11/32	3/8	3/4	3-1/2	4	TE82416	73.58
3/8	3/8	3/4	3-1/2	4	TE82418	69.69
13/32	1/2	1	4-1/8	4	TE82420	108.16
7/16	1/2	1	4-1/8	4	TE82422	105.22
1/2	1/2	1	4-1/8	4	TE82426	105.22
9/16	5/8	1-3/8	5	4	TE82428	129.52
5/8	5/8	1-3/8	5	4	TE82430	129.52
3/4	3/4	1-5/8	5-5/8	4	TE82434	163.13
7/8	7/8	1-7/8	6-1/8	4	TE82438	217.81
1	1	1-7/8	6-3/8	4	TE82442	252.73

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

## SINGLE FLUTE COUNTERSINKS



CARBIDE  
**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	22.75
3/16	3/16	2	1	CS31012	CS31112	CS31212	CS31312	24.30
1/4	1/4	2	1	CS31016	CS31116	CS31216	CS31316	27.61
3/8	1/4	2-5/8	1	CS31024	CS31124	CS31224	CS31324	49.99
1/2	1/4	2-5/8	1	CS31032	CS31132	CS31232	CS31332	61.91
5/8	3/8	2-3/4	1	CS31040	CS31140	CS31240	CS31340	90.46
3/4	3/8	2-3/4	1	CS31048	CS31148	CS31248	CS31348	127.85
1	1/2	3	1	CS31064	CS31164	CS31264	CS31364	189.53

## 3 FLUTE COUNTERSINKS



CARBIDE  
**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	22.75
3/16	3/16	2	1	CS33112	CS33212	CS33312	CS33412	24.30
1/4	1/4	2	1	CS33116	CS33216	CS33316	CS33416	27.61
3/8	1/4	2-5/8	1	CS33124	CS33224	CS33324	CS33424	49.99
1/2	1/4	2-5/8	1	CS33132	CS33232	CS33332	CS33432	61.91
5/8	3/8	2-3/4	1	CS33140	CS33240	CS33340	CS33440	90.46
3/4	3/8	2-3/4	1	CS33148	CS33248	CS33348	CS33448	127.85
1	1/2	3	1	CS33164	CS33264	CS33364	CS33464	189.53

## 6 FLUTE CHATTERLESS COUNTERSINKS



CARBIDE  
**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	22.75
3/16	3/16	2	1	CS36612	CS36712	CS36812	CS36912	24.30
1/4	1/4	2	1	CS36616	CS36716	CS36816	CS36916	27.61
3/8	1/4	2-5/8	1	CS36624	CS36724	CS36824	CS36924	49.99
1/2	1/4	2-5/8	1	CS36632	CS36732	CS36832	CS36932	61.91
5/8	3/8	2-3/4	1	CS36640	CS36740	CS36840	CS36940	90.46
3/4	3/8	2-3/4	1	CS36648	CS36748	CS36848	CS36948	127.85
1	1/2	3	1	CS36664	CS36764	CS36864	CS36964	189.53

TAKE 55% OFF  
LIST PRICE!

# HSS Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## SINGLE FLUTE COUNTERSINKS



HIGH SPEED STEEL  
**SERIES 505** - 60°  
**SERIES 510** - 82°  
**SERIES 515** - 90°

SIZE	SHANK	OAL	PKG QTY	60°-ITEM#	82°-ITEM#	90°-ITEM#	LIST PRICE
1/4	3/16	1-7/16	1	CD50501	CD51014	CD51523	24.97
3/8	1/4	1-21/32	1	CD50502	CD51015	CD51524	28.42
1/2	1/4	1-13/32	1	CD50503	CD51016	CD51525	36.34
3/4	1/2	1-27/32	1	CD50504	CD51017	CD51526	50.18
1	1/2	2-13/16	1	CD50505	CD51018	CD51527	77.96

## 4 FLUTE COUNTERSINKS



HIGH SPEED STEEL  
**SERIES 521** - 60°  
**SERIES 523** - 82°

SIZE	SHANK	OAL	PKG. QTY	60°-ITEM#	82°-ITEM#	LIST PRICE
1/2	1/2	3-7/8	1	CD52032	CD52232	79.69
5/8	1/2	4	1	CD52040	CD52240	89.71
3/4	1/2	4-1/8	1	CD52048	CD52248	114.49
7/8	1/2	4-1/4	1	CD52056	CD52256	134.57
1	1/2	4-3/8	1	CD52064	CD52264	139.08



COUNTERSINKS

## 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	30.88
0	1/32	1/8	1-1/2	1	CS30010	29.52
1	3/64	1/8	1-1/2	1	CS30001	26.87
2	5/64	3/16	2	1	CS30002	39.98
3	7/64	1/4	2	1	CS30003	45.10
4	1/8	5/16	2-1/8	1	CS30004	58.21
5	3/16	7/16	2-3/4	1	CS30005	92.27
6	7/32	1/2	3	1	CS30006	114.86



### 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	38.58
0	1/32	1/8	1-1/2	1	CS36010	36.91
1	3/64	1/8	1-1/2	1	CS36001	33.58
2	5/64	3/16	2	1	CS36002	49.98
3	7/64	1/4	2	1	CS36003	56.35
4	1/8	5/16	2-1/8	1	CS36004	72.76
5	3/16	7/16	2-3/4	1	CS36005	115.35
6	7/32	1/2	3	1	CS36006	143.58

TAKE 55% OFF  
LIST PRICE!

## 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	15.67
1	3/64	1/8	1-1/4	6	CS10001	9.37
2	5/64	3/16	1-7/8	6	CS10002	9.80
3	7/64	1/4	2	6	CS10003	10.23
4	1/8	5/16	2-1/8	6	CS10004	10.53
5	3/16	7/16	2-3/4	1	CS10005	16.67
6	7/32	1/2	3	1	CS10006	25.05
7	1/4	5/8	3-1/4	1	CS10007	43.69
8	5/16	3/4	3-1/2	1	CS10008	60.78



### 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	19.66
0	1/32	1/8	1-1/4	6	CS35010	19.66
1	3/64	1/8	1-1/4	6	CS35001	14.87
2	5/64	3/16	1-7/8	6	CS35002	15.27
3	7/64	1/4	2	6	CS35003	20.80
4	1/8	5/16	2-1/8	6	CS35004	21.44
5	3/16	7/16	2-3/4	1	CS35005	29.86
6	7/32	1/2	3	1	CS35006	47.66
7	1/4	5/8	3-1/4	1	CS35007	68.50
8	5/16	3/4	3-1/2	1	CS35008	110.22

### 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	16.94
0000	.015	1/8	1-1/4	6	CS00040	15.54
000	.020	1/8	1-1/4	6	CS00030	14.70
00	.025	1/8	1-1/4	6	CS00020	14.70

### 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	27.80
2	5/64	3/16	1-7/8	6	CS20002	30.05
3	7/64	1/4	2	6	CS20003	31.07
4	1/8	5/16	2-1/8	6	CS20004	32.31

For coating information, please see page 6.

# Combined Drill & Countersinks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



MADE IN THE U.S.A.

## COMBINED DRILL & COUNTERSINKS



### SERIES 5000

HIGH SPEED STEEL - LONG LENGTH - 60°

SIZE	DRILL DIA.	BODY DIA.	PKG. QTY.	ITEM#	LIST PRICE
1 x 3	3/64	1/8	1	CS50013	23.50
1 x 4	3/64	1/8	1	CS50014	24.52
1 x 5	3/64	1/8	1	CS50015	34.07
1 x 6	3/64	1/8	1	CS50016	44.64
2 x 3	5/64	3/16	1	CS50023	23.77
2 x 4	5/64	3/16	1	CS50024	26.89
2 x 5	5/64	3/16	1	CS50025	34.42
2 x 6	5/64	3/16	1	CS50026	44.77
3 x 3	7/64	1/4	1	CS50033	24.84
3 x 4	7/64	1/4	1	CS50034	28.31
3 x 5	7/64	1/4	1	CS50035	37.23
3 x 6	7/64	1/4	1	CS50036	45.17
4 x 4	1/8	5/16	1	CS50044	31.39
4 x 5	1/8	5/16	1	CS50045	40.09
4 x 6	1/8	5/16	1	CS50046	46.33
4-1/2 x 4	9/64	3/8	1	CS50040	35.27
4-1/2 x 5	9/64	3/8	1	CS50050	51.33
4-1/2 x 6	9/64	3/8	1	CS50060	57.36
5 x 4	3/16	7/16	1	CS50054	41.20
5 x 5	3/16	7/16	1	CS50055	47.71
5 x 6	3/16	7/16	1	CS50056	53.55
6 x 5	7/32	1/2	1	CS50065	51.28
6 x 6	7/32	1/2	1	CS50066	61.98
7 x 6	1/4	5/6	1	CS50076	115.44
8 x 6	5/16	3/4	1	CS50086	139.59

**TAKE 55% OFF  
LIST PRICE!**

COUNTERSINKS



# Spiral Point Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## Predator

PREMIUM POWDERED METAL

TAKE 55% OFF LIST PRICE!



SERIES 772 - UNCOATED



SERIES 773 - ALTIN COATED



SERIES 771 - STEAM OXIDE



SERIES 778 - TiCN COATED

SIZE	H LIMIT	# OF FLUTES	UNCOATED LIST PRICE	STM OXIDE LIST PRICE	ALTIN LIST PRICE	TiCN LIST PRICE
2-56	H2	2	TT97003 35.12	TT96903 37.15	TT97103 41.73	TT97903 41.73
4-40	H2	3	TT97015 27.12	TT96915 31.20	TT97115 41.73	TT97915 41.73
6-32	H3	3	TT97024 27.12	TT96924 31.20	TT97124 41.73	TT97924 41.73
8-32	H3	3	TT97030 27.12	TT96930 31.20	TT97130 41.73	TT97930 41.73
10-24	H3	3	TT97036 27.12	TT96936 31.20	TT97136 41.73	TT97936 41.73
10-32	H3	3	TT97040 27.12	TT96940 31.20	TT97140 41.73	TT97940 41.73
1/4-20	H3	3	TT97044 29.63	TT96944 34.08	TT97144 45.58	TT97944 45.59
1/4-20	H5	3	TT97048 29.63	TT96948 34.08	TT97148 45.58	TT97948 45.59
1/4-28	H3	3	TT97051 29.63	TT96951 34.08	TT97151 45.58	TT97951 45.59
1/4-28	H4	3	TT97054 29.63	TT96954 34.08	TT97154 45.58	TT97954 45.59
5/16-18	H3	3	TT97057 32.40	TT96957 37.27	TT97157 49.85	TT97957 49.86
5/16-18	H5	3	TT97060 32.40	TT96960 37.27	TT97160 49.85	TT97960 49.86
5/16-24	H3	3	TT97063 32.40	TT96963 37.27	TT97163 49.85	TT97963 49.86
5/16-24	H4	3	TT97066 32.40	TT96966 37.27	TT97166 49.85	TT97966 49.86
3/8-16	H3	3	TT97069 38.54	TT96969 44.31	TT97169 59.29	TT97969 59.30
3/8-16	H5	3	TT97071 38.54	TT96971 44.31	TT97171 59.29	TT97971 59.30
3/8-24	H3	3	TT97073 38.54	TT96973 44.31	TT97173 59.29	TT97973 59.30
3/8-24	H4	3	TT97075 38.54	TT96975 44.31	TT97175 59.29	TT97975 59.30
7/16-14	H3	3	TT97076 49.37	TT96976 56.75	TT97176 75.92	TT97976 75.93
7/16-14	H5	3	TT97078 49.37	TT96978 56.75	TT97178 75.92	TT97978 75.93
7/16-20	H3	3	TT97079 49.37	TT96979 56.75	TT97179 75.92	TT97979 75.93
7/16-20	H5	3	TT97081 49.37	TT96981 56.75	TT97181 75.92	TT97981 75.93
1/2-13	H3	4	TT97083 58.92	TT96983 67.76	TT97183 90.64	TT97983 90.64
1/2-13	H5	4	TT97085 58.92	TT96985 67.76	TT97185 90.64	TT97985 90.64
1/2-20	H3	4	TT97087 58.92	TT96987 67.76	TT97187 90.64	TT97987 90.64
1/2-20	H5	4	TT97089 58.92	TT96989 67.76	TT97189 90.64	TT97989 90.64
5/8-11	H3	4	TT97091 112.26	TT96991 129.11	TT97191 172.71	TT97991 172.71
5/8-11	H6	4	TT97093 112.26	TT96993 129.11	TT97193 172.71	TT97993 172.71
5/8-18	H3	4	TT97094 112.26	TT96994 129.11	TT97194 172.71	TT97994 172.71
5/8-18	H5	4	TT97095 112.26	TT96995 129.11	TT97195 172.71	TT97995 172.71
3/4-10	H3	4	TT97099 145.14	TT96999 166.90	TT97199 223.27	TT97999 223.28
3/4-10	H6	4	TT97096 145.14	TT96996 166.90	TT97196 223.27	TT97996 223.28
3/4-16	H3	4	TT97097 145.14	TT96997 166.90	TT97197 223.27	TT97997 223.28
3/4-16	H5	4	TT97098 145.14	TT96998 166.90	TT97198 223.27	TT97998 223.28

All taps sold individually

Predator Tap sizes 3/8" and smaller have male center.

For coating information see page 6. For technical information, please see pages 234-235.

HP TAPS  
TAPS  
DIES



# Spiral Point Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## Predator

PREMIUM POWDERED METAL  
METRIC



**SERIES 711 - UNCOATED**



**SERIES 713 - ALTIN COATED**



**SERIES 712 - STEAM OXIDE**



**SERIES 714 - TiCN COATED**

SIZE	D LIMIT	# OF FLUTES	UNCOATED LIST PRICE	STM OXIDE LIST PRICE	ALTIN LIST PRICE	TiCN LIST PRICE
M2.5 x 0.45	D3	2	TT98208 30.78	TT98301 35.41	TT98418 46.15	TT98955 46.15
M3 x 0.5	D3	3	TT98210 30.77	TT98303 35.41	TT98420 46.14	TT98961 46.15
M3.5 x 0.6	D3	3	TT98221 30.78	TT98317 35.41	TT98431 46.15	TT98979 46.15
M3.5 x 0.6	D4	3	TT98222 30.78	TT98318 35.41	TT98432 46.15	TT98962 46.15
M4 x 0.7	D3	3	TT98224 30.77	TT98321 35.41	TT98433 46.14	TT98981 46.15
M4 x 0.7	D4	3	TT98211 30.77	TT98304 35.41	TT98421 46.14	TT98963 46.15
M5 x 0.8	D3	3	TT98226 30.77	TT98323 35.41	TT98435 46.14	TT98983 46.15
M5 x 0.8	D4	3	TT98212 30.77	TT98305 35.41	TT98422 46.14	TT98965 46.15
M6 x 1.0	D3	3	TT98228 33.82	TT98325 38.88	TT98437 50.71	TT98985 50.72
M6 x 1.0	D5	3	TT98213 33.82	TT98306 38.88	TT98423 50.71	TT98967 50.72
M8 x 1.25	D3	3	TT98230 36.79	TT98327 42.32	TT98439 55.24	TT98987 55.24
M8 x 1.25	D5	3	TT98214 36.79	TT98308 42.32	TT98424 55.24	TT98969 55.24
M10 x 1.5	D3	3	TT98232 43.70	TT98329 50.22	TT98441 65.02	TT98989 65.01
M10 x 1.5	D6	3	TT98215 43.70	TT98310 50.22	TT98425 65.02	TT98971 65.01
M12 x 1.75	D3	4	TT98234 66.97	TT98331 76.99	TT98443 100.11	TT98991 100.11
M12 x 1.75	D6	4	TT98216 66.97	TT98312 76.99	TT98426 100.11	TT98973 100.11
M14 x 2.0	D3	4	TT98236 102.10	TT98333 117.39	TT98445 137.72	TT98993 137.72
M14 x 2.0	D7	4	TT98218 102.10	TT98314 117.39	TT98428 137.72	TT98975 137.72
M16 x 2.0	D3	4	TT98238 119.91	TT98335 137.90	TT98447 161.80	TT98995 161.80
M16 x 2.0	D7	4	TT98220 119.91	TT98316 137.90	TT98430 161.80	TT98977 161.80

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

All taps sold individually

Predator Tap sizes 3/8" and smaller have male center.

For coating information see page 6. For technical information, please see pages 234-235.



# Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## Predator

HIGH VANADIUM POWDERED METAL

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

**TAKE 55% OFF LIST PRICE!**



SERIES 774 - UNCOATED



SERIES 779 - ALTIN COATED



SERIES 799 - STEAM OXIDE



SERIES 781 - TiCN COATED

SIZE	H LIMIT	# OF FLUTES	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTIN	LIST PRICE	TiCN	LIST PRICE
2-56	H2	2	TT97203	41.95	TT97503	48.24	TT97303	64.50	TT97603	64.50
4-40	H2	2	TT97207	41.95	TT97507	48.24	TT97307	64.50	TT97607	64.50
6-32	H3	3	TT97215	41.95	TT97515	48.24	TT97315	64.50	TT97615	64.50
8-32	H3	3	TT97223	41.95	TT97523	48.24	TT97323	64.50	TT97623	64.50
10-24	H3	3	TT97227	41.95	TT97527	48.24	TT97327	64.50	TT97627	64.50
10-32	H3	3	TT97231	41.95	TT97531	48.24	TT97331	64.50	TT97631	64.50
1/4-20	H3	3	TT97237	43.22	TT97537	49.70	TT97337	66.48	TT97637	66.49
1/4-20	H5	3	TT97239	43.22	TT97539	49.70	TT97339	66.48	TT97639	66.49
1/4-28	H3	3	TT97241	43.22	TT97541	49.70	TT97341	66.48	TT97641	66.49
1/4-28	H4	3	TT97243	43.22	TT97543	49.70	TT97343	66.48	TT97643	66.49
5/16-18	H3	3	TT97245	47.34	TT97545	54.42	TT97345	72.81	TT97645	72.81
5/16-18	H5	3	TT97247	47.34	TT97547	54.42	TT97347	72.81	TT97647	72.81
5/16-24	H3	3	TT97249	47.34	TT97549	54.42	TT97349	72.81	TT97649	72.81
5/16-24	H4	3	TT97251	47.34	TT97551	54.42	TT97351	72.81	TT97651	72.81
3/8-16	H3	3	TT97253	56.07	TT97553	64.50	TT97353	86.30	TT97653	86.30
3/8-16	H5	3	TT97255	56.07	TT97555	64.50	TT97355	86.30	TT97655	86.30
3/8-24	H3	3	TT97257	56.07	TT97557	64.50	TT97357	86.30	TT97657	86.30
3/8-24	H4	3	TT97259	56.07	TT97559	64.50	TT97359	86.30	TT97659	86.30
7/16-14	H3	3	TT97261	70.94	TT97561	81.62	TT97361	109.15	TT97661	109.15
7/16-14	H5	3	TT97263	70.94	TT97563	81.62	TT97363	109.15	TT97663	109.15
7/16-20	H3	3	TT97265	70.94	TT97565	81.62	TT97365	109.15	TT97665	109.15
7/16-20	H5	3	TT97267	70.94	TT97567	81.62	TT97367	109.15	TT97667	109.15
1/2-13	H3	3	TT97269	84.13	TT97569	96.79	TT97369	129.45	TT97669	129.45
1/2-13	H5	3	TT97271	84.13	TT97571	96.79	TT97371	129.45	TT97671	129.45
1/2-20	H3	3	TT97273	84.13	TT97573	96.79	TT97373	129.45	TT97673	129.45
1/2-20	H5	3	TT97275	84.13	TT97575	96.79	TT97375	129.45	TT97675	129.45
5/8-11	H3	4	TT97277	160.72	TT97577	184.85	TT97377	247.28	TT97677	247.28
5/8-11	H6	4	TT97279	160.72	TT97579	184.85	TT97379	247.28	TT97679	247.28
5/8-18	H3	4	TT97281	160.72	TT97581	184.85	TT97381	247.28	TT97681	247.28
5/8-18	H5	4	TT97283	160.72	TT97583	184.85	TT97383	247.28	TT97683	247.28
3/4-10	H3	4	TT97285	187.84	TT97585	216.05	TT97385	289.05	TT97685	289.05
3/4-10	H6	4	TT97287	187.84	TT97587	216.05	TT97387	289.05	TT97687	289.05
3/4-16	H3	4	TT97289	187.84	TT97589	216.05	TT97389	289.05	TT97689	289.05
3/4-16	H5	4	TT97291	187.84	TT97591	216.05	TT97391	289.05	TT97691	289.05

All taps sold individually

Predator Tap sizes 3/8" and smaller have male center.

For coating information see page 6. For technical information, please see pages 234-235.

HP TAPS  
TAPS  
DIES

# Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## 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	# OF FLUTES	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTIN	LIST PRICE	TiCN	LIST PRICE
M2.5 x 0.45	D3	2	TT98508	47.59	TT98601	54.72	TT98715	70.22	TT98845	70.22
M3 x 0.5	D3	3	TT98510	47.59	TT98603	54.71	TT98720	70.22	TT98851	70.22
M3.5 x 0.6	D3	3	TT98521	47.59	TT98617	54.72	TT98731	70.22	TT98869	70.22
M3.5 x 0.6	D4	3	TT98522	47.59	TT98618	54.72	TT98732	70.22	TT98852	70.22
M4 x 0.7	D3	3	TT98523	47.59	TT98619	54.71	TT98733	70.22	TT98871	70.22
M4 x 0.7	D4	3	TT98511	47.59	TT98604	54.71	TT98721	70.22	TT98853	70.22
M5 x 0.8	D3	3	TT98525	47.59	TT98621	54.71	TT98735	70.22	TT98873	70.22
M5 x 0.8	D4	3	TT98512	47.59	TT98605	54.71	TT98722	70.22	TT98855	70.22
M6 x 1.0	D3	3	TT98527	49.01	TT98623	56.38	TT98737	72.81	TT98875	72.81
M6 x 1.0	D5	3	TT98513	49.01	TT98606	56.38	TT98723	72.81	TT98857	72.81
M8 x 1.25	D3	3	TT98529	53.83	TT98625	61.90	TT98739	80.60	TT98877	80.59
M8 x 1.25	D5	3	TT98514	53.83	TT98608	61.90	TT98724	80.60	TT98859	80.59
M10 x 1.5	D3	3	TT98531	63.64	TT98627	73.20	TT98741	94.91	TT98879	94.90
M10 x 1.5	D6	3	TT98515	63.64	TT98610	73.20	TT98725	94.91	TT98861	94.90
M12 x 1.75	D3	3	TT98533	95.51	TT98629	109.82	TT98743	143.03	TT98881	143.03
M12 x 1.75	D6	3	TT98516	95.51	TT98612	109.82	TT98726	143.03	TT98863	143.03
M14 x 2.0	D3	4	TT98535	135.35	TT98631	155.68	TT98745	182.73	TT98883	182.73
M14 x 2.0	D7	4	TT98518	135.35	TT98614	155.68	TT98728	182.73	TT98865	182.73
M16 x 2.0	D3	4	TT98537	158.37	TT98633	182.13	TT98747	213.79	TT98885	213.79
M16 x 2.0	D7	4	TT98520	158.37	TT98616	182.13	TT98730	213.79	TT98867	213.79

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

All taps sold individually

Predator Tap sizes 3/8" and smaller have male center.

For coating information see page 6. For technical information, please see pages 234-235.

# Thread Forming Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**



## SERIES 876

HIGH SPEED STEEL  
UNCOATED

SIZE	H LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	TT88301	TT82800	-	29.04
0-80	H3	0	TT88303	TT82802	-	29.04
1-64	H3	0	-	TT82804	-	29.04
1-72	H3	0	TT88307	TT82806	-	29.04
2-56	H3	0	TT88309	TT82808	-	28.85
2-56	H4	0	TT88311	TT82810	-	28.85
2-64	H3	0	-	TT82814	-	28.85
3-48	H3	0	-	TT82818	-	28.85
3-56	H3	0	-	TT82820	-	28.85
3-56	H5	0	-	TT82822	-	28.85
4-40	H3	0	TT88321	TT82824	TT82823	26.01
4-40	H5	0	TT88323	TT82826	TT82825	26.01
4-48	H4	0	-	TT82828	-	26.01
5-40	H4	0	-	TT82832	TT82831	26.01
5-44	H4	0	-	TT82836	-	26.01
6-32	H3	1	TT88331	TT82840	TT82839	21.44
6-32	H5	1	TT88333	TT82842	TT82841	21.44
6-40	H4	1	-	TT82846	TT82845	21.44
8-32	H3	1	TT88337	TT82850	TT82849	21.44
8-32	H5	1	TT88339	TT82852	TT82851	21.44
8-32	H7	1	-	TT82854	TT82853	21.43
8-36	H4	1	-	TT82856	TT82855	21.44
10-24	H5	1	-	TT82858	TT82857	20.61
10-24	H7	1	-	TT82860	TT82859	20.61
10-32	H3	1	TT88347	TT82862	TT82861	20.61
10-32	H5	1	TT88349	TT82864	TT82863	20.61
12-24	H5	2	-	TT82866	TT82865	20.61
12-28	H4	2	-	TT82870	TT82869	20.61
1/4-20	H5	2	TT88355	TT82872	TT82871	21.89
1/4-20	H8	2	TT88357	TT82874	TT82873	21.89
1/4-28	H4	2	TT88359	TT82878	TT82877	21.89
1/4-28	H6	2	TT88361	TT82880	TT82879	21.89
5/16-18	H8	2	TT88365	TT82884	TT82883	24.30
5/16-18	H5	2	-	TT82882	TT82881	24.30
5/16-24	H5	2	TT88367	TT82886	TT82885	24.30
5/16-24	H7	2	TT88369	TT82888	TT82887	24.30
3/8-16	H6	2	TT88371	TT82890	TT82889	27.74
3/8-16	H8	2	TT88373	TT82892	TT82891	27.74
3/8-24	H5	2	TT88375	TT82894	TT82893	27.74
3/8-24	H7	2	TT88377	TT82896	TT82895	27.74
7/16-14	H7	4	-	TT82898	TT82897	42.21
7/16-14	H9	4	-	TT82902	TT82901	42.21
7/16-20	H5	4	-	TT82904	TT82903	42.21
7/16-20	H8	4	-	TT82906	TT82905	42.21
1/2-13	H7	6	-	TT82908	TT82907	47.21
1/2-13	H10	6	-	TT82910	TT82909	47.21
1/2-20	H5	6	-	TT82912	TT82911	47.21
1/2-20	H8	6	-	TT82914	TT82913	47.21

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



## SERIES 898

HIGH SPEED STEEL - METRIC  
UNCOATED

SIZE	D LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
M1.6 x 0.35	D5	0	-	TT89690	-	23.90
M1.7 x 0.35	D5	0	-	TT89692	-	23.90
M2 x 0.4	D5	0	TT88380	TT89694	-	23.90
M2.5 x 0.45	D6	0	TT88382	TT89696	-	23.90
M3 x 0.5	D6	0	TT88384	TT89802	-	23.90
M3.5 x 0.6	D7	1	TT88386	TT89698	TT89697	21.56
M4 x 0.7	D7	1	TT88388	TT89804	TT89803	21.56
M5 x 0.8	D8	1	TT88390	TT89806	TT89805	21.56
M6 x 1.0	D9	2	TT88392	TT89808	TT89807	22.87
M8 x 1.25	D10	2	TT88394	TT89810	TT89809	26.17
M10 x 1.5	D11	2	TT88396	TT89812	TT89811	29.44
M12 x 1.75	D12	4	TT88398	TT89814	TT89813	50.80

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

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

All taps sold individually

# Thread Forming Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



## SERIES 776

HIGH SPEED STEEL  
TIN COATED

SIZE	H LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	TT88401	TT92800	-	36.30
0-80	H3	0	TT88403	TT92802	-	36.30
1-64	H3	0	-	TT92804	-	36.30
1-72	H3	0	TT88407	TT92806	-	36.30
2-56	H3	0	TT88409	TT92808	-	36.06
2-56	H4	0	TT88411	TT92810	-	36.06
2-64	H3	0	-	TT92814	-	36.06
3-48	H3	0	-	TT92818	-	36.06
3-56	H3	0	-	TT92820	-	36.06
3-56	H5	0	-	TT92822	-	36.06
4-40	H3	0	TT88421	TT92824	TT92823	32.51
4-40	H5	0	TT88423	TT92826	TT92825	32.51
4-48	H4	0	-	TT92828	-	32.51
5-40	H4	0	-	TT92832	TT92831	32.51
5-44	H4	0	-	TT92836	-	32.51
6-32	H3	1	TT88431	TT92840	TT92839	26.79
6-32	H5	1	TT88433	TT92842	TT92841	26.79
6-40	H4	1	-	TT92846	TT92845	26.79
8-32	H3	1	TT88437	TT92850	TT92849	26.79
8-32	H5	1	TT88439	TT92852	TT92851	26.79
8-32	H7	1	-	TT92854	TT92853	26.79
8-36	H4	1	-	TT92856	TT92855	26.79
10-24	H5	1	-	TT92858	TT92857	25.77
10-24	H7	1	-	TT92860	TT92859	25.77
10-32	H3	1	TT88447	TT92862	TT92861	25.77
10-32	H5	1	TT88449	TT92864	TT92863	25.77
12-24	H5	2	-	TT92866	TT92865	25.77
12-28	H4	2	-	TT92870	TT92869	25.77
1/4-20	H5	2	TT88455	TT92872	TT92871	27.36
1/4-20	H8	2	TT88457	TT92874	TT92873	27.36
1/4-28	H4	2	TT88459	TT92878	TT92877	27.36
1/4-28	H6	2	TT88461	TT92880	TT92879	27.36
5/16-18	H8	2	TT88465	TT92884	TT92883	30.38
5/16-18	H5	2	-	TT92882	TT92881	30.38
5/16-24	H5	2	TT88467	TT92886	TT92885	30.38
5/16-24	H7	2	TT88469	TT92888	TT92887	30.38
3/8-16	H6	2	TT88471	TT92890	TT92889	34.67
3/8-16	H8	2	TT88473	TT92892	TT92891	34.67
3/8-24	H5	2	TT88475	TT92894	TT92893	34.67
3/8-24	H7	2	TT88477	TT92896	TT92895	34.67
7/16-14	H7	4	-	TT92898	TT92897	52.76
7/16-14	H9	4	-	TT92902	TT92901	52.76
7/16-20	H5	4	-	TT92904	TT92903	52.76
7/16-20	H8	4	-	TT92906	TT92905	52.76
1/2-13	H7	6	-	TT92908	TT92907	59.01
1/2-13	H10	6	-	TT92910	TT92909	59.01
1/2-20	H5	6	-	TT92912	TT92911	59.01
1/2-20	H8	6	-	TT92914	TT92913	59.01

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



## SERIES 798

HIGH SPEED STEEL - METRIC  
TIN COATED

SIZE	D LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
M1.6 x 0.35	D5	0	-	TT89790	-	29.09
M1.7 x 0.35	D5	0	-	TT89792	-	29.09
M2 x 0.4	D5	0	TT88580	TT89794	-	29.09
M2.5 x 0.45	D6	0	TT88582	TT89796	-	29.09
M3 x 0.5	D6	0	TT88584	TT79802	-	29.09
M3.5 x 0.6	D7	1	TT88586	TT89798	TT89797	26.96
M4 x 0.7	D7	1	TT88588	TT79804	TT79803	26.96
M5 x 0.8	D8	1	TT88590	TT79806	TT79805	26.96
M6 x 1.0	D9	2	TT88592	TT79808	TT79807	28.58
M8 x 1.25	D10	2	TT88594	TT79810	TT79809	32.72
M10 x 1.5	D11	2	TT88596	TT79812	TT79811	36.79
M12 x 1.75	D12	4	TT88598	TT79814	TT79813	63.50

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

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

All taps sold individually

# Taper Pipe Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**

## NPT HIGH SPEED STEEL



**SERIES 775**  
UNCOATED



**SERIES 777**  
STEAM OXIDE



**SERIES 878**  
TIN COATED

SIZE	# OF FLUTES	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
1/16-27	4	TT93400	34.65	TT93400S	39.87	TT93400TIN	45.08
* 1/8-27	4	TT93401	34.65	TT93401S	39.87	TT93401TIN	45.08
1/8-27	4	TT93402	34.65	TT93402S	39.87	TT93402TIN	45.08
1/4-18	4	TT93406	38.36	TT93406S	44.11	TT93406TIN	49.89
3/8-18	4	TT93408	50.49	TT93408S	58.07	TT93408TIN	65.62
1/2-14	4	TT93410	80.29	TT93410S	92.34	TT93410TIN	104.35
3/4-14	5	TT93412	112.31	TT93412S	129.17	TT93412TIN	146.02
1-11-1/2	5	TT93414	170.68	TT93414S	196.25	TT93414TIN	204.62
1-1/4-11-1/2	5	TT93416	243.28	TT93416S	279.77	TT93416TIN	316.26
1-1/2-11-1/2	7	TT93418	326.32	TT93418S	375.30	TT93418TIN	424.21
2-11-1/2	7	TT93420	443.88	TT93420S	510.47	TT93420TIN	577.07

\* SMALL SHANK

## NPT - INTERRUPTED HIGH SPEED STEEL



**SERIES 785**  
UNCOATED



**SERIES 786**  
STEAM OXIDE



**SERIES 880**  
TIN COATED

SIZE	# OF FLUTES	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
* 1/8-27	5	TT93601	53.75	TT93601S	61.82	TT93601TIN	69.90
1/8-27	5	TT93602	53.75	TT93602S	61.82	TT93602TIN	69.90
1/4-18	5	TT93606	59.46	TT93606S	68.36	TT93606TIN	77.29
3/8-18	5	TT93608	75.23	TT93608S	86.49	TT93608TIN	97.79
1/2-14	5	TT93610	119.63	TT93610S	137.58	TT93610TIN	155.52
3/4-14	5	TT93612	174.10	TT93612S	200.19	TT93612TIN	226.31
1-11-1/2	5	TT93614	264.57	TT93614S	304.24	TT93614TIN	343.92
1-1/4-11-1/2	5	TT93616	374.66	TT93616S	430.86	TT93616TIN	487.05
1-1/2-11-1/2	7	TT93618	502.55	TT93618S	577.93	TT93618TIN	653.31
2-11-1/2	7	TT93620	679.17	TT93620S	781.05	TT93620TIN	882.89

\* SMALL SHANK

All taps sold individually.

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



## NPTF DRYSEAL HIGH SPEED STEEL



**SERIES 787**  
UNCOATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
1/16-27	4	TT93800	38.14
* 1/8-27	4	TT93801	38.14
1/8-27	4	TT93802	38.14
1/4-18	4	TT93806	42.19
3/8-18	4	TT93808	55.52
1/2-14	4	TT93810	88.33
3/4-14	5	TT93812	123.54
1-11-1/2	5	TT93814	187.73
1-1/4-11-1/2	5	TT93816	267.61
1-1/2-11-1/2	7	TT93818	358.94
2-11-1/2	7	TT93820	488.29

\* SMALL SHANK



**SERIES 883**  
TIN COATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
1/16-27	4	TT93800TIN	57.13
* 1/8-27	4	TT93801TIN	57.13
1/8-27	4	TT93802TIN	57.13
1/4-18	4	TT93806TIN	63.21
3/8-18	4	TT93808TIN	83.18
1/2-14	4	TT93810TIN	132.28
3/4-14	5	TT93812TIN	185.06
1-11-1/2	5	TT93814TIN	281.23
1-1/4-11-1/2	5	TT93816TIN	400.86
1-1/2-11-1/2	7	TT93818TIN	537.73
2-11-1/2	7	TT93820TIN	731.46

\* SMALL SHANK

**TAKE 55% OFF  
LIST PRICE!**

## NPTF DRYSEAL - INTERRUPTED HIGH SPEED STEEL



**SERIES 788**  
UNCOATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
* 1/8-27	5	TT94001	59.12
1/8-27	5	TT94002	59.12
1/4-18	5	TT94006	65.39
3/8-18	5	TT94008	82.73
1/2-14	5	TT94010	131.61
3/4-14	5	TT94012	191.48
1-11-1/2	5	TT94014	290.99
1-1/4-11-1/2	5	TT94016	412.09
1-1/2-11-1/2	7	TT94018	552.82
2-11-1/2	7	TT94020	747.07

\* SMALL SHANK



**SERIES 884**  
TIN COATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
* 1/8-27	5	TT94001TIN	88.59
1/8-27	5	TT94002TIN	88.59
1/4-18	5	TT94006TIN	97.97
3/8-18	5	TT94008TIN	123.95
1/2-14	5	TT94010TIN	197.11
3/4-14	5	TT94012TIN	286.86
1-11-1/2	5	TT94014TIN	435.93
1-1/4-11-1/2	5	TT94016TIN	617.34
1-1/2-11-1/2	7	TT94018TIN	828.08
2-11-1/2	7	TT94020TIN	1119.11

\* SMALL SHANK

All taps sold individually.

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

## STRAIGHT PIPE - NPS HIGH SPEED STEEL



**SERIES 792**  
UNCOATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
1/8-27	4	TT94201	55.37
1/4-18	4	TT94202	61.26
3/8-18	4	TT94203	80.63
1/2-14	4	TT94204	128.27
3/4-14	5	TT94205	179.39
1-11-1/2	5	TT94206	272.60



**SERIES 888**  
TIN COATED

SIZE	# OF FLUTES	ITEM#	LIST PRICE
1/8-27	4	TT94201TIN	82.96
1/4-18	4	TT94202TIN	91.78
3/8-18	4	TT94203TIN	120.80
1/2-14	4	TT94204TIN	192.12
3/4-14	5	TT94205TIN	268.73
1-11-1/2	5	TT94206TIN	408.37

## EXTENSION TAPER PIPE - NPT HIGH SPEED STEEL



**SERIES 793**  
UNCOATED

SIZE	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
1/8-27	6	4	TT94221	103.79
1/4-18	6	4	TT94223	119.63
3/8-18	6	4	TT94225	161.86
1/2-14	6	4	TT94227	259.76



**SERIES 890**  
TIN COATED

SIZE	OVERALL LENGTH	# OF FLUTES	ITEM#	LIST PRICE
1/8-27	6	4	TT94221TIN	155.48
1/4-18	6	4	TT94223TIN	179.24
3/8-18	6	4	TT94225TIN	242.49
1/2-14	6	4	TT94227TIN	389.12

**TAKE 55% OFF  
LIST PRICE!**

All taps sold individually.

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



# Spiral Flute Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

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



**SERIES 761**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
3 -48	H2	2	TT76101	36.86
3-56	H2	2	TT76103	36.86
4-40	H2	2	TT76105	30.33
4-48	H2	2	TT76107	30.33
5-40	H3	2	TT76109	30.33
5-44	H3	2	TT76111	30.33
6-32	H3	2	TT76113	24.62
6-40	H3	2	TT76115	24.62
8-32	H3	3	TT76117	24.62
8-36	H3	3	TT76119	24.62
10-24	H3	3	TT76121	24.62
10-32	H3	3	TT76123	24.62
12-24	H3	3	TT76125	26.73
12-28	H3	3	TT76127	26.73
1/4-20	H3	3	TT76129	26.73
1/4-28	H3	3	TT76131	26.73
5/16-18	H3	3	TT76133	32.92
5/16-24	H3	3	TT76135	32.92
3/8-16	H3	3	TT76137	37.99
3/8-24	H3	3	TT76139	37.99
7/16-14	H3	3	TT76141	56.94
7/16-20	H3	3	TT76143	56.94
1/2-13	H3	3	TT76145	68.54
1/2-20	H3	3	TT76147	68.54
9/16-12	H3	4	TT76149	114.34
9/16-18	H3	4	TT76151	114.34
5/8-11	H3	4	TT76153	149.21
5/8-18	H3	4	TT76155	149.21
3/4-10	H3	4	TT76157	190.99
3/4-16	H3	4	TT76159	190.99



**SERIES 763**  
HIGH SPEED STEEL - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	LIST PRICE
M3 x 0.5	D3	2	TT76349	31.19
M3.5 x 0.6	D4	3	TT76351	25.26
M4 x 0.7	D4	3	TT76353	25.26
M4.5 x 0.75	D4	3	TT76355	25.26
M5 x 0.8	D4	3	TT76357	25.26
M6 x 1.0	D5	3	TT76359	27.59
M8 x 1.25	D5	3	TT76361	34.01
M10 x 1.5	D6	3	TT76363	58.78
M12 x 1.75	D6	3	TT76365	70.76

- 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



All taps sold individually.

# Hand Tap Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## SERIES 728

HIGH SPEED STEEL - HAND TAP SETS

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H1	2	TT90003	53.08
1-72	H1	2	TT90019	49.37
2-56	H1	3	TT90031	45.65
2-56	H2	3	TT90039	42.50
* 2-64	H2	3	TT90047	45.65
3-48	H2	3	TT90059	32.69
3-56	H2	3	TT90063	36.72
4-40	H1	3	TT90071	28.83
* 4-40	H2	3	TT90079	26.84
4-48	H2	3	TT90087	28.83
5-40	H2	3	TT90103	26.84
5-44	H2	3	TT90111	28.93
6-32	H1	3	TT90119	25.36
6-32	H2	3	TT90127	21.85
* 6-32	H3	3	TT90135	20.57
6-40	H2	3	TT90151	21.85
8-32	H1	4	TT90163	25.36
8-32	H2	4	TT90175	21.85
8-32	H3	4	TT90187	21.07
* 8-36	H2	4	TT90203	21.85
10-24	H1	4	TT90211	22.49
10-24	H2	4	TT90223	22.49
10-24	H3	4	TT90235	21.85
* 10-32	H1	4	TT90255	22.49
10-32	H2	4	TT90267	22.49
10-32	H3	4	TT90279	21.85
* 12-24	H3	4	TT90291	23.05
12-28	H3	4	TT90299	25.36

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
1/4-20	H1	4	TT90307	29.32
1/4-20	H2	4	TT90314	27.94
1/4-20	H3	4	TT90326	23.48
* 1/4-28	H3	4	TT90354	23.48
5/16-18	H2	4	TT90366	32.51
5/16-18	H3	4	TT90378	28.90
* 5/16-24	H3	4	TT90402	28.90
3/8-16	H2	4	TT90417	36.58
3/8-16	H3	4	TT90425	32.62
* 3/8-24	H3	4	TT90449	32.62
7/16-14	H3	4	TT90468	56.06
7/16-20	H3	4	TT90487	56.06
1/2-13	H3	4	TT90507	58.47
1/2-20	H3	4	TT90526	66.08
9/16-12	H3	4	TT90538	98.09
9/16-18	H3	4	TT90549	98.09
5/8-11	H3	4	TT90564	117.68
5/8-18	H3	4	TT90580	117.68
11/16-11	H3	4	TT90588	146.18
11/16-16	H3	4	TT90592	146.18
3/4-10	H3	4	TT90603	164.67
3/4-16	H3	4	TT90618	164.67
7/8-9	H4	4	TT90629	229.58
7/8-14	H4	4	TT90639	229.58
1-8	H4	4	TT90649	305.26
1-12	H4	4	TT90656	305.26
1-14	H4	4	TT90663	305.26

\* popular size when multiple options available

For technical information, please see page 237.

HP TAPS  
TAPS  
DIES

# Hand Tap Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



## SERIES 758

HIGH SPEED STEEL - HAND TAP SETS - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	LIST PRICE
M2 x 0.4	D3	3	TT93100	70.93
M3 x 0.5	D3	3	TT93102	36.37
M4 x 0.7	D4	4	TT93104	30.07
M5 x 0.8	D4	4	TT93106	30.07
M6 x 1.0	D5	4	TT93108	31.73
M7 x 1.0	D5	4	TT93110	31.77
M8 x 1.25	D5	4	TT93112	31.77
M10 x 1.25	D5	4	TT93114	65.20
M10 x 1.50	D6	4	TT93116	65.20
M12 x 1.25	D5	4	TT93118	76.46
M12 x 1.75	D6	4	TT93120	76.46
M14 x 1.5	D6	4	TT93122	114.31
M14 x 2.0	D7	4	TT93124	114.31
M16 x 1.5	D6	4	TT93126	139.28
M16 x 2.0	D7	4	TT93128	139.28
M18 x 1.5	D6	4	TT93130	187.58
M18 x 2.5	D7	4	TT93132	187.58
M20 x 2.5	D7	4	TT93134	242.61
M24 x 3.0	D8	4	TT93136	355.01

For technical information, please see page 237.

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 725**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
* 0-80	H1	2	TT90000	TT90001	TT90002	17.71
0-80	H2	2	-	TT90005	TT90006	17.71
1-64	H1	2	-	TT90009	TT90010	16.47
* 1-72	H1	2	TT90016	TT90017	TT90018	16.47
1-72	H2	2	-	TT90021	TT90022	16.47
2-56	H1	3	TT90028	TT90029	TT90030	15.23
2-56	H2	2	-	TT90033	TT90034	15.23
* 2-56	H2	3	TT90036	TT90037	TT90038	14.17
2-64	H2	3	TT90044	TT90045	TT90046	15.23
3-48	H2	2	-	TT90053	-	12.39
* 3-48	H2	3	TT90056	TT90057	TT90058	10.91
3-56	H2	3	TT90060	TT90061	TT90062	12.25
4-40	H1	2	-	TT90065	-	10.02
4-40	H1	3	TT90068	TT90069	TT90070	9.63
4-40	H2	2	-	TT90073	TT90074	9.63
* 4-40	H2	3	TT90076	TT90077	TT90078	8.96
4-48	H2	3	TT90084	TT90085	TT90086	9.63
4-36	H2	3	-	TT90089	-	9.63
5-40	H1	3	-	TT90093	TT90094	9.63
5-40	H2	2	-	TT90097	TT90098	9.63
* 5-40	H2	3	TT90100	TT90101	TT90102	8.96
5-44	H2	3	TT90108	TT90109	TT90110	9.63
6-32	H1	3	TT90116	TT90117	TT90118	8.46
6-32	H2	2	-	TT90121	TT90122	8.46
* 6-32	H2	3	TT90124	TT90125	TT90126	7.26
6-32	H3	2	-	TT90129	TT90130	7.26
6-32	H3	3	TT90132	TT90133	TT90134	6.87
6-32	H7	3	-	TT90137	TT90138	8.46
6-40	H2	2	-	TT90145	-	8.46
* 6-40	H2	3	TT90148	TT90149	TT90150	7.26
8-32	H1	3	-	TT90157	TT90158	8.46
8-32	H1	4	TT90160	TT90161	TT90162	8.46
8-32	H2	2	-	TT90165	TT90166	8.46
8-32	H2	3	-	TT90169	TT90170	8.46
8-32	H2	4	TT90172	TT90173	TT90174	7.26
8-32	H3	2	-	TT90177	TT90178	7.26
8-32	H3	3	-	TT90181	TT90182	7.26
* 8-32	H3	4	TT90184	TT90185	TT90186	7.01

\* popular size when multiple options available

All taps sold individually.  
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 PRICE!**



**SERIES 725**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
8-32	H7	3	-	TT90189	TT90190	8.46
8-36	H1	4	-	TT90197	-	8.46
* 8-36	H2	4	TT90200	TT90201	TT90202	7.26
10-24	H1	3	-	TT90205	-	8.46
10-24	H1	4	TT90208	TT90209	TT90210	7.51
10-24	H2	2	-	TT90213	TT90214	8.46
10-24	H2	3	-	TT90217	-	8.46
10-24	H2	4	TT90220	TT90221	TT90222	7.51
10-24	H3	2	-	TT90225	TT90226	7.51
10-24	H3	3	-	TT90229	TT90230	7.51
* 10-24	H3	4	TT90232	TT90233	TT90234	7.26
10-24	H7	3	-	TT90237	TT90238	8.46
10-24	H7	4	-	TT90241	TT90242	8.46
10-32	H1	2	-	TT90245	TT90246	8.46
10-32	H1	3	-	TT90249	-	8.46
10-32	H1	4	TT90252	TT90253	TT90254	7.51
10-32	H2	2	-	TT90257	TT90258	8.46
10-32	H2	3	-	TT90261	TT90262	8.46
10-32	H2	4	TT90264	TT90265	TT90266	7.51
10-32	H3	2	-	TT90269	TT90270	7.51
10-32	H3	3	-	TT90273	TT90274	7.51
* 10-32	H3	4	TT90276	TT90277	TT90278	7.26
12-24	H3	4	TT90288	TT90289	TT90290	7.68
12-28	H3	4	TT90296	TT90297	TT90298	8.46
1/4-20	H1	3	-	TT90301	-	9.77
1/4-20	H1	4	TT90304	TT90305	TT90306	9.77
1/4-20	H2	3	-	TT90309	-	9.77
1/4-20	H2	4	TT90311	TT90312	TT90313	9.31
1/4-20	H3	2	-	TT90316	TT90317	9.77
1/4-20	H3	3	-	TT90320	TT90321	9.31
* 1/4-20	H3	4	TT90323	TT90324	TT90325	7.83
1/4-20	H5	3	-	TT90328	TT90329	9.77
1/4-20	H5	4	-	TT90332	TT90333	9.31
1/4-28	H1	4	-	TT90336	TT90337	9.31
1/4-28	H2	4	-	TT90340	TT90341	9.77
1/4-28	H3	2	-	TT90344	TT90345	9.77
1/4-28	H3	3	-	TT90348	TT90349	9.77
* 1/4-28	H3	4	TT90351	TT90352	TT90353	7.83

\* popular size when multiple options available

All taps sold individually.  
For technical information, please see page 237.

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 725**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
1/4-28	H4	4	-	TT90356	TT90357	9.77
5/16-18	H1	4	TT90359	TT90360	TT90361	10.84
5/16-18	H2	4	TT90363	TT90364	TT90365	10.84
5/16-18	H3	2	-	TT90368	TT90369	12.18
5/16-18	H3	3	-	TT90372	TT90373	10.84
* 5/16-18	H3	4	TT90375	TT90376	TT90377	9.63
5/16-18	H5	3	-	TT90380	TT90381	12.18
5/16-18	H5	4	-	TT90384	TT90385	10.84
5/16-24	H1	4	-	TT90388	TT90389	10.84
5/16-24	H2	4	-	TT90392	-	10.84
5/16-24	H3	3	-	TT90396	TT90397	10.84
* 5/16-24	H3	4	TT90399	TT90400	TT90401	9.63
5/16-24	H4	4	-	TT90404	TT90405	10.84
3/8-16	H1	3	-	TT90408	-	13.88
3/8-16	H2	4	TT90414	TT90415	TT90416	12.18
3/8-16	H3	3	-	TT90419	TT90420	12.18
* 3/8-16	H3	4	TT90422	TT90423	TT90424	10.87
3/8-16	H5	3	-	TT90427	TT90428	13.88
3/8-16	H5	4	-	TT90431	TT90432	12.18
3/8-24	H3	3	-	TT90443	TT90444	13.88
* 3/8-24	H3	4	TT90446	TT90447	TT90448	10.87
3/8-24	H4	4	-	TT90451	TT90452	12.18
7/16-14	H2	4	-	TT90459	TT90460	20.54
7/16-14	H3	3	-	TT90463	-	20.54
* 7/16-14	H3	4	TT90465	TT90466	TT90467	18.70
7/16-14	H5	4	-	TT90470	TT90471	20.54
7/16-20	H2	4	-	TT90478	TT90479	20.54
7/16-20	H3	3	-	TT90482	-	20.54
* 7/16-20	H3	4	TT90484	TT90485	TT90486	18.70
7/16-20	H5	4	-	TT90489	TT90490	20.54
1/2-13	H1	4	-	TT90493	TT90494	23.97
1/2-13	H2	4	-	TT90497	TT90498	23.97
1/2-13	H3	3	-	TT90501	TT90502	23.97
* 1/2-13	H3	4	TT90504	TT90505	TT90506	19.48
1/2-13	H5	4	-	TT90509	TT90510	24.33
1/2-20	H1	4	TT90512	TT90513	TT90514	23.97
1/2-20	H3	3	-	TT90521	-	23.97
* 1/2-20	H3	4	TT90523	TT90524	TT90525	22.03
1/2-20	H5	4	-	TT90528	TT90529	23.97

\* popular size when multiple options available

All taps sold individually.  
For technical information, please see page 237.

HP TAPS  
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# Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



**SERIES 725**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
9/16-12	H2	4	-	TT90532	-	35.63
* 9/16-12	H3	4	TT90535	TT90536	TT90537	32.69
9/16-12	H5	4	-	TT90540	TT90541	35.63
9/16-18	H2	4	-	TT90544	-	35.63
* 9/16-18	H3	4	TT90546	TT90547	TT90548	32.69
9/16-18	H5	4	-	TT90551	TT90552	35.63
* 5/8-11	H3	4	TT90561	TT90562	TT90563	39.24
5/8-11	H5	4	-	TT90566	TT90567	45.12
5/8-18	H2	4	-	TT90574	TT90575	45.12
* 5/8-18	H3	4	TT90577	TT90578	TT90579	39.24
11/16-11	H3	4	TT90585	TT90586	TT90587	48.73
11/16-16	H3	4	TT90589	TT90590	TT90591	48.73
3/4-10	H2	4	-	TT90597	-	59.32
* 3/4-10	H3	4	TT90600	TT90601	TT90602	54.93
3/4-10	H5	4	-	TT90605	TT90606	59.32
3/4-16	H2	4	-	TT90612	-	59.32
* 3/4-16	H3	4	TT90615	TT90616	TT90617	54.93
3/4-16	H5	4	-	TT90620	TT90621	59.32
* 7/8-9	H4	4	TT90626	TT90627	TT90628	76.53
7/8-9	H6	4	-	TT90631	-	80.35
7/8-14	H2	4	-	TT90634	-	80.35
* 7/8-14	H4	4	TT90636	TT90637	TT90638	76.53
7/8-14	H6	4	-	TT90641	-	80.35
1-8	H2	4	-	TT90644	-	104.79
* 1-8	H4	4	TT90646	TT90647	TT90648	101.74
1-8	H6	4	-	TT90651	-	104.79
1-12	H4	4	TT90653	TT90654	TT90655	101.74
1-14	H2	4	-	TT90658	-	104.79
* 1-14	H4	4	TT90660	TT90661	TT90662	101.74
1-14	H6	4	TT90664	TT90665	TT90666	104.79
1-1/8-7	H4	4	TT90668	TT90669	TT90670	164.67
1-1/8-12	H4	4	TT90672	TT90673	TT90674	174.41
1-1/4-7	H4	4	TT90676	TT90677	TT90678	216.16
1-1/4-12	H4	6	TT90680	TT90681	TT90682	219.91
1-3/8-6	H4	4	TT90684	TT90685	TT90686	271.58
1-3/8-12	H4	6	TT90688	TT90689	TT90690	273.49
1-1/2-6	H4	4	TT90692	TT90693	TT90694	313.62
1-1/2-12	H4	6	TT90696	TT90697	TT90698	319.39

\* popular size when multiple options available

All taps sold individually.  
For technical information, please see page 237.



# Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**SERIES 726**  
HIGH SPEED STEEL  
STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
0-80	H1	2	TT90000S	TT90001S	TT90002S	20.36
2-56	H2	3	TT90036S	TT90037S	TT90038S	16.33
3-48	H2	3	TT90056S	TT90057S	TT90058S	12.57
4-40	H2	3	TT90076S	TT90077S	TT90078S	10.31
4-48	H2	3	TT90084S	TT90085S	TT90086S	11.08
5-40	H2	3	TT90100S	TT90101S	TT90102S	10.31
6-32	H2	3	TT90124S	TT90125S	TT90126S	8.39
6-40	H2	3	TT90148S	TT90149S	TT90150S	8.39
8-32	H3	4	TT90184S	TT90185S	TT90186S	8.11
8-36	H2	4	TT90200S	TT90201S	TT90202S	8.39
10-24	H3	4	TT90232S	TT90233S	TT90234S	8.39
10-32	H3	4	TT90276S	TT90277S	TT90278S	8.39
12-24	H3	4	TT90288S	TT90289S	TT90290S	8.85
12-28	H3	4	TT90296S	TT90297S	TT90298S	9.74
1/4-20	H3	4	TT90323S	TT90324S	TT90325S	8.99
1/4-28	H3	4	TT90351S	TT90352S	TT90353S	8.99
5/16-18	H3	4	TT90375S	TT90376S	TT90377S	11.08
5/16-24	H3	4	TT90399S	TT90400S	TT90401S	11.08
3/8-16	H3	4	TT90422S	TT90423S	TT90424S	12.50
3/8-24	H3	4	TT90446S	TT90447S	TT90448S	12.50
7/16-14	H3	4	TT90465S	TT90466S	TT90467S	21.53
7/16-20	H3	4	TT90484S	TT90485S	TT90486S	21.53
1/2-13	H3	4	TT90504S	TT90505S	TT90506S	22.42
1/2-20	H3	4	TT90523S	TT90524S	TT90525S	25.36
9/16-12	H3	4	TT90535S	TT90536S	TT90537S	37.57
9/16-18	H3	4	TT90546S	TT90547S	TT90548S	37.57
5/8-11	H3	4	TT90561S	TT90562S	TT90563S	45.12
5/8-18	H3	4	TT90577S	TT90578S	TT90579S	45.12
3/4-10	H3	4	TT90600S	TT90601S	TT90602S	63.14
3/4-16	H3	4	TT90615S	TT90616S	TT90617S	63.14
7/8-9	H4	4	TT90626S	TT90627S	TT90628S	88.04
7/8-14	H4	4	TT90636S	TT90637S	TT90638S	88.04
1-8	H4	4	TT90646S	TT90647S	TT90648S	116.93
1-12	H4	4	TT90653S	TT90654S	TT90655S	116.93
1-14	H4	4	TT90660S	TT90661S	TT90662S	116.93
1-1/8-7	H4	4	TT90668S	TT90669S	TT90670S	189.35
1-1/8-12	H4	4	TT90672S	TT90673S	TT90674S	200.58
1-1/4-7	H4	4	TT90676S	TT90677S	TT90678S	248.56
1-1/4-12	H4	6	TT90680S	TT90681S	TT90682S	252.88
1-3/8-6	H4	4	TT90684S	TT90685S	TT90686S	312.31
1-3/8-12	H4	6	TT90688S	TT90689S	TT90690S	314.50
1-1/2-6	H4	4	TT90692S	TT90693S	TT90694S	360.64
1-1/2-12	H4	6	TT90696S	TT90697S	TT90698S	367.30

**STEAM OXIDE:** A BLACK OXIDE TREATMENT 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).

**All taps sold individually.  
For technical information, please see page 237.**

HP TAPS  
TAPS  
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# Hand Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



**SERIES 727**  
HIGH SPEED STEEL  
NITRIDE & STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4-40	H2	3	TT90077NS	TT90078NS	10.31
6-32	H2	3	TT90125NS	TT90126NS	8.39
6-40	H2	3	TT90149NS	TT90150NS	8.39
8-32	H3	4	TT90185NS	TT90186NS	8.11
10-24	H3	4	TT90233NS	TT90234NS	8.39
10-32	H3	4	TT90277NS	TT90278NS	8.39
1/4-20	H3	4	TT90324NS	TT90325NS	8.99
1/4-28	H3	4	TT90352NS	TT90353NS	8.99
5/16-18	H3	4	TT90376NS	TT90377NS	11.08
3/8-16	H3	4	TT90423NS	TT90424NS	12.50
3/8-24	H3	4	TT90447NS	TT90448NS	12.50
7/16-14	H3	4	TT90466NS	TT90467NS	21.53
7/16-20	H3	4	TT90485NS	TT90486NS	21.53
1/2-13	H3	4	TT90505NS	TT90506NS	22.42
1/2-20	H3	4	TT90524NS	TT90525NS	25.36
9/16-12	H3	4	TT90536NS	TT90537NS	37.57
9/16-18	H3	4	TT90547NS	TT90548NS	37.57
5/8-11	H3	4	TT90562NS	TT90563NS	45.12
5/8-18	H3	4	TT90578NS	TT90579NS	45.12
3/4-10	H3	4	TT90601NS	TT90602NS	63.14
3/4-16	H3	4	TT90616NS	TT90617NS	63.14
7/8-9	H4	4	TT90627NS	TT90628NS	88.04
7/8-14	H4	4	TT90637NS	TT90638NS	88.04
1-8	H4	4	TT90647NS	TT90648NS	116.93
1-1/8-7	H4	4	TT90669NS	TT90670NS	189.35
1-1/4-7	H4	4	TT90677NS	TT90678NS	248.56
1-1/4-12	H4	6	TT90681NS	TT90682NS	252.88
1-1/2-6	H4	4	TT90693NS	TT90694NS	360.64
1-1/2-12	H4	6	TT90697NS	TT90698NS	367.30

**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).

All taps sold individually.  
For technical information, please see page 237.

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 729**  
HIGH SPEED STEEL  
TIN COATED

SIZE	D LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
0 - 80	H1	2	TT75200	TT75201	TT75202	31.87
2 - 56	H2	3	TT75223	TT75224	TT75225	25.53
4 - 40	H2	3	TT75249	TT75250	TT75251	16.10
5 - 40	H2	3	TT75266	TT75267	TT75268	16.10
6 - 32	H3	3	TT75288	TT75289	TT75290	12.35
8 - 32	H3	4	TT75319	TT75320	TT75321	12.65
10 - 24	H3	4	TT75348	TT75349	TT75350	13.10
10 - 32	H3	4	TT75375	TT75376	TT75377	13.10
12 - 24	H3	4	TT75383	TT75384	TT75385	13.85
12 - 28	H3	4	TT75388	TT75389	TT75390	15.24
1/4 - 20	H3	4	TT75406	TT75407	TT75408	14.08
1/4 - 28	H3	4	TT75422	TT75423	TT75424	14.08
5/16 - 18	H3	4	TT75439	TT75440	TT75441	17.38
5/16 - 24	H3	4	TT75454	TT75455	TT75456	17.38
3/8 - 16	H3	4	TT75469	TT75470	TT75471	19.59
3/8 - 24	H3	4	TT75484	TT75485	TT75486	19.59
7/16 - 14	H3	4	TT75495	TT75496	TT75497	33.67
7/16 - 20	H3	4	TT75506	TT75507	TT75508	33.67
1/2 - 13	H3	4	TT75518	TT75519	TT75520	35.10
1/2 - 20	H3	4	TT75530	TT75531	TT75532	39.68
9/16 - 18	H3	4	TT75544	TT75545	TT75546	53.90
5/8 - 11	H3	4	TT75552	TT75553	TT75554	70.72
5/8 - 18	H3	4	TT75561	TT75562	TT75563	70.72
3/4 - 10	H3	4	TT75577	TT75578	TT75579	98.95
3/4 - 16	H3	4	TT75585	TT75586	TT75587	98.95
1 - 8	H4	4	TT75604	TT75605	TT75606	167.91

All taps sold individually.

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 PRICE!**



**SERIES 755**  
HIGH SPEED STEEL  
METRIC  
UNCOATED

SIZE	D LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
M1.6 x 0.35	D3	2	-	TT93002	-	23.66
M2 x 0.4	D3	3	TT93007	TT93008	TT93009	23.66
M2.5 x 0.45	D3	3	-	TT93014	-	14.55
M3 x 0.5	D3	3	TT93016	TT93017	TT93018	12.11
M3.5 x 0.6	D4	3	-	TT93020	-	10.02
M4 x 0.7	D4	4	TT93022	TT93023	TT93024	10.02
M4.5 x 0.75	D4	4	-	TT93026	-	10.02
M5 x 0.8	D4	4	TT93028	TT93029	TT93030	10.02
M6 x 1.0	D5	4	TT93031	TT93032	TT93033	10.59
M7 x 1.0	D5	4	TT93037	TT93038	TT93039	10.59
M8 x 1.25	D5	4	TT93043	TT93044	TT93045	10.59
M10 x 1.25	D5	4	TT93046	TT93047	TT93048	21.74
M10 x 1.50	D6	4	TT93049	TT93050	TT93051	21.74
M12 x 1.25	D5	4	TT93052	TT93053	TT93054	25.50
M12 x 1.75	D6	4	TT93055	TT93056	TT93057	25.50
M14 x 1.5	D6	4	TT93058	TT93059	TT93060	38.10
M14 x 2.0	D7	4	TT93061	TT93062	TT93063	38.10
M16 x 1.5	D6	4	TT93064	TT93065	TT93066	46.43
M16 x 2.0	D7	4	TT93067	TT93068	TT93069	46.43
M18 x 1.5	D6	4	TT93070	TT93071	TT93072	62.54
M18 x 2.5	D7	4	TT93073	TT93074	TT93075	62.54
M20 x 2.5	D7	4	TT93076	TT93077	TT93078	80.88
M24 x 3.0	D8	4	TT93082	TT93083	TT93084	118.35
M27 x 3.0	D8	4	TT93085	TT93086	TT93087	204.54
M30 x 3.5	D9	4	TT93088	TT93089	TT93090	261.24
M33 x 3.5	D9	4	TT93091	TT93092	TT93093	260.53
M36 x 4.0	D9	4	TT93094	TT93095	TT93096	330.40

All taps sold individually.  
For technical information, please see page 237.



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 757**  
HIGH SPEED STEEL  
METRIC  
TIN COATED

SIZE	D LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
M1.6 x 0.35	D3	2	-	TT75700	-	42.61
M2 x 0.4	D3	3	TT75702	TT75704	TT75706	42.61
M2.5 x 0.45	D3	3	-	TT75708	-	26.20
M3 x 0.5	D3	3	TT75710	TT75712	TT75714	21.85
M3.5 x 0.6	D4	3	-	TT75716	-	18.06
M4 x 0.7	D4	4	TT75718	TT75720	TT75722	18.06
M4.5 x 0.75	D4	4	-	TT75724	-	18.06
M5 x 0.8	D4	4	TT75726	TT75728	TT75730	18.06
M6 x 1.0	D5	4	TT75732	TT75734	TT75736	19.07
M7 x 1.0	D5	4	TT75738	TT75740	TT75742	19.11
M8 x 1.25	D5	4	TT75744	TT75746	TT75748	19.11
M10 x 1.25	D5	4	TT75750	TT75752	TT75754	39.15
M10 x 1.50	D6	4	TT75756	TT75758	TT75760	39.15
M12 x 1.25	D5	4	TT75762	TT75764	TT75766	45.91
M12 x 1.75	D6	4	TT75768	TT75770	TT75772	45.91
M14 x 1.5	D6	4	TT75774	TT75776	TT75778	68.66
M14 x 2.0	D7	4	TT75780	TT75782	TT75784	68.66
M16 x 1.5	D6	4	TT75786	TT75788	TT75790	83.67
M16 x 2.0	D7	4	TT75792	TT75794	TT75796	83.67
M18 x 1.5	D6	4	TT75798	TT75800	TT75802	112.65
M18 x 2.5	D7	4	TT75804	TT75806	TT75808	112.65
M20 x 2.5	D7	4	TT75810	TT75812	TT75814	145.72
M24 x 3.0	D8	4	TT75816	TT75818	TT75820	213.25
M27 x 3.0	D8	4	TT75822	TT75824	TT75826	368.58
M30 x 3.5	D9	4	TT75828	TT75830	TT75832	470.72
M33 x 3.5	D9	4	TT75834	TT75836	TT75838	469.48
M36 x 4.0	D9	4	TT75840	TT75842	TT75844	595.42



All taps sold individually.

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

HP TAPS  
TAPS  
DIES

# Spiral Point Plug Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



**SERIES 750**  
HIGH SPEED STEEL  
UNCOATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H1	2	TT91000	21.81
* 0-80	H2	2	TT91001	21.81
1-64	H1	2	TT91002	19.69
* 1-64	H2	2	TT91003	19.69
1-72	H1	2	TT91004	19.69
* 1-72	H2	2	TT91005	19.69
2-56	H1	2	TT91006	18.73
* 2-56	H2	2	TT91007	16.72
2-64	H1	2	TT91008	18.73
* 2-64	H2	2	TT91009	18.73
3-48	H1	2	TT91010	13.42
* 3-48	H2	2	TT91011	13.42
3-56	H1	2	TT91012	16.43
* 3-56	H2	2	TT91013	14.94
4-40	H1	2	TT91014	12.25
* 4-40	H2	2	TT91015	10.77
4-48	H1	2	TT91016	12.47
* 4-48	H2	2	TT91017	12.25
4-36	H2	2	TT91018	12.25
5-40	H1	2	TT91019	12.25
* 5-40	H2	2	TT91020	10.77
5-44	H2	2	TT91021	12.25
6-32	H1	2	TT91022	10.77
6-32	H2	2	TT91023	9.07
* 6-32	H3	2	TT91024	9.07
6-32	H7	2	TT91025	10.27
6-40	H1	2	TT91026	10.27
* 6-40	H2	2	TT91027	10.27
8-32	H1	2	TT91028	10.27
8-32	H2	2	TT91029	9.07
* 8-32	H3	2	TT91030	9.07
8-32	H7	2	TT91031	10.27
8-36	H1	2	TT91032	10.27

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
* 8-36	H2	2	TT91033	10.27
10-24	H1	2	TT91034	11.23
10-24	H2	2	TT91035	10.27
* 10-24	H3	2	TT91036	9.07
10-24	H7	2	TT91037	11.23
10-32	H1	2	TT91038	10.27
10-32	H2	2	TT91039	9.07
* 10-32	H3	2	TT91040	9.07
10-32	H7	2	TT91041	11.23
12-24	H1	2	TT91042	10.27
* 12-24	H3	2	TT91043	10.27
12-28	H3	2	TT91044	10.27
1/4-20	H1	2	TT91045	10.27
1/4-20	H2	2	TT91046	10.27
* 1/4-20	H3	2	TT91047	9.07
1/4-20	H3	3	TT91048	11.23
1/4-20	H5	2	TT91049	10.23
1/4-28	H5	3	TT91050	11.23
1/4-28	H1	2	TT91051	11.23
1/4-28	H2	2	TT91052	10.23
1/4-28	H2	3	TT91053	11.23
1/4-28	H3	2	TT91054	9.07
* 1/4-28	H4	2	TT91055	11.23
1/4-28	H4	3	TT91056	11.23
5/16-18	H1	2	TT91057	12.93
5/16-18	H2	2	TT91058	11.23
* 5/16-18	H3	2	TT91059	9.77
5/16-18	H3	3	TT91060	12.93
5/16-18	H5	2	TT91061	11.23
5/16-18	H5	3	TT91062	12.93
5/16-24	H1	2	TT91063	12.93
5/16-24	H2	2	TT91064	12.93
5/16-24	H2	3	TT91065	12.93

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
* 5/16-24	H3	2	TT91066	11.41
5/16-24	H4	2	TT91067	12.93
5/16-24	H4	3	TT91068	12.93
3/8-16	H1	3	TT91069	14.48
3/8-16	H2	3	TT91070	13.46
* 3/8-16	H3	3	TT91071	11.58
3/8-16	H5	3	TT91072	14.59
3/8-24	H1	3	TT91073	14.70
3/8-24	H2	3	TT91074	14.70
* 3/8-24	H3	3	TT91075	12.47
3/8-24	H4	3	TT91076	14.70
7/16-14	H2	3	TT91077	21.50
* 7/16-14	H3	3	TT91078	19.69
7/16-14	H5	3	TT91079	21.50
7/16-20	H2	3	TT91080	21.50
* 7/16-20	H3	3	TT91081	19.69
7/16-20	H5	3	TT91082	21.50
1/2-13	H1	3	TT91083	26.31
1/2-13	H2	3	TT91084	26.31
* 1/2-13	H3	3	TT91085	20.08
1/2-13	H5	3	TT91086	23.69
1/2-20	H1	3	TT91087	26.31
1/2-20	H2	3	TT91088	26.31
* 1/2-20	H3	3	TT91089	23.59
1/2-20	H5	3	TT91090	26.31
9/16-12	H3	3	TT91091	32.79
9/16-18	H3	3	TT91092	32.79
* 5/8-11	H3	3	TT91093	44.76
5/8-11	H5	3	TT91094	44.76
5/8-18	H3	3	TT91095	44.76
* 3/4-10	H3	3	TT91096	63.14
3/4-10	H5	3	TT91097	63.14
3/4-16	H3	3	TT91098	63.14

\* popular size when multiple options available

All taps sold individually.  
For technical information, please see page 237.

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 751**  
HIGH SPEED STEEL  
STEAM OXIDE



**SERIES 752**  
HIGH SPEED STEEL  
NITRIDE & STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H2	2	TT91001S	25.11
1-64	H2	2	TT91003S	22.70
1-72	H2	2	TT91005S	22.70
2-56	H2	2	TT91007S	19.26
2-64	H2	2	TT91009S	21.57
3-48	H2	2	TT91011S	15.44
3-56	H2	2	TT91013S	17.21
4-40	H2	2	TT91015S	12.39
4-48	H2	2	TT91017S	14.13
4-36	H2	2	TT91018S	14.13
5-40	H2	2	TT91020S	12.39
5-44	H2	2	TT91021S	14.13
6-32	H3	2	TT91024S	10.41
6-40	H2	2	TT91027S	11.83
8-32	H3	2	TT91030S	10.41
8-36	H2	2	TT91033S	11.83
10-24	H3	2	TT91036S	10.41
10-32	H3	2	TT91040S	10.41
12-24	H3	2	TT91043S	11.83
1/4-20	H3	2	TT91047S	10.41
1/4-28	H3	2	TT91054S	10.41
5/16-18	H3	2	TT91059S	11.26
5/16-24	H3	2	TT91066S	12.00
3/8-16	H3	3	TT91071S	13.35
3/8-24	H3	3	TT91075S	14.34
7/16-14	H3	3	TT91078S	22.70
7/16-20	H3	3	TT91081S	22.70
1/2-13	H3	3	TT91085S	23.12
1/2-20	H3	3	TT91089S	27.13
9/16-12	H3	3	TT91091S	37.71
9/16-18	H3	3	TT91092S	37.71
5/8-11	H3	3	TT91093S	51.49
5/8-18	H3	3	TT91095S	51.49
3/4-10	H3	3	TT91096S	72.63
3/4-16	H3	3	TT91098S	72.63

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
4-40	H2	2	TT91015NS	12.39
4-48	H2	2	TT91017NS	14.13
4-36	H2	2	TT91018NS	14.13
5-40	H2	2	TT91020NS	12.39
5-44	H2	2	TT91021NS	14.13
6-32	H3	2	TT91024NS	10.41
6-40	H2	2	TT91027NS	11.83
8-32	H3	2	TT91030NS	10.41
8-36	H2	2	TT91033NS	11.83
10-24	H3	2	TT91036NS	10.41
10-32	H3	2	TT91040NS	10.41
12-24	H3	2	TT91043NS	11.83
1/4-20	H3	2	TT91047NS	10.41
1/4-28	H3	2	TT91054NS	10.41
5/16-18	H3	2	TT91059NS	11.26
5/16-24	H3	2	TT91066NS	11.26
3/8-16	H3	3	TT91071NS	13.35
3/8-24	H3	3	TT91075NS	14.34
7/16-14	H3	3	TT91078NS	22.70
7/16-20	H3	3	TT91081NS	22.70
1/2-13	H3	3	TT91085NS	23.12
1/2-20	H3	3	TT91089NS	27.13
9/16-12	H3	3	TT91091NS	37.71
9/16-18	H3	3	TT91092NS	37.71
5/8-11	H3	3	TT91093NS	51.49
5/8-18	H3	3	TT91095NS	51.49
3/4-10	H3	3	TT91096NS	72.63
3/4-16	H3	3	TT91098NS	72.63

**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).

**STEAM OXIDE:** A BLACK OXIDE TREATMENT 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).

All taps sold individually.  
For technical information, please see page 237.

HP TAPS  
TAPS  
DIES

# Spiral Point Plug Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



**SERIES 760**  
HIGH SPEED STEEL  
TIN COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H2	2	TT99401	32.28
2-56	H2	2	TT99407	25.90
4-40	H2	2	TT99415	18.32
5-40	H2	2	TT99420	18.32
6-32	H3	2	TT99424	17.12
8-32	H3	2	TT99430	17.12
10-24	H3	2	TT99436	17.12
10-32	H3	2	TT99440	17.12
12-24	H3	2	TT99443	18.69
12-28	H3	2	TT99444	18.69
1/4-20	H3	2	TT99447	17.12
1/4-28	H3	2	TT99454	17.12
5/16-18	H3	2	TT99459	19.77
5/16-24	H3	2	TT99466	19.77
3/8-16	H3	3	TT99471	22.00
3/8-24	H3	3	TT99475	23.12
7/16-14	H3	3	TT99478	36.37
7/16-20	H3	3	TT99481	36.37
1/2-13	H3	3	TT99485	36.86
1/2-20	H3	3	TT99489	41.18
5/8-11	H3	3	TT99493	85.21
5/8-18	H3	3	TT99495	85.21
3/4-10	H3	3	TT99496	111.26
3/4-16	H3	3	TT99498	111.26

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



**SERIES 762**  
HIGH SPEED STEEL  
ALTIM COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H2	2	TT98001	32.28
2-56	H2	2	TT98002	25.90
4-40	H2	2	TT98003	18.32
5-40	H2	2	TT98004	18.32
6-32	H3	2	TT98005	17.12
8-32	H3	2	TT98006	17.12
10-24	H3	2	TT98007	17.12
10-32	H3	2	TT98008	17.12
12-24	H3	2	TT98009	18.69
12-28	H3	2	TT98010	18.69
1/4-20	H3	2	TT98011	17.12
1/4-28	H3	2	TT98012	17.12
5/16-18	H3	2	TT98013	19.77
5/16-24	H3	2	TT98014	19.77
3/8-16	H3	3	TT98015	22.00
3/8-24	H3	3	TT98016	23.12
7/16-14	H3	3	TT98017	36.37
7/16-20	H3	3	TT98018	36.37
1/2-13	H3	3	TT98019	36.86
1/2-20	H3	3	TT98020	41.18
5/8-11	H3	3	TT98021	85.21
5/8-18	H3	3	TT98022	85.21
3/4-10	H3	3	TT98023	111.26
3/4-16	H3	3	TT98024	111.26

**ALTIM 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.



All taps sold individually.

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

**TAKE 55% OFF LIST PRICE!**

## SPIRAL POINT PLUG TAPS



**SERIES 780**  
HIGH SPEED STEEL - METRIC  
UNCOATED

SIZE	D LIMIT	# OF FLUTES	ITEM#	LIST PRICE
M2 x 0.4	D3	2	TT93208	24.15
M2.5 x 0.45	D3	2	TT93214	17.32
M3 x 0.5	D3	2	TT93217	13.92
M3.5 x 0.6	D4	2	TT93220	12.00
M4 x 0.7	D4	2	TT93223	12.00
M4.5 x 0.75	D4	2	TT93226	12.00
M5 x 0.8	D4	2	TT93229	12.00
M6 x 1.0	D5	2	TT93232	12.00
M7 x 1.0	D5	2	TT93238	13.88
M8 x 1.25	D5	2	TT93244	13.88
M10 x 1.50	D6	3	TT93250	23.05
M12 x 1.75	D6	3	TT93256	28.86
M14 x 2.0	D7	3	TT93262	44.80
M16 x 2.0	D7	3	TT93268	50.75
M18 x 2.5	D7	3	TT93274	74.65
M20 x 2.5	D7	3	TT93277	98.52



**SERIES 882**  
HIGH SPEED STEEL - METRIC  
TIN COATED

SIZE	D LIMIT	# OF FLUTES	ITEM#	LIST PRICE
M2 x 0.4	D3	2	TT93208TIN	33.30
M2.5 x 0.45	D3	2	TT93214TIN	23.87
M3 x 0.5	D3	2	TT93217TIN	19.22
M3.5 x 0.6	D4	2	TT93220TIN	16.55
M4 x 0.7	D4	2	TT93223TIN	16.55
M4.5 x 0.75	D4	2	TT93226TIN	16.55
M5 x 0.8	D4	2	TT93229TIN	16.55
M6 x 1.0	D5	2	TT93232TIN	16.55
M7 x 1.0	D5	2	TT93238TIN	19.11
M8 x 1.25	D5	2	TT93244TIN	19.11
M10 x 1.50	D6	3	TT93250TIN	31.76
M12 x 1.75	D6	3	TT93256TIN	39.79
M14 x 2.0	D7	3	TT93262TIN	61.71
M16 x 2.0	D7	3	TT93268TIN	69.93
M18 x 2.5	D7	3	TT93274TIN	102.85
M20 x 2.5	D7	3	TT93277TIN	135.77

## SPIRAL POINT BOTTOMING TAPS



**SERIES 754**  
HIGH SPEED STEEL  
UNCOATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H2	2	TT91201	40.17
2-56	H2	2	TT91207	30.78
3-48	H2	2	TT91211	24.70
4-40	H2	2	TT91215	19.82
5-40	H2	2	TT91220	19.82
6-32	H2	2	TT91223	16.67
6-32	H3	2	TT91224	16.67
6-40	H2	2	TT91227	18.96
8-32	H2	2	TT91229	16.67
8-32	H3	2	TT91230	16.67
10-24	H2	2	TT91235	18.96
10-24	H3	2	TT91236	16.67
10-32	H2	2	TT91239	16.67
10-32	H3	2	TT91240	16.67
12-24	H3	2	TT91243	18.96
1/4-20	H3	2	TT91247	16.67
1/4-28	H3	2	TT91254	16.67
5/16-18	H3	2	TT91259	17.98
5/16-24	H3	2	TT91266	17.98



**SERIES 756**  
HIGH SPEED STEEL  
TIN COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H2	2	TT92202	54.22
2-56	H2	2	TT92209	41.55
3-48	H2	2	TT92212	33.34
4-40	H2	2	TT92216	26.76
5-40	H2	2	TT92221	26.76
6-32	H2	2	TT92224	22.50
6-32	H3	2	TT92225	22.50
6-40	H2	2	TT92228	25.59
8-32	H2	2	TT92230	22.50
8-32	H3	2	TT92231	22.50
10-24	H2	2	TT92236	25.59
10-24	H3	2	TT92237	22.50
10-32	H2	2	TT92240	22.50
10-32	H3	2	TT92241	22.50
12-24	H3	2	TT92244	25.59
1/4-20	H3	2	TT92248	22.50
1/4-28	H3	2	TT92255	22.50
5/16-18	H3	2	TT92260	24.27
5/16-24	H3	2	TT92267	24.27

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

All taps sold individually.

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



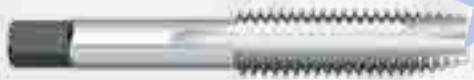
# STI Taps • Oversize Taps

YOUR #1 SOURCE FOR AMERICAN MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## STI - SPIRAL POINT PLUG



**SERIES 770**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
4-40	H1	2	TT92315	26.28
5-40	H1	2	TT92320	26.28
6-32	H2	2	TT92324	26.46
6-40	H2	2	TT92327	26.46
8-32	H2	2	TT92330	26.73
10-24	H2	2	TT92336	27.21
10-32	H2	2	TT92340	27.70
12-24	H2	2	TT92343	27.70
1/4-20	H2	2	TT92347	27.70
1/4-28	H2	2	TT92354	28.15
5/16-18	H3	3	TT92360	35.59
5/16-24	H2	3	TT92368	36.04
3/8-16	H3	3	TT92371	43.81
3/8-24	H2	3	TT92375	44.33
7/16-14	H3	3	TT92378	48.05
7/16-20	H3	3	TT92381	48.05
1/2-13	H3	3	TT92385	53.49
1/2-20	H3	3	TT92389	53.49

## STI - HAND PLUG & BOTTOMING



**SERIES 783**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4-40	H1	3	TT78302	TT78303	23.42
5-40	H1	3	TT78304	TT78305	23.42
6-32	H2	3	TT78306	TT78307	23.84
6-40	H1	3	TT78308	TT78309	23.84
8-32	H2	3	TT78310	TT78311	24.40
10-24	H2	3	TT78312	TT78313	24.40
10-32	H2	3	TT78314	TT78315	25.38
12-24	H2	3	TT78316	TT78317	25.38
1/4-20	H2	3	TT78318	TT78319	25.49
1/4-28	H2	3	TT78320	TT78321	25.49
5/16-18	H3	4	TT78322	TT78323	27.52
5/16-24	H2	4	TT78324	TT78325	27.52
3/8-16	H3	4	TT78326	TT78327	29.88
3/8-24	H2	4	TT78328	TT78329	29.88
7/16-14	H3	4	TT78330	TT78331	41.10
7/16-20	H3	4	TT78332	TT78333	41.10
1/2-13	H3	4	TT78334	TT78335	46.13
1/2-20	H3	4	TT78336	TT78337	46.13

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

## +0.005 OVERSIZE SPIRAL POINT PLUG



**SERIES 764**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
6-32	H11	2	TT91732	13.59
8-32	H11	2	TT91734	13.59
10-24	H11	2	TT91736	14.79
10-32	H11	2	TT91738	14.79
1/4-20	H11	2	TT91749	16.85
5/16-18	H11	2	TT91761	19.37
3/8-16	H11	3	TT91772	22.00
7/16-14	H11	3	TT91779	33.03
1/2-13	H11	3	TT91786	40.20
5/8-11	H11	3	TT91794	68.51

## +0.005 OVERSIZE HAND PLUG



**SERIES 766**  
HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
6-32	H11	3	TT90931	11.30
8-32	H11	4	TT90933	11.30
10-24	H11	4	TT90935	12.50
10-32	H11	4	TT90937	12.50
1/4-20	H11	4	TT90940	14.90
5/16-18	H11	4	TT90946	18.77
3/8-16	H11	4	TT90950	21.55
7/16-14	H11	4	TT90954	32.45
1/2-13	H11	4	TT90958	36.60
5/8-11	H11	4	TT90966	68.92

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

All taps sold individually.  
For technical information, please see page 237.

# Combination Drill & Tap

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 707**  
HIGH SPEED STEEL

SIZE	SHANK DIAMETER	OVERALL LENGTH	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	# OF FLUTES	ITEM#	LIST PRICE
4-40	.141	1-7/8	1/4	0.0890	3/8	2	TT70701	40.39
5-40	.141	1-15/16	9/32	0.1015	13/32	2	TT70703	40.39
6-32	.141	2	5/16	0.1110	7/16	2	TT70705	40.39
8-32	.168	2-5/32	13/32	0.1360	1/2	2	TT70707	40.39
10-24	.194	2-13/32	7/16	0.1540	5/8	2	TT70709	40.39
10-32	.194	2-13/32	7/16	0.1610	5/8	2	TT70711	40.39
12-24	.220	2-13/32	1/2	0.1800	21/32	2	TT70713	43.66
1/4-20	.255	2-9/16	9/16	0.2055	25/32	2	TT70715	40.39
1/4-28	.255	2-9/16	9/16	0.2188	25/32	2	TT70717	40.39
5/16-18	.318	2-29/32	3/4	0.2660	15/16	2	TT70719	59.65
5/16-24	.318	2-29/32	3/4	0.2770	15/16	2	TT70721	59.65
3/8-16	.381	3-15/32	29/32	0.3230	1-1/16	2	TT70723	72.49
3/8-24	.381	3-15/32	29/32	0.3390	1-1/16	2	TT70725	72.49
7/16-14	.323	3-27/32	1-3/32	0.3770	1-1/4	2	TT70727	86.75
7/16-20	.323	3-27/32	1-3/32	0.3937	1-1/4	2	TT70729	86.75
1/2-13	.367	4-3/16	1-1/4	0.4331	1-3/8	2	TT70731	97.90
1/2-20	.367	4-3/16	1-1/4	0.4531	1-3/8	2	TT70733	97.90

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



**SERIES 708**  
HIGH SPEED STEEL  
METRIC

SIZE	SHANK DIAMETER	OVERALL LENGTH	DRILL LENGTH	DRILL SIZE	THREAD LENGTH	# OF FLUTES	ITEM#	LIST PRICE
M4 x 0.7	.168	2-5/32	13/32	0.1310	1/2	2	TT70830	44.44
M5 x 0.8	.194	2-13/32	7/16	0.1660	5/8	2	TT70832	44.44
M6 x 1.0	.255	2-17/32	9/16	0.1980	25/32	2	TT70834	44.44
M8 x 1.25	.318	2-29/32	3/4	0.2670	15/16	2	TT70836	80.52
M10 x 1.50	.381	3-15/32	29/32	0.3360	1-1/16	2	TT70838	92.00
M12 x 1.75	.367	4-3/16	1-1/4	0.4050	1-3/8	2	TT70840	92.00

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

All taps sold individually.  
For technical information, please see page 237.

# Pulley Taps • Extension Taps

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## PULLEY - PLUG



### SERIES 747 HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	ITEM#	LIST PRICE
1/4-20	H3	4	6	TT92722	79.73
1/4-20	H3	4	8	TT92723	98.57
5/16-18	H3	4	6	TT92730	84.08
5/16-18	H3	4	8	TT92731	101.50
3/8-16	H3	4	6	TT92738	94.22
3/8-16	H3	4	8	TT92739	113.06
3/8-16	H3	4	10	TT92740	142.08
7/16-14	H3	4	6	TT92746	100.04
7/16-14	H3	4	8	TT92747	130.48
1/2-13	H3	4	6	TT92754	101.50

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	ITEM#	LIST PRICE
1/2-13	H3	4	8	TT92755	133.37
1/2-13	H3	4	10	TT92756	163.81
1/2-13	H3	4	12	TT92757	201.50
5/8-11	H3	4	6	TT92762	134.84
5/8-11	H3	4	8	TT92763	175.41
5/8-11	H3	4	10	TT92764	220.38
5/8-11	H3	4	12	TT92765	258.07
3/4-10	H3	4	10	TT92772	258.07
3/4-10	H3	4	12	TT92773	307.36

## 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	ITEM#	LIST PRICE
6-32	H3	6	NC	11/16	3/16	0.097	0.073	2	TT94101	80.89
8-32	H3	6	NC	3/4	1/4	0.123	0.092	2	TT94102	79.24
10-24	H3	6	NC	7/8	1/4	0.136	0.102	2	TT94103	74.29
10-32	H3	6	NF	7/8	1/4	0.136	0.102	2	TT94104	74.29
1/4-20	H3	6	NC	1	5/16	0.185	0.139	2	TT94105	101.35
1/4-28	H3	6	NF	1	5/16	0.185	0.139	2	TT94106	101.35
5/16-18	H3	6	NC	1-1/8	3/8	0.240	0.180	2	TT94107	106.38
5/16-24	H3	6	NF	1-1/8	3/8	0.240	0.180	2	TT94108	106.38
3/8-16	H3	6	NC	1-1/4	7/16	0.275	0.206	3	TT94109	114.60
3/8-24	H3	6	NF	1-1/4	7/16	0.275	0.206	3	TT94110	114.60
7/16-14	H3	6	NC	1-7/16	13/32	0.323	0.242	3	TT94111	131.38
7/16-20	H3	6	NF	1-7/16	13/32	0.323	0.242	3	TT94112	131.38
1/2-13	H3	6	NC	1-21/32	7/16	0.367	0.275	3	TT94113	137.91
1/2-20	H3	6	NF	1-21/32	7/16	0.367	0.275	3	TT94114	137.91
5/8-11	H3	6	NC	1-13/16	9/16	0.480	0.360	3	TT94115	178.19
5/8-18	H3	6	NF	1-13/16	9/16	0.480	0.360	3	TT94116	178.19
3/4-10	H3	6	NC	2	11/16	0.590	0.442	3	TT94117	231.42
3/4-16	H3	6	NF	2	11/16	0.590	0.442	3	TT94118	231.42

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

All taps sold individually.  
For technical information, please see page 237.

**TAKE 55% OFF  
LIST PRICE!**



**HEXAGON  
RETHREADING**

**SERIES 795  
CARBON STEEL**

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
1/4-20	19/32	1/4	TE80529	24.54
1/4-28	19/32	1/4	TE80532	24.54
5/16-18	11/16	5/16	TE80537	28.62
5/16-24	11/16	5/16	TE80540	28.62
3/8-16	25/32	3/8	TE80544	31.68
3/8-24	25/32	3/8	TE80547	31.68
7/16-14	7/8	7/16	TE80550	38.83
7/16-20	7/8	7/16	TE80553	38.83
1/2-13	1-1/16	1/2	TE80555	42.94
1/2-20	1-1/16	1/2	TE80557	42.94
9/16-12	1-1/16	1/2	TE80559	45.98
9/16-18	1-1/16	1/2	TE80561	45.98
5/8-11	1-1/4	5/8	TE80563	48.03
5/8-18	1-1/4	5/8	TE80566	48.03
11/16-11	1-7/16	3/4	TE80568	53.16
11/16-16	1-7/16	3/4	TE80569	53.16

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
3/4-10	1-7/16	3/4	TE80571	59.29
3/4-16	1-7/16	3/4	TE80573	59.29
7/8-9	1-5/8	7/8	TE80575	64.38
7/8-14	1-5/8	7/8	TE80577	64.38
1-8	1-13/16	1	TE80579	72.57
1-12	1-13/16	1	TE80581	72.57
1-14	1-13/16	1	TE80583	72.57
1-1/8-7	2	1	TE80584	83.80
1-1/8-12	2	1	TE80585	83.80
1-1/4-7	2-3/16	1	TE80586	91.99
1-1/4-12	2-3/16	1	TE80587	91.99
1-3/8-6	2-3/8	1	TE80588	173.76
1-3/8-12	2-3/8	1	TE80589	173.76
1-1/2-6	2-9/16	1	TE80590	194.19
1-1/2-12	2-9/16	1	TE80591	194.19



**HEXAGON  
RETHREADING  
METRIC**

**SERIES 796  
CARBON STEEL**

SIZE	ACROSS FLATS	ITEM#	LIST PRICE
M3 x 0.5	1	TE80601	18.69
M4 x 0.7	1	TE80602	18.19
M5 x 0.8	1	TE80603	18.19
M6 x 1.0	1	TE80604	18.19
M7 x 1.0	1	TE80605	18.69
M8 x 1.25	1	TE80606	18.19
M10 x 1.25	1	TE80607	18.19
M10 x 1.50	1	TE80608	18.19
M12 x 1.25	1	TE80609	18.19

SIZE	ACROSS FLATS	ITEM#	LIST PRICE
M12 x 1.75	1	TE80610	18.19
M14 x 1.50	1-7/16	TE80611	28.22
M14 x 2.0	1-7/16	TE80612	28.22
M16 x 1.50	1-7/16	TE80613	28.22
M16 x 2.0	1-7/16	TE80614	28.22
M18 x 1.50	1-7/16	TE80615	28.22
M18 x 2.50	1-7/16	TE80616	28.22
M20 x 2.5	1-13/16	TE80617	58.93
M24 x 3.0	1-13/16	TE80618	58.93

Dies sold individually.

HP TAPS  
TAPS  
DIES

# Carbon Steel Dies

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**



## NPT HEXAGON RETHREADING

**SERIES 797**  
CARBON STEEL

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
1/8-27 NPT	1-1/16	3/8	TE80701	33.92
1/4 - 18 NPT	1-1/4	5/8	TE80702	37.60
3/8 - 18 NPT	1-7/16	5/8	TE80703	52.00

SIZE	ACROSS FLATS	THICKNESS	ITEM#	LIST PRICE
1/2 - 14 NPT	1-5/8	3/4	TE80704	75.13
3/4 - 14 NPT	2	13/16	TE80705	92.89
1 - 11-1/2 NPT	2-3/8	1	TE80706	179.82



## ADJUSTABLE ROUND SPLIT

**SERIES 790**  
CARBON STEEL

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
6 - 32	1	TE80113	41.86
8 - 32	1	TE80116	41.86
10 - 24	1	TE80119	41.86
10 - 32	1	TE80121	41.86
1/4 - 20	1	TE80127	41.86
1/4 - 20	1-1/2	TE80128	68.49
1/4 - 28	1	TE80130	41.86
1/4 - 32	1	TE80134	41.86
5/16 - 18	1	TE80135	41.86
5/16 - 18	1-1/2	TE80136	68.49
5/16 - 24	1	TE80138	41.86
5/16 - 24	1-1/2	TE80139	68.49
5/16 - 32	1	TE80141	41.86

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
3/8 - 16	1	TE80142	41.86
3/8 - 16	1-1/2	TE80143	68.49
3/8 - 24	1	TE80145	41.86
3/8 - 24	1-1/2	TE80146	68.49
7/16 - 14	1	TE80148	41.86
7/16 - 14	1-1/2	TE80149	68.49
7/16 - 20	1	TE80151	41.86
1/2 - 13	1-1/2	TE80154	68.49
1/2 - 20	1-1/2	TE80156	68.49
9/16 - 12	1-1/2	TE80158	68.49
9/16 - 18	1-1/2	TE80160	68.49
5/8 - 11	1-1/2	TE80162	68.49
5/8 - 18	1-1/2	TE80165	68.49

Dies sold individually.



**ADJUSTABLE  
ROUND SPLIT**

**SERIES 794  
HIGH SPEED STEEL**

**TAKE 55% OFF  
LIST PRICE!**

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
4-40	1	TE80810	78.34
5-40	13/16	TE80811	53.16
5-44	13/16	TE80812	53.16
6-32	13/16	TE80813	53.16
6-32	1	TE80814	64.38
6-40	13/16	TE80815	53.16
8-32	13/16	TE80816	53.16
8-32	1	TE80817	64.38
10-24	13/16	TE80818	53.16
10-24	1	TE80819	64.38
10-32	13/16	TE80820	53.16
10-32	1	TE80821	64.38
12-24	13/16	TE80822	53.16
12-24	1	TE80823	64.38
12-28	13/16	TE80824	53.16
1/4-20	13/16	TE80825	53.16
1/4-20	1	TE80826	64.38
1/4-20	1-1/2	TE80827	105.27
1/4-28	13/16	TE80828	53.16
1/4-28	1	TE80829	64.38
1/4-28	1-1/2	TE80830	105.27
5/16-18	13/16	TE80831	53.16
5/16-18	1	TE80832	64.38
5/16-18	1-1/2	TE80833	105.27
5/16-24	13/16	TE80834	53.16
5/16-24	1	TE80835	64.38

SIZE	OUTSIDE DIAMETER	ITEM#	LIST PRICE
5/16-24	1-1/2	TE80836	105.27
3/8-16	1	TE80837	64.38
3/8-16	1-1/2	TE80838	105.27
3/8-24	1	TE80839	64.38
3/8-24	1-1/2	TE80840	105.27
7/16-14	1	TE80841	64.38
7/16-14	1-1/2	TE80842	105.27
7/16-20	1	TE80843	64.38
7/16-20	1-1/2	TE80844	105.27
1/2-13	1	TE80845	64.38
1/2-13	1-1/2	TE80846	105.27
1/2-20	1	TE80847	64.38
1/2-20	1-1/2	TE80848	105.27
9/16-12	1-1/2	TE80849	105.27
9/16-18	1-1/2	TE80850	105.27
5/8-11	1-1/2	TE80851	105.27
5/8-11	2	TE80852	143.09
5/8-18	1-1/2	TE80853	105.27
5/8-18	2	TE80854	143.09
3/4-10	1-1/2	TE80855	105.27
3/4-10	2	TE80856	143.09
3/4-16	1-1/2	TE80857	105.27
3/4-16	2	TE80858	143.09
7/8-9	2	TE80859	143.09
7/8-14	2	TE80860	143.09



Dies sold individually.

# Tap Handles & Die Stocks

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## T - HANDLE TAP WRENCHES



### SERIES 801

SIZE	ITEM#	LIST PRICE
0 - 1/4	TE78701	15.52
1/4-1/2	TE78702	23.24

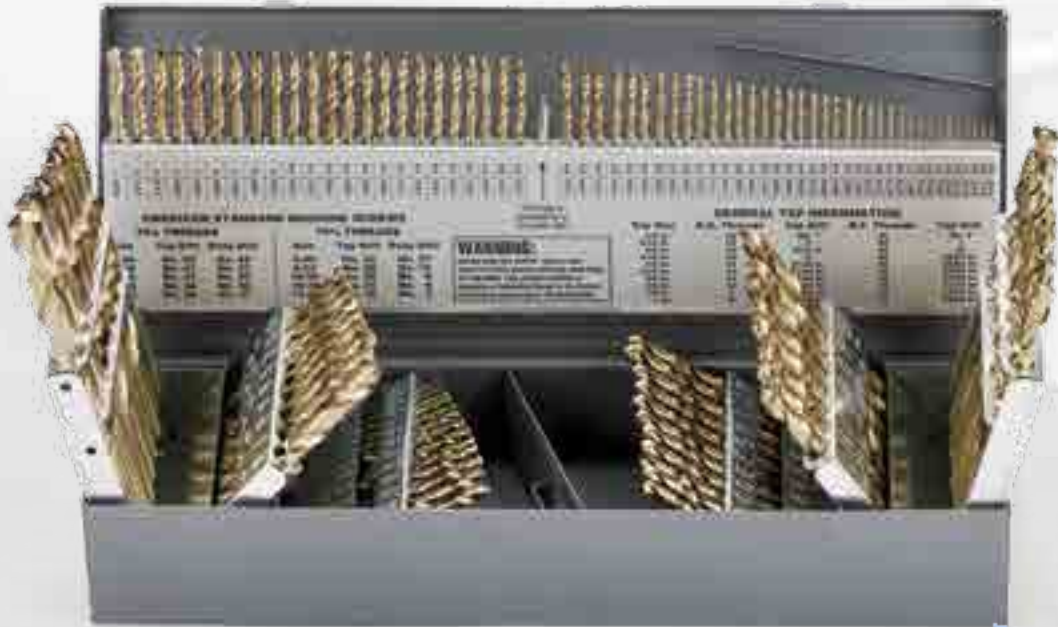
## DIE STOCKS



### SERIES 789

SIZE	ITEM#	LIST PRICE
1 OD	TE78909	47.92
1-1/2 OD	TE78910	78.49
2 OD	TE78911	138.18

Tools sold individually.



**TAKE 55% OFF  
LIST PRICE!**

**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	55.26
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT	MS99153	186.45
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT	MS99155	203.08
26Pc. • A - Z • Heavy Duty • 135° SP/PT	MS99157	309.24
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT	MS99159	302.67
60Pc. • #1 - #60 • Heavy Duty • 135° SP/PT	MS99161	264.19
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	MS99163	1,114.19

**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	923.67

**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	210.89

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

For technical information, please see pages 238 & 239.



# Drill Sets

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



HSS & COBALT DRILLS

**TAKE 55% OFF  
LIST PRICE!**



**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	382.25
8Pc. • HSS • Black & Gold • 118° Split Point • In Plastic Case	MS99313	485.44
8Pc. • M42 Cobalt • 118° Split Point • In Plastic Case	MS99310	788.60
33Pc. • HSS • 1/2" - 1" by 64ths • 118° Point • Metal Stand	MS99304	1,719.68

**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	139.38
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Metal Case	MS99405	257.21
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Plastic Case	MS99442	257.21

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.



**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	40.99
13Pc. • 1/16" - 1/4" by 64ths • 118° Point • Bright	MS99011	40.99
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Oxided	MS99014	114.45
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Bright	MS99016	114.45
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Oxided	MS99017	126.24
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Oxided	MS99018	96.73
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Bright	MS99020	96.73
25Pc. • 1.0mm - 13.0mm by 0.5mm • 118° Point • Oxided	MS99050	220.91
26Pc. • A-Z • 118° Point • Oxided	MS99022	161.90
26Pc. • A-Z • 118° Point • Bright	MS99024	161.90
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Oxided	MS99026	157.28
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Bright	MS99028	157.28
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Oxided	MS99032	195.76
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • TIN Coated	MS99036	388.97
60Pc. • #1 - #60 • 118° Point • Oxided	MS99038	142.27
60Pc. • #1 - #60 • 118° Point • Bright	MS99040	142.27
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Oxided	MS99042	452.07
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Bright	MS99044	452.07

**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	51.13
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Black/Gold	MS99015	148.09
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99021	145.05
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99030	236.94
29Pc. • 1/16" - 1/2" by 64ths • H.D. • 135° SP/PT • Black/Gold • Plastic Case	MS99431	236.94
115Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	MS99046	653.53

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

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



MECHANICS LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"

**TAKE 55% OFF  
LIST PRICE!**



**SERIES 455  
BLACK & GOLD**

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PACKAGE QUANTITY	ITEM#	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PACKAGE QUANTITY	ITEM#	LIST PRICE
1/16	7/8	1-7/8	12	CD45504	2.27	19/64	2-3/8	3-7/8	6	CD45519	7.65
5/64	1	2	12	CD45505	2.44	5/16	2-1/2	4	6	CD45520	8.18
3/32	1-1/4	2-1/4	12	CD45506	2.44	21/64	2-9/16	4-1/16	6	CD45521	8.71
7/64	1-5/16	2-3/8	12	CD45507	2.51	11/32	2-5/8	4-1/8	6	CD45522	9.49
1/8	1-7/16	2-1/2	12	CD45508	2.62	23/64	2-11/16	4-3/16	6	CD45523	10.09
9/64	1-9/16	2-5/8	12	CD45509	2.69	3/8	2-11/16	4-1/4	6	CD45524	10.69
5/32	1-11/16	2-3/4	12	CD45510	3.22	25/64	2-3/4	4-5/16	6	CD45525	11.37
11/64	1-13/16	2-7/8	12	CD45511	3.29	13/32	2-13/16	4-3/8	6	CD45526	12.25
3/16	1-7/8	3	12	CD45512	3.75	27/64	2-7/8	4-7/16	6	CD45527	13.81
13/64	1-15/16	3-1/8	12	CD45513	4.07	7/16	2-15/16	4-1/2	6	CD45528	14.59
7/32	2	3-1/4	12	CD45514	4.53	29/64	3	4-5/8	6	CD45529	15.90
15/64	2-1/16	3-3/8	12	CD45515	4.85	15/32	3-1/8	4-3/4	6	CD45530	17.03
1/4	2	3-1/2	12	CD45516	5.13	31/64	3-1/4	4-7/8	6	CD45531	17.39
17/64	2-1/8	3-5/8	6	CD45517	6.45	1/2	3-3/8	5	6	CD45532	17.85
9/32	2-1/4	3-3/4	6	CD45518	6.45						

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

STUB LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "C"



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 300**  
OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
1/16	5/8	1-5/8	12	CD30004	1.95	19/64	1-9/16	2-3/4	6	CD30019	4.43
5/64	11/16	1-11/16	12	CD30005	1.98	5/16	1-5/8	2-13/16	6	CD30020	4.71
3/32	3/4	1-3/4	12	CD30006	1.98	21/64	1-11/16	2-15/16	6	CD30021	5.28
7/64	13/16	1-13/16	12	CD30007	1.98	11/32	1-11/16	3	6	CD30022	5.63
1/8	7/8	1-7/8	12	CD30008	1.98	23/64	1-3/4	3-1/16	6	CD30023	5.98
9/64	15/16	1-15/16	12	CD30009	1.98	3/8	1-13/16	3-1/8	6	CD30024	6.52
5/32	1	2-1/16	12	CD30010	2.16	25/64	1-7/8	3-1/4	6	CD30025	6.91
11/64	1-1/16	2-1/8	12	CD30011	2.16	13/32	1-15/16	3-5/16	6	CD30026	7.58
3/16	1-1/8	2-3/16	12	CD30012	2.51	27/64	2	3-3/8	6	CD30027	8.00
13/64	1-3/16	2-1/4	12	CD30013	2.59	7/16	1-1/16	3-7/16	6	CD30028	8.75
7/32	1-1/4	2-3/8	12	CD30014	2.94	29/64	2-1/8	3-9/16	6	CD30029	9.28
15/64	1-5/16	2-7/16	12	CD30015	3.40	15/32	2-1/8	3-5/8	6	CD30030	10.20
1/4	1-3/8	2-1/2	12	CD30016	3.75	31/64	2-3/16	3-11/16	6	CD30031	10.59
17/64	1-7/16	2-5/8	6	CD30017	3.86	1/2	2-1/4	3-3/4	6	CD30032	11.16
9/32	1-1/2	2-11/16	6	CD30018	4.07						

LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
A	1-5/16	2-7/16	12	CD30301	4.07	N	1-5/8	2-13/16	6	CD30314	7.15
B	1-3/8	2-1/2	12	CD30302	4.28	O	1-11/16	2-15/16	6	CD30315	8.04
C	1-3/8	2-1/2	12	CD30303	4.28	P	1-11/16	2-15/16	6	CD30316	8.25
D	1-3/8	2-1/2	12	CD30304	4.32	Q	1-11/16	3	6	CD30317	8.61
E	1-3/8	2-1/2	12	CD30305	4.32	R	1-11/16	3	6	CD30318	8.85
F	1-7/16	2-5/8	6	CD30306	5.56	S	1-3/4	3-1/16	6	CD30319	9.21
G	1-7/16	2-5/8	6	CD30307	5.95	T	1-3/4	3-1/16	6	CD30320	9.42
H	1-1/2	2-11/16	6	CD30308	6.13	U	1-13/16	3-1/8	6	CD30321	10.16
I	1-1/2	2-11/16	6	CD30309	6.16	V	1-7/8	3-1/4	6	CD30322	10.80
J	1-1/2	2-11/16	6	CD30310	6.30	W	1-7/8	3-1/4	6	CD30323	11.19
K	1-1/2	2-11/16	6	CD30311	6.41	X	1-15/16	3-5/16	6	CD30324	11.86
L	1-9/16	2-3/4	6	CD30312	6.55	Y	1-15/16	3-5/16	6	CD30325	12.11
M	1-9/16	2-3/4	6	CD30313	6.87	Z	2	3-3/8	6	CD30326	12.54

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 PRICE!**

STUB LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "C"



**SERIES 300**  
OXIDE FINISH

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
1	1-5/16	2-7/16	12	CD30201	3.40	31	7/8	1-7/8	12	CD30231	2.20
2	1-5/16	2-7/16	12	CD30202	3.40	32	7/8	1-7/8	12	CD30232	2.20
3	1-1/4	2-3/8	12	CD30203	3.51	33	7/8	1-7/8	12	CD30233	2.20
4	1-1/4	2-3/8	12	CD30204	3.51	34	7/8	1-7/8	12	CD30234	2.20
5	1-1/4	2-3/8	12	CD30205	3.51	35	7/8	1-7/8	12	CD30235	2.20
6	1-1/4	2-3/8	12	CD30206	3.51	36	13/16	1-13/16	12	CD30236	2.20
7	1-3/16	2-1/4	12	CD30207	3.01	37	13/16	1-13/16	12	CD30237	2.20
8	1-3/16	2-1/4	12	CD30208	3.01	38	13/16	1-13/16	12	CD30238	2.20
9	1-3/16	2-1/4	12	CD30209	3.01	39	13/16	1-13/16	12	CD30239	2.20
10	1-3/16	2-1/4	12	CD30210	3.01	40	13/16	1-13/16	12	CD30240	2.20
11	1-3/16	2-1/4	12	CD30211	3.01	41	13/16	1-13/16	12	CD30241	2.20
12	1-3/16	2-1/4	12	CD30212	3.01	42	3/4	1-3/4	12	CD30242	2.20
13	1-1/8	2-3/16	12	CD30213	3.01	43	3/4	1-3/4	12	CD30243	2.20
14	1-1/8	2-3/16	12	CD30214	3.01	44	3/4	1-3/4	12	CD30244	2.20
15	1-1/8	2-3/16	12	CD30215	3.01	45	3/4	1-3/4	12	CD30245	2.20
16	1-1/8	2-3/16	12	CD30216	3.01	46	3/4	1-3/4	12	CD30246	2.20
17	1-1/8	2-3/16	12	CD30217	3.01	47	11/16	1-11/16	12	CD30247	2.20
18	1-1/16	2-1/8	12	CD30218	2.87	48	11/16	1-11/16	12	CD30248	2.20
19	1-1/16	2-1/8	12	CD30219	2.87	49	11/16	1-11/16	12	CD30249	2.20
20	1-1/16	2-1/8	12	CD30220	2.87	50	11/16	1-11/16	12	CD30250	2.20
21	1-1/16	2-1/8	12	CD30221	2.87	51	11/16	1-11/16	12	CD30251	2.20
22	1-1/16	2-1/8	12	CD30222	2.80	52	11/16	1-11/16	12	CD30252	2.20
23	1	2-1/16	12	CD30223	2.80	53	5/8	1-5/8	12	CD30253	2.20
24	1	2-1/16	12	CD30224	2.80	54	5/8	1-5/8	12	CD30254	2.20
25	1	2-1/16	12	CD30225	2.80	55	5/8	1-5/8	12	CD30255	2.20
26	1	2-1/16	12	CD30226	2.80	56	1/2	1-3/8	12	CD30256	2.20
27	1	2-1/16	12	CD30227	2.80	57	1/2	1-3/8	12	CD30257	2.20
28	15/16	1-15/16	12	CD30228	2.80	58	1/2	1-3/8	12	CD30258	2.20
29	15/16	1-15/16	12	CD30229	2.80	59	1/2	1-3/8	12	CD30259	2.20
30	15/16	1-15/16	12	CD30230	2.20	60	1/2	1-3/8	12	CD30260	2.20

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

HSS & COBALT DRILLS

For technical information, please see pages 238 & 239.

# M42 Cobalt Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

STUB LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "J"

**TAKE 55% OFF  
LIST PRICE!**

**SERIES 325**  
NAS 907 - M42 COBALT



**SERIES 602**  
NAS 907 - M42 COBALT  
ALTIM COATED



HSS & COBALT DRILLS

FRACTIONAL SIZES							FRACTIONAL SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1/16	5/8	1-5/8	12	CD32504	2.41	CD60204	4.37	19/64	1-9/16	2-3/4	6	CD32519	9.31	CD60219	16.82
5/64	11/16	1-11/16	12	CD32505	2.41	CD60205	4.37	5/16	1-5/8	2-13/16	6	CD32520	9.99	CD60220	18.05
3/32	3/4	1-3/4	12	CD32506	2.41	CD60206	4.37	21/64	1-11/16	2-15/16	6	CD32521	11.08	CD60221	20.03
7/64	13/16	1-13/16	12	CD32507	2.73	CD60207	4.94	11/32	1-11/16	3	6	CD32522	11.97	CD60222	21.66
1/8	7/8	1-7/8	12	CD32508	3.15	CD60208	5.74	23/64	1-3/4	3-1/16	6	CD32523	13.78	CD60223	24.90
9/64	15/16	1-15/16	12	CD32509	3.15	CD60209	5.74	3/8	1-13/16	3-1/8	6	CD32524	13.78	CD60224	24.90
5/32	1	2-1/16	12	CD32510	3.47	CD60210	6.28	25/64	1-7/8	3-1/4	6	CD32525	15.76	CD60225	28.51
11/64	1-1/16	2-1/8	12	CD32511	3.93	CD60211	7.07	13/32	1-15/16	3-5/16	6	CD32526	16.29	CD60226	29.42
3/16	1-1/8	2-3/16	12	CD32512	4.60	CD60212	8.34	27/64	2	3-3/8	6	CD32527	18.06	CD60227	32.59
13/64	1-3/16	2-1/4	12	CD32513	5.28	CD60213	9.49	7/16	1-1/16	3-7/16	6	CD32528	18.56	CD60228	33.53
7/32	1-1/4	2-3/8	12	CD32514	5.81	CD60214	10.50	29/64	2-1/8	3-9/16	6	CD32529	22.27	CD60229	40.21
15/64	1-5/16	2-7/16	12	CD32515	6.23	CD60215	11.30	15/32	2-1/8	3-5/8	6	CD32530	22.27	CD60230	40.21
1/4	1-3/8	2-1/2	12	CD32516	6.48	CD60216	11.73	31/64	2-3/16	3-11/16	6	CD32531	22.27	CD60231	40.21
17/64	1-7/16	2-5/8	6	CD32517	7.40	CD60217	13.35	1/2	2-1/4	3-3/4	6	CD32532	22.27	CD60232	40.21
9/32	1-1/2	2-11/16	6	CD32518	8.04	CD60218	14.55								

LETTER SIZES							LETTER SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
A	1-5/16	2-7/16	12	CD32701	7.44	CD60401	13.43	N	1-5/8	2-13/16	6	CD32714	11.30	CD60414	20.39
B	1-3/8	2-1/2	12	CD32702	7.90	CD60402	14.26	O	1-11/16	2-15/16	6	CD32715	12.50	CD60415	22.59
C	1-3/8	2-1/2	12	CD32703	7.90	CD60403	14.26	P	1-11/16	2-15/16	6	CD32716	12.50	CD60416	22.59
D	1-3/8	2-1/2	12	CD32704	7.90	CD60404	14.26	Q	1-11/16	3	6	CD32717	13.53	CD60417	24.44
E	1-3/8	2-1/2	12	CD32705	7.19	CD60405	13.03	R	1-11/16	3	6	CD32718	13.53	CD60418	24.44
F	1-7/16	2-5/8	6	CD32706	8.36	CD60406	15.09	S	1-3/4	3-1/16	6	CD32719	16.82	CD60419	30.43
G	1-7/16	2-5/8	6	CD32707	8.36	CD60407	15.09	T	1-3/4	3-1/16	6	CD32720	16.82	CD60420	30.43
H	1-1/2	2-11/16	6	CD32708	8.85	CD60408	16.03	U	1-13/16	3-1/8	6	CD32721	16.82	CD60421	30.43
I	1-1/2	2-11/16	6	CD32709	8.85	CD60409	16.03	V	1-7/8	3-1/4	6	CD32722	18.70	CD60422	33.75
J	1-1/2	2-11/16	6	CD32710	8.85	CD60410	16.03	W	1-7/8	3-1/4	6	CD32723	18.70	CD60423	33.75
K	1-1/2	2-11/16	6	CD32711	8.85	CD60411	16.03	X	1-15/16	3-5/16	6	CD32724	18.70	CD60424	33.75
L	1-9/16	2-3/4	6	CD32712	10.52	CD60412	18.99	Y	1-15/16	3-5/16	6	CD32725	18.70	CD60425	33.75
M	1-9/16	2-3/4	6	CD32713	10.52	CD60413	18.99	Z	2	3-3/8	6	CD32726	21.42	CD60426	38.73

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

All cobalt drills have identification ring on shank.  
For coating information see page 6. For technical information, please see pages 238 & 239.

# M42 Cobalt Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



STUB LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "J"

**TAKE 55% OFF  
LIST PRICE!**

**SERIES 325**  
NAS 907 - M42 COBALT



**SERIES 602**  
NAS 907 - M42 COBALT  
ALTIM COATED



WIRE SIZES							WIRE SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1	1-5/16	2-7/16	12	CD32601	7.15	CD60301	12.92	31	7/8	1-7/8	12	CD32631	2.97	CD60331	5.38
2	1-5/16	2-7/16	12	CD32602	7.15	CD60302	12.92	32	7/8	1-7/8	12	CD32632	2.97	CD60332	5.38
3	1-1/4	2-3/8	12	CD32603	7.15	CD60303	12.92	33	7/8	1-7/8	12	CD32633	2.87	CD60333	5.20
4	1-1/4	2-3/8	12	CD32604	6.37	CD60304	11.55	34	7/8	1-7/8	12	CD32634	2.87	CD60334	5.20
5	1-1/4	2-3/8	12	CD32605	6.37	CD60305	11.55	35	7/8	1-7/8	12	CD32635	2.87	CD60335	5.20
6	1-1/4	2-3/8	12	CD32606	6.37	CD60306	11.55	36	13/16	1-13/16	12	CD32636	2.87	CD60336	5.20
7	1-3/16	2-1/4	12	CD32607	5.03	CD60307	9.06	37	13/16	1-13/16	12	CD32637	2.87	CD60337	5.20
8	1-3/16	2-1/4	12	CD32608	5.03	CD60308	9.06	38	13/16	1-13/16	12	CD32638	2.62	CD60338	4.73
9	1-3/16	2-1/4	12	CD32609	5.03	CD60309	9.06	39	13/16	1-13/16	12	CD32639	2.62	CD60339	4.73
10	1-3/16	2-1/4	12	CD32610	5.03	CD60310	9.06	40	13/16	1-13/16	12	CD32640	2.62	CD60340	4.73
11	1-3/16	2-1/4	12	CD32611	4.89	CD60311	8.81	41	13/16	1-13/16	12	CD32641	2.51	CD60341	4.73
12	1-3/16	2-1/4	12	CD32612	4.89	CD60312	8.81	42	3/4	1-3/4	12	CD32642	2.48	CD60342	4.73
13	1-1/8	2-3/16	12	CD32613	4.78	CD60313	8.66	43	3/4	1-3/4	12	CD32643	2.48	CD60343	4.73
14	1-1/8	2-3/16	12	CD32614	4.78	CD60314	8.66	44	3/4	1-3/4	12	CD32644	2.48	CD60344	4.73
15	1-1/8	2-3/16	12	CD32615	4.78	CD60315	8.66	45	3/4	1-3/4	12	CD32645	2.48	CD60345	4.73
16	1-1/8	2-3/16	12	CD32616	4.78	CD60316	8.63	46	3/4	1-3/4	12	CD32646	2.48	CD60346	4.73
17	1-1/8	2-3/16	12	CD32617	4.60	CD60317	8.34	47	11/16	1-11/16	12	CD32647	2.48	CD60347	4.73
18	1-1/16	2-1/8	12	CD32618	3.93	CD60318	7.07	48	11/16	1-11/16	12	CD32648	2.48	CD60348	4.73
19	1-1/16	2-1/8	12	CD32619	3.72	CD60319	6.71	49	11/16	1-11/16	12	CD32649	2.48	CD60349	4.73
20	1-1/16	2-1/8	12	CD32620	3.72	CD60320	6.71	50	11/16	1-11/16	12	CD32650	2.48	CD60350	4.73
21	1-1/16	2-1/8	12	CD32621	3.72	CD60321	6.71	51	11/16	1-11/16	12	CD32651	2.48	CD60351	4.73
22	1-1/16	2-1/8	12	CD32622	3.72	CD60322	6.71	52	11/16	1-11/16	12	CD32652	2.48	CD60352	4.73
23	1	2-1/16	12	CD32623	3.72	CD60323	6.71	53	5/8	1-5/8	12	CD32653	2.80	CD60353	5.05
24	1	2-1/16	12	CD32624	3.72	CD60324	6.71	54	5/8	1-5/8	12	CD32654	2.80	CD60354	5.05
25	1	2-1/16	12	CD32625	3.47	CD60325	6.28	55	5/8	1-5/8	12	CD32655	2.80	CD60355	5.05
26	1	2-1/16	12	CD32626	3.47	CD60326	6.28	56	1/2	1-3/8	12	CD32656	2.80	CD60356	5.05
27	1	2-1/16	12	CD32627	3.47	CD60327	6.28	57	1/2	1-3/8	12	CD32657	2.80	CD60357	5.05
28	15/16	1-15/16	12	CD32628	3.15	CD60328	5.74	58	1/2	1-3/8	12	CD32658	2.97	CD60358	5.38
29	15/16	1-15/16	12	CD32629	3.15	CD60329	5.74	59	1/2	1-3/8	12	CD32659	2.97	CD60359	5.38
30	15/16	1-15/16	12	CD32630	2.97	CD60330	5.38	60	1/2	1-3/8	12	CD32660	2.97	CD60360	5.38

- For use where extreme temperatures are found
- Coating allows for increased machining speeds from 50% up to 200%
- Used in machining Stainless Steels, Nickel-based and Titanium alloys
- Not recommended for aluminum

All cobalt drills have identification ring on shank.  
For coating information see page 6. For technical information, please see pages 238 & 239.

**TAKE 55% OFF  
LIST PRICE!**

**JOBBER LENGTH - 118° POINT**

**SERIES 406**  
BRIGHT FINISH



**SERIES 475**  
TIN COATED



HSS & COBALT DRILLS

FRACTIONAL SIZES								FRACTIONAL SIZES							
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE
1/16	7/8	1-7/8	12	CD40604	1.66	CD47504	4.71	19/64	3-1/16	4-3/8	6	CD40619	5.17	CD47519	15.04
5/64	1	2	12	CD40605	1.66	CD47505	4.71	5/16	3-3/16	4-1/2	6	CD40620	5.38	CD47520	15.88
3/32	1-1/4	2-1/4	12	CD40606	1.66	CD47506	4.71	21/64	3-5/16	4-5/8	6	CD40621	6.02	CD47521	18.10
7/64	1-1/2	2-5/8	12	CD40607	1.66	CD47507	4.78	11/32	3-7/16	4-3/4	6	CD40622	6.45	CD47522	19.05
1/8	1-5/8	2-3/4	12	CD40608	1.66	CD47508	4.78	23/64	3-1/2	4-7/8	6	CD40623	7.08	CD47523	21.50
9/64	1-3/4	2-7/8	12	CD40609	1.77	CD47509	5.01	3/8	3-5/8	5	6	CD40624	7.44	CD47524	21.73
5/32	2	3-1/8	12	CD40610	1.84	CD47510	5.59	25/64	3-3/4	5-1/8	6	CD40625	8.04	CD47525	26.90
11/64	2-1/8	3-1/4	12	CD40611	1.98	CD47511	5.66	13/32	3-7/8	5-1/4	6	CD40626	8.78	CD47526	27.51
3/16	2-5/16	3-1/2	12	CD40612	2.16	CD47512	5.97	27/64	3-15/16	5-3/8	6	CD40627	9.35	CD47527	28.47
13/64	2-7/16	3-5/8	12	CD40613	2.44	CD47513	8.49	7/16	4-1/16	5-1/2	6	CD40628	10.20	CD47528	29.08
7/32	2-1/2	3-3/4	12	CD40614	2.69	CD47514	8.72	29/64	4-3/16	5-5/8	6	CD40629	10.87	CD47529	31.95
15/64	2-5/8	3-7/8	12	CD40615	3.01	CD47515	9.11	15/32	4-5/16	5-3/4	6	CD40630	11.83	CD47530	32.86
1/4	2-3/4	4	12	CD40616	3.08	CD47516	9.34	31/64	4-3/8	5-7/8	6	CD40631	12.50	CD47531	33.13
17/64	2-7/8	4-1/8	6	CD40617	4.43	CD47517	13.28	1/2	4-1/2	6	6	CD40632	13.03	CD47532	33.82
9/32	2-15/16	4-1/4	6	CD40618	4.71	CD47518	14.73								

LETTER SIZES								LETTER SIZES							
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE
A	2-5/8	3-7/8	12	CD40901	3.01	CD47601	9.49	N	3-1/16	4-3/8	6	CD40914	5.38	CD47614	17.98
B	2-3/4	4	12	CD40902	3.08	CD47602	9.72	O	3-3/16	4-1/2	6	CD40915	5.84	CD47615	17.98
C	2-3/4	4	12	CD40903	3.08	CD47603	9.72	P	3-5/16	4-5/8	6	CD40916	6.27	CD47616	18.75
D	2-3/4	4	12	CD40904	3.19	CD47604	9.72	Q	3-7/16	4-3/4	6	CD40917	6.52	CD47617	18.75
E	2-3/4	4	12	CD40905	3.22	CD47605	9.34	R	3-7/16	4-3/4	6	CD40918	6.76	CD47618	19.24
F	2-7/8	4-1/8	6	CD40906	4.46	CD47606	16.03	S	3-1/2	4-7/8	6	CD40919	7.08	CD47619	24.26
G	2-7/8	4-1/8	6	CD40907	4.28	CD47607	16.03	T	3-1/2	4-7/8	6	CD40920	7.44	CD47620	25.40
H	2-7/8	4-1/8	6	CD40908	4.36	CD47608	16.03	U	3-5/8	5	6	CD40921	8.04	CD47621	25.40
I	2-7/8	4-1/8	6	CD40909	4.46	CD47609	16.03	V	3-5/8	5	6	CD40922	8.32	CD47622	25.75
J	2-7/8	4-1/8	6	CD40910	4.60	CD47610	16.15	W	3-3/4	5-1/8	6	CD40923	8.85	CD47623	29.80
K	2-15/16	4-1/4	6	CD40911	4.71	CD47611	17.37	X	3-3/4	5-1/8	6	CD40924	9.38	CD47624	32.10
L	2-15/16	4-1/4	6	CD40912	4.92	CD47612	17.37	Y	3-7/8	5-1/4	6	CD40925	9.84	CD47625	34.20
M	3-1/16	4-3/8	6	CD40913	5.21	CD47613	17.68	Z	3-7/8	5-1/4	6	CD40926	10.06	CD47626	34.59

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 PRICE!**

## JOBBER LENGTH - 118° POINT

**SERIES 406**  
BRIGHT FINISH



**SERIES 475**  
TIN COATED



WIRE SIZES						WIRE SIZES									
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	LIST PRICE	TIN	LIST PRICE
1	2-5/8	3-7/8	12	CD40801	3.29	CD47701	9.49	31	1-5/8	2-3/4	12	CD40831	1.52	CD47731	4.78
2	2-5/8	3-7/8	12	CD40802	3.29	CD47702	9.49	32	1-5/8	2-3/4	12	CD40832	1.52	CD47732	4.78
3	2-1/2	3-3/4	12	CD40803	3.01	CD47703	9.11	33	1-1/2	2-5/8	12	CD40833	1.52	CD47733	4.78
4	2-1/2	3-3/4	12	CD40804	3.01	CD47704	9.11	34	1-1/2	2-5/8	12	CD40834	1.52	CD47734	4.78
5	2-1/2	3-3/4	12	CD40805	2.97	CD47705	9.11	35	1-1/2	2-5/8	12	CD40835	1.52	CD47735	4.78
6	2-1/2	3-3/4	12	CD40806	2.97	CD47706	9.11	36	1-7/16	2-1/2	12	CD40836	1.52	CD47736	4.71
7	2-7/16	3-5/8	12	CD40807	2.87	CD47707	8.65	37	1-7/16	2-1/2	12	CD40837	1.52	CD47737	4.71
8	2-7/16	3-5/8	12	CD40808	2.87	CD47708	8.65	38	1-7/16	2-1/2	12	CD40838	1.52	CD47738	4.71
9	2-7/16	3-5/8	12	CD40809	2.83	CD47709	8.65	39	1-3/8	2-3/8	12	CD40839	1.52	CD47739	4.71
10	2-7/16	3-5/8	12	CD40810	2.59	CD47710	8.65	40	1-3/8	2-3/8	12	CD40840	1.52	CD47740	4.71
11	2-5/16	3-1/2	12	CD40811	2.59	CD47711	8.65	41	1-3/8	2-3/8	12	CD40841	1.52	CD47741	4.71
12	2-5/16	3-1/2	12	CD40812	2.59	CD47712	7.08	42	1-1/4	2-1/4	12	CD40842	1.52	CD47742	4.71
13	2-5/16	3-1/2	12	CD40813	2.59	CD47713	6.96	43	1-1/4	2-1/4	12	CD40843	1.52	CD47743	4.71
14	2-3/16	3-3/8	12	CD40814	2.44	CD47714	6.96	44	1-1/8	2-1/8	12	CD40844	1.52	CD47744	4.71
15	2-3/16	3-3/8	12	CD40815	2.44	CD47715	6.96	45	1-1/8	2-1/8	12	CD40845	1.59	CD47745	4.71
16	2-3/16	3-3/8	12	CD40816	2.44	CD47716	6.96	46	1-1/8	2-1/8	12	CD40846	1.59	CD47746	4.71
17	2-3/16	3-3/8	12	CD40817	2.34	CD47717	6.96	47	1	2	12	CD40847	1.59	CD47747	4.71
18	2-1/8	3-1/4	12	CD40818	2.34	CD47718	6.20	48	1	2	12	CD40848	1.59	CD47748	4.71
19	2-1/8	3-1/4	12	CD40819	2.34	CD47719	6.20	49	1	2	12	CD40849	1.59	CD47749	4.71
20	2-1/8	3-1/4	12	CD40820	2.09	CD47720	6.20	50	1	2	12	CD40850	1.59	CD47750	4.71
21	2-1/8	3-1/4	12	CD40821	2.09	CD47721	6.12	51	1	2	12	CD40851	1.59	CD47751	4.71
22	2	3-1/8	12	CD40822	1.98	CD47722	6.12	52	7/8	1-7/8	12	CD40852	1.59	CD47752	4.71
23	2	3-1/8	12	CD40823	1.98	CD47723	6.05	53	7/8	1-7/8	12	CD40853	1.59	CD47753	4.71
24	2	3-1/8	12	CD40824	1.98	CD47724	6.05	54	7/8	1-7/8	12	CD40854	1.70	CD47754	4.71
25	1-7/8	3	12	CD40825	1.74	CD47725	5.93	55	7/8	1-7/8	12	CD40855	1.70	CD47755	4.71
26	1-7/8	3	12	CD40826	1.74	CD47726	5.93	56	3/4	1-3/4	12	CD40856	1.70	CD47756	4.71
27	1-7/8	3	12	CD40827	1.74	CD47727	5.93	57	3/4	1-3/4	12	CD40857	1.88	CD47757	4.71
28	1-3/4	2-7/8	12	CD40828	1.59	CD47728	5.74	58	11/16	1-5/8	12	CD40858	1.88	CD47758	4.71
29	1-3/4	2-7/8	12	CD40829	1.59	CD47729	5.74	59	11/16	1-5/8	12	CD40859	1.88	CD47759	4.71
30	1-5/8	2-3/4	12	CD40830	1.56	CD47730	4.78	60	11/16	1-5/8	12	CD40860	1.88	CD47760	4.71

HSS & COBALT DRILLS

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

**TAKE 55% OFF  
LIST PRICE!**

JOBBER LENGTH - 118° POINT



**SERIES 400**  
OXIDE FINISH

**FRACTIONAL SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
1/16	7/8	1-7/8	12	CD40004	1.66
5/64	1	2	12	CD40005	1.66
3/32	1-1/4	2-1/4	12	CD40006	1.66
7/64	1-1/2	2-5/8	12	CD40007	1.66
1/8	1-5/8	2-3/4	12	CD40008	1.66
9/64	1-3/4	2-7/8	12	CD40009	1.77
5/32	2	3-1/8	12	CD40010	1.84
11/64	2-1/8	3-1/4	12	CD40011	1.98
3/16	2-5/16	3-1/2	12	CD40012	2.16
13/64	2-7/16	3-5/8	12	CD40013	2.44
7/32	2-1/2	3-3/4	12	CD40014	2.69
15/64	2-5/8	3-7/8	12	CD40015	3.01
1/4	2-3/4	4	12	CD40016	3.08
17/64	2-7/8	4-1/8	6	CD40017	4.43
9/32	2-15/16	4-1/4	6	CD40018	4.71
19/64	3-1/16	4-3/8	6	CD40019	5.17
5/16	3-3/16	4-1/2	6	CD40020	5.38
21/64	3-5/16	4-5/8	6	CD40021	6.02
11/32	3-7/16	4-3/4	6	CD40022	6.45
23/64	3-1/2	4-7/8	6	CD40023	7.08
3/8	3-5/8	5	6	CD40024	7.44

**FRACTIONAL SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
25/64	3-3/4	5-1/8	6	CD40025	8.04
13/32	3-7/8	5-1/4	6	CD40026	8.78
27/64	3-15/16	5-3/8	6	CD40027	9.35
7/16	4-1/16	5-1/2	6	CD40028	10.20
29/64	4-3/16	5-5/8	6	CD40029	10.87
15/32	4-5/16	5-3/4	6	CD40030	11.83
31/64	4-3/8	5-7/8	6	CD40031	12.50
1/2	4-1/2	6	6	CD40032	13.03
33/64	4-13/16	6-5/8	1	CD40033	31.13
17/32	4-13/16	6-5/8	1	CD40034	32.62
35/64	4-13/16	6-5/8	1	CD40035	35.31
9/16	4-13/16	6-5/8	1	CD40036	36.97
37/64	4-13/16	6-5/8	1	CD40037	37.08
19/32	5-3/16	7-1/8	1	CD40038	38.10
39/64	5-3/16	7-1/8	1	CD40039	41.86
5/8	5-3/16	7-1/8	1	CD40040	40.87
41/64	5-3/16	7-1/8	1	CD40041	44.69
21/32	5-3/16	7-1/8	1	CD40042	43.17
43/64	5-5/8	7-5/8	1	CD40043	50.75
11/16	5-5/8	7-5/8	1	CD40044	49.65

**METRIC SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
1.00	17	41	12	CD42100	2.18
1.05	17	41	12	CD42105	2.40
1.10	19	44	12	CD42110	2.29
1.15	19	44	12	CD42115	2.33
1.20	22	48	12	CD42120	2.29
1.25	22	48	12	CD42125	2.33
1.30	22	48	12	CD42130	2.29
1.35	22	48	12	CD42135	2.40
1.40	22	48	12	CD42140	2.29
1.50	22	48	12	CD42150	2.29
1.60	22	48	12	CD42160	2.29
1.70	25	51	12	CD42170	2.33
1.80	25	51	12	CD42180	2.33
1.90	25	51	12	CD42190	2.33
2.00	25	51	12	CD42200	2.33
2.50	35	60	12	CD42250	2.44
3.00	41	70	12	CD42300	2.55
3.50	45	73	12	CD42350	2.67
4.00	54	83	12	CD42400	2.78

**METRIC SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
4.50	56	86	12	CD42450	3.12
5.00	62	92	12	CD42500	3.53
5.50	64	95	12	CD42550	3.98
6.00	70	102	12	CD42600	4.32
6.50	73	105	6	CD42650	5.52
7.00	73	105	6	CD42700	5.74
7.50	78	111	6	CD42750	6.83
8.00	81	114	6	CD42800	7.51
8.50	87	121	6	CD42850	8.60
9.00	89	124	6	CD42900	9.68
9.50	92	127	6	CD42950	10.14
10.00	95	130	6	CD43100	12.38
10.50	98	133	6	CD43105	12.39
11.00	103	140	6	CD43110	12.73
11.50	106	143	6	CD43115	14.30
12.00	111	149	6	CD43120	15.77
12.50	114	152	6	CD43125	16.10
13.00	114	152	6	CD43130	26.69

For technical information, please see pages 238 & 239.

# HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

JOBBER LENGTH - 118° POINT



**SERIES 400**  
OXIDE FINISH

LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
A	2-5/8	3-7/8	12	CD40301	3.01	N	3-1/16	4-3/8	6	CD40314	5.38
B	2-3/4	4	12	CD40302	3.08	O	3-3/16	4-1/2	6	CD40315	5.84
C	2-3/4	4	12	CD40303	3.08	P	3-5/16	4-5/8	6	CD40316	6.27
D	2-3/4	4	12	CD40304	3.19	Q	3-7/16	4-3/4	6	CD40317	6.52
E	2-3/4	4	12	CD40305	3.22	R	3-7/16	4-3/4	6	CD40318	6.76
F	2-7/8	4-1/8	6	CD40306	4.46	S	3-1/2	4-7/8	6	CD40319	7.08
G	2-7/8	4-1/8	6	CD40307	4.28	T	3-1/2	4-7/8	6	CD40320	7.44
H	2-7/8	4-1/8	6	CD40308	4.36	U	3-5/8	5	6	CD40321	8.04
I	2-7/8	4-1/8	6	CD40309	4.46	V	3-5/8	5	6	CD40322	8.32
J	2-7/8	4-1/8	6	CD40310	4.60	W	3-3/4	5-1/8	6	CD40323	8.85
K	2-15/16	4-1/4	6	CD40311	4.71	X	3-3/4	5-1/8	6	CD40324	9.38
L	2-15/16	4-1/4	6	CD40312	4.92	Y	3-7/8	5-1/4	6	CD40325	9.84
M	3-1/16	4-3/8	6	CD40313	5.21	Z	3-7/8	5-1/4	6	CD40326	10.06

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE
1	2-5/8	3-7/8	12	CD40201	3.29	31	1-5/8	2-3/4	12	CD40231	1.52
2	2-5/8	3-7/8	12	CD40202	3.29	32	1-5/8	2-3/4	12	CD40232	1.52
3	2-1/2	3-3/4	12	CD40203	3.01	33	1-1/2	2-5/8	12	CD40233	1.52
4	2-1/2	3-3/4	12	CD40204	3.01	34	1-1/2	2-5/8	12	CD40234	1.52
5	2-1/2	3-3/4	12	CD40205	2.97	35	1-1/2	2-5/8	12	CD40235	1.52
6	2-1/2	3-3/4	12	CD40206	2.97	36	1-7/16	2-1/2	12	CD40236	1.52
7	2-7/16	3-5/8	12	CD40207	2.87	37	1-7/16	2-1/2	12	CD40237	1.52
8	2-7/16	3-5/8	12	CD40208	2.87	38	1-7/16	2-1/2	12	CD40238	1.52
9	2-7/16	3-5/8	12	CD40209	2.83	39	1-3/8	2-3/8	12	CD40239	1.52
10	2-7/16	3-5/8	12	CD40210	2.59	40	1-3/8	2-3/8	12	CD40240	1.52
11	2-5/16	3-1/2	12	CD40211	2.59	41	1-3/8	2-3/8	12	CD40241	1.52
12	2-5/16	3-1/2	12	CD40212	2.59	42	1-1/4	2-1/4	12	CD40242	1.52
13	2-5/16	3-1/2	12	CD40213	2.59	43	1-1/4	2-1/4	12	CD40243	1.52
14	2-3/16	3-3/8	12	CD40214	2.44	44	1-1/8	2-1/8	12	CD40244	1.52
15	2-3/16	3-3/8	12	CD40215	2.44	45	1-1/8	2-1/8	12	CD40245	1.59
16	2-3/16	3-3/8	12	CD40216	2.44	46	1-1/8	2-1/8	12	CD40246	1.59
17	2-3/16	3-3/8	12	CD40217	2.34	47	1	2	12	CD40247	1.59
18	2-1/8	3-1/4	12	CD40218	2.34	48	1	2	12	CD40248	1.59
19	2-1/8	3-1/4	12	CD40219	2.34	49	1	2	12	CD40249	1.59
20	2-1/8	3-1/4	12	CD40220	2.09	50	1	2	12	CD40250	1.59
21	2-1/8	3-1/4	12	CD40221	2.09	51	1	2	12	CD40251	1.59
22	2	3-1/8	12	CD40222	2.02	52	7/8	1-7/8	12	CD40252	1.59
23	2	3-1/8	12	CD40223	2.02	53	7/8	1-7/8	12	CD40253	1.59
24	2	3-1/8	12	CD40224	2.02	54	7/8	1-7/8	12	CD40254	1.70
25	1-7/8	3	12	CD40225	1.74	55	7/8	1-7/8	12	CD40255	1.70
26	1-7/8	3	12	CD40226	1.74	56	3/4	1-3/4	12	CD40256	1.70
27	1-7/8	3	12	CD40227	1.74	57	3/4	1-3/4	12	CD40257	1.88
28	1-3/4	2-7/8	12	CD40228	1.59	58	11/16	1-5/8	12	CD40258	1.88
29	1-3/4	2-7/8	12	CD40229	1.59	59	11/16	1-5/8	12	CD40259	1.88
30	1-5/8	2-3/4	12	CD40230	1.56	60	11/16	1-5/8	12	CD40260	1.88

For technical information, please see pages 238 & 239.

**TAKE 55% OFF  
LIST PRICE!**

**JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"**

**SERIES 440**  
HIGH SPEED STEEL  
OXIDE FINISH



**SERIES 445**  
HIGH SPEED STEEL  
BLACK & GOLD



HSS & COBALT DRILLS

FRACTIONAL SIZES							FRACTIONAL SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE
1/16	7/8	1-7/8	12	CD44004	1.66	CD44504	1.91	19/64	3-1/16	4-3/8	6	CD44019	6.02	CD44519	7.05
5/64	1	2	12	CD44005	1.66	CD44505	1.91	5/16	3-3/16	4-1/2	6	CD44020	6.20	CD44520	7.30
3/32	1-1/4	2-1/4	12	CD44006	1.66	CD44506	1.91	21/64	3-5/16	4-5/8	6	CD44021	7.01	CD44521	8.04
7/64	1-1/2	2-5/8	12	CD44007	1.66	CD44507	1.98	11/32	3-7/16	4-3/4	6	CD44022	7.44	CD44522	8.61
1/8	1-5/8	2-3/4	12	CD44008	1.66	CD44508	2.20	23/64	3-1/2	4-7/8	6	CD44023	7.83	CD44523	9.31
9/64	1-3/4	2-7/8	12	CD44009	1.81	CD44509	2.30	3/8	3-5/8	5	6	CD44024	8.53	CD44524	9.74
5/32	2	3-1/8	12	CD44010	2.20	CD44510	2.76	25/64	3-3/4	5-1/8	6	CD44025	9.28	CD44525	10.59
11/64	2-1/8	3-1/4	12	CD44011	2.34	CD44511	2.90	13/32	3-7/8	5-1/4	6	CD44026	10.06	CD44526	11.65
3/16	2-5/16	3-1/2	12	CD44012	2.66	CD44512	3.22	27/64	3-15/16	5-3/8	6	CD44027	10.84	CD44527	12.43
13/64	2-7/16	3-5/8	12	CD44013	2.87	CD44513	3.51	7/16	4-1/16	5-1/2	6	CD44028	11.76	CD44528	13.39
7/32	2-1/2	3-3/4	12	CD44014	3.15	CD44514	3.82	29/64	4-3/16	5-5/8	6	CD44029	12.54	CD44529	14.24
15/64	2-5/8	3-7/8	12	CD44015	3.44	CD44515	4.21	15/32	4-5/16	5-3/4	6	CD44030	13.63	CD44530	15.48
1/4	2-3/4	4	12	CD44016	3.65	CD44516	4.43	31/64	4-3/8	5-7/8	6	CD44031	14.41	CD44531	16.33
17/64	2-7/8	4-1/8	6	CD44017	5.03	CD44517	5.95	1/2	4-1/2	6	6	CD44032	15.16	CD44532	17.07
9/32	2-15/16	4-1/4	6	CD44018	5.45	CD44518	6.41								

LETTER SIZES							LETTER SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE
A	2-5/8	3-7/8	12	CD44301	3.93	CD44801	6.21	N	3-1/16	4-3/8	6	CD44314	7.44	CD44814	9.31
B	2-3/4	4	12	CD44302	3.93	CD44802	6.21	O	3-3/16	4-1/2	6	CD44315	7.44	CD44815	9.31
C	2-3/4	4	12	CD44303	3.93	CD44803	6.21	P	3-5/16	4-5/8	6	CD44316	8.39	CD44816	10.41
D	2-3/4	4	12	CD44304	3.93	CD44804	6.01	Q	3-7/16	4-3/4	6	CD44317	8.39	CD44817	10.71
E	2-3/4	4	12	CD44305	3.93	CD44805	5.01	R	3-7/16	4-3/4	6	CD44318	8.39	CD44818	11.16
F	2-7/8	4-1/8	6	CD44306	4.99	CD44806	6.71	S	3-1/2	4-7/8	6	CD44319	9.56	CD44819	12.06
G	2-7/8	4-1/8	6	CD44307	4.99	CD44807	7.26	T	3-1/2	4-7/8	6	CD44320	9.56	CD44820	13.56
H	2-7/8	4-1/8	6	CD44308	4.99	CD44808	7.41	U	3-5/8	5	6	CD44321	10.16	CD44821	13.56
I	2-7/8	4-1/8	6	CD44309	4.99	CD44809	7.41	V	3-5/8	5	6	CD44322	10.16	CD44822	13.82
J	2-7/8	4-1/8	6	CD44310	6.06	CD44810	7.86	W	3-3/4	5-1/8	6	CD44323	11.54	CD44823	16.92
K	2-15/16	4-1/4	6	CD44311	6.06	CD44811	8.76	X	3-3/4	5-1/8	6	CD44324	11.54	CD44824	19.97
L	2-15/16	4-1/4	6	CD44312	6.06	CD44812	8.46	Y	3-7/8	5-1/4	6	CD44325	12.57	CD44825	20.22
M	3-1/16	4-3/8	6	CD44313	7.44	CD44813	9.31	Z	3-7/8	5-1/4	6	CD44326	12.57	CD44826	20.67

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 PRICE!**

## JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "B"

**SERIES 440**  
HIGH SPEED STEEL  
OXIDE FINISH



**SERIES 445**  
HIGH SPEED STEEL  
BLACK & GOLD



WIRE SIZES						WIRE SIZES									
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	LIST PRICE	BLACK & GOLD	LIST PRICE
1	2-5/8	3-7/8	12	CD44201	3.40	CD44701	5.76	31	1-5/8	2-3/4	12	CD44231	2.37	CD44731	2.87
2	2-5/8	3-7/8	12	CD44202	3.40	CD44702	5.76	32	1-5/8	2-3/4	12	CD44232	2.37	CD44732	2.87
3	2-1/2	3-3/4	12	CD44203	3.15	CD44703	5.36	33	1-1/2	2-5/8	12	CD44233	2.37	CD44733	2.87
4	2-1/2	3-3/4	12	CD44204	3.15	CD44704	5.36	34	1-1/2	2-5/8	12	CD44234	2.37	CD44734	2.87
5	2-1/2	3-3/4	12	CD44205	3.15	CD44705	5.36	35	1-1/2	2-5/8	12	CD44235	2.37	CD44735	2.87
6	2-1/2	3-3/4	12	CD44206	3.15	CD44706	5.36	36	1-7/16	2-1/2	12	CD44236	2.37	CD44736	2.76
7	2-7/16	3-5/8	12	CD44207	2.97	CD44707	4.71	37	1-7/16	2-1/2	12	CD44237	2.37	CD44737	2.76
8	2-7/16	3-5/8	12	CD44208	3.01	CD44708	4.71	38	1-7/16	2-1/2	12	CD44238	2.37	CD44738	2.76
9	2-7/16	3-5/8	12	CD44209	3.01	CD44709	4.71	39	1-3/8	2-3/8	12	CD44239	2.37	CD44739	2.76
10	2-7/16	3-5/8	12	CD44210	2.73	CD44710	4.61	40	1-3/8	2-3/8	12	CD44240	2.37	CD44740	2.76
11	2-5/16	3-1/2	12	CD44211	2.73	CD44711	4.25	41	1-3/8	2-3/8	12	CD44241	2.27	CD44741	2.76
12	2-5/16	3-1/2	12	CD44212	2.73	CD44712	4.25	42	1-1/4	2-1/4	12	CD44242	2.27	CD44742	2.76
13	2-5/16	3-1/2	12	CD44213	3.01	CD44713	4.10	43	1-1/4	2-1/4	12	CD44243	2.27	CD44743	2.76
14	2-3/16	3-3/8	12	CD44214	3.01	CD44714	4.10	44	1-1/8	2-1/8	12	CD44244	2.27	CD44744	2.76
15	2-3/16	3-3/8	12	CD44215	3.01	CD44715	4.10	45	1-1/8	2-1/8	12	CD44245	2.27	CD44745	2.76
16	2-3/16	3-3/8	12	CD44216	3.01	CD44716	4.10	46	1-1/8	2-1/8	12	CD44246	2.27	CD44746	2.76
17	2-3/16	3-3/8	12	CD44217	3.01	CD44717	4.10	47	1	2	12	CD44247	2.27	CD44747	2.76
18	2-1/8	3-1/4	12	CD44218	3.01	CD44718	3.60	48	1	2	12	CD44248	2.27	CD44748	2.76
19	2-1/8	3-1/4	12	CD44219	2.87	CD44719	3.60	49	1	2	12	CD44249	2.27	CD44749	2.76
20	2-1/8	3-1/4	12	CD44220	2.87	CD44720	3.60	50	1	2	12	CD44250	2.27	CD44750	2.76
21	2-1/8	3-1/4	12	CD44221	2.69	CD44721	3.58	51	1	2	12	CD44251	2.27	CD44751	2.76
22	2	3-1/8	12	CD44222	2.69	CD44722	3.58	52	7/8	1-7/8	12	CD44252	2.27	CD44752	2.59
23	2	3-1/8	12	CD44223	2.69	CD44723	3.47	53	7/8	1-7/8	12	CD44253	2.27	CD44753	2.59
24	2	3-1/8	12	CD44224	2.69	CD44724	3.47	54	7/8	1-7/8	12	CD44254	2.27	CD44754	2.59
25	1-7/8	3	12	CD44225	2.69	CD44725	3.47	55	7/8	1-7/8	12	CD44255	2.27	CD44755	2.59
26	1-7/8	3	12	CD44226	2.69	CD44726	3.47	56	3/4	1-3/4	12	CD44256	2.27	CD44756	2.59
27	1-7/8	3	12	CD44227	2.69	CD44727	3.36	57	3/4	1-3/4	12	CD44257	2.27	CD44757	2.59
28	1-3/4	2-7/8	12	CD44228	2.69	CD44728	3.36	58	11/16	1-5/8	12	CD44258	2.27	CD44758	2.59
29	1-3/4	2-7/8	12	CD44229	2.16	CD44729	3.29	59	11/16	1-5/8	12	CD44259	2.27	CD44759	2.59
30	1-5/8	2-3/4	12	CD44230	2.16	CD44730	2.87	60	11/16	1-5/8	12	CD44260	2.27	CD44760	2.59

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

For technical information, please see pages 238 & 239.

# M42 Cobalt Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**

JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "J"

**SERIES 500**  
NAS 907 - M42 COBALT



**SERIES 608**  
NAS 907 - M42 COBALT  
ALTIN COATED



## FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
1/16	7/8	1-7/8	12	CD50004	2.80	CD60704	5.02
5/64	1	2	12	CD50005	2.80	CD60705	5.02
3/32	1-1/4	2-1/4	12	CD50006	2.80	CD60706	5.02
7/64	1-1/2	2-5/8	12	CD50007	2.94	CD60707	5.31
1/8	1-5/8	2-3/4	12	CD50008	3.61	CD60708	6.50
9/64	1-3/4	2-7/8	12	CD50009	3.61	CD60709	6.50
5/32	2	3-1/8	12	CD50010	4.04	CD60710	7.29
11/64	2-1/8	3-1/4	12	CD50011	4.25	CD60711	7.69
3/16	2-5/16	3-1/2	12	CD50012	4.78	CD60712	8.63
13/64	2-7/16	3-5/8	12	CD50013	5.74	CD60713	10.36
7/32	2-1/2	3-3/4	12	CD50014	6.27	CD60714	11.33
15/64	2-5/8	3-7/8	12	CD50015	6.66	CD60715	12.02
1/4	2-3/4	4	12	CD50016	7.12	CD60716	12.89
17/64	2-7/8	4-1/8	6	CD50017	8.07	CD60717	14.58
9/32	2-15/16	4-1/4	6	CD50018	8.46	CD60718	15.30

## FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
19/64	3-1/16	4-3/8	6	CD50019	10.31	CD60719	18.62
5/16	3-3/16	4-1/2	6	CD50020	10.98	CD60720	19.82
21/64	3-5/16	4-5/8	6	CD50021	12.15	CD60721	21.95
11/32	3-7/16	4-3/4	6	CD50022	13.35	CD60722	24.11
23/64	3-1/2	4-7/8	6	CD50023	15.30	CD60723	27.61
3/8	3-5/8	5	6	CD50024	15.30	CD60724	27.61
25/64	3-3/4	5-1/8	6	CD50025	17.39	CD60725	31.40
13/32	3-7/8	5-1/4	6	CD50026	18.13	CD60726	32.77
27/64	3-15/16	5-3/8	6	CD50027	20.04	CD60727	36.24
7/16	4-1/16	5-1/2	6	CD50028	20.50	CD60728	37.07
29/64	4-3/16	5-5/8	6	CD50029	24.61	CD60729	44.47
15/32	4-5/16	5-3/4	6	CD50030	25.07	CD60730	45.30
31/64	4-3/8	5-7/8	6	CD50031	25.21	CD60731	45.55
1/2	4-1/2	6	6	CD50032	25.21	CD60732	45.55

## LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
A	2-5/8	3-7/8	12	CD50301	7.54	CD60901	13.61
B	2-3/4	4	12	CD50302	8.71	CD60902	15.70
C	2-3/4	4	12	CD50303	8.71	CD60903	15.70
D	2-3/4	4	12	CD50304	9.81	CD60904	17.69
E	2-3/4	4	12	CD50305	7.12	CD60905	12.89
F	2-7/8	4-1/8	6	CD50306	8.71	CD60906	15.70
G	2-7/8	4-1/8	6	CD50307	8.71	CD60907	15.70
H	2-7/8	4-1/8	6	CD50308	9.81	CD60908	17.69
I	2-7/8	4-1/8	6	CD50309	9.81	CD60909	17.69
J	2-7/8	4-1/8	6	CD50310	9.81	CD60910	17.69
K	2-15/16	4-1/4	6	CD50311	9.81	CD60911	17.69
L	2-15/16	4-1/4	6	CD50312	11.12	CD60912	20.10
M	3-1/16	4-3/8	6	CD50313	11.79	CD60913	21.33

## LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIN	LIST PRICE
N	3-1/16	4-3/8	6	CD50314	11.79	CD60914	21.33
O	3-3/16	4-1/2	6	CD50315	13.03	CD60915	23.57
P	3-5/16	4-5/8	6	CD50316	13.85	CD60916	25.05
Q	3-7/16	4-3/4	6	CD50317	14.38	CD60917	25.95
R	3-7/16	4-3/4	6	CD50318	14.38	CD60918	25.95
S	3-1/2	4-7/8	6	CD50319	17.60	CD60919	31.83
T	3-1/2	4-7/8	6	CD50320	17.60	CD60920	31.83
U	3-5/8	5	6	CD50321	17.60	CD60921	31.83
V	3-5/8	5	6	CD50322	19.41	CD60922	35.08
W	3-3/4	5-1/8	6	CD50323	19.41	CD60923	35.08
X	3-3/4	5-1/8	6	CD50324	19.41	CD60924	35.08
Y	3-7/8	5-1/4	6	CD50325	20.57	CD60925	37.18
Z	3-7/8	5-1/4	6	CD50326	22.38	CD60926	40.43

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

All cobalt drills have identification ring on shank.  
For coating information see page 6. For technical information, please see pages 238 & 239.

# M42 Cobalt Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

**JOBBER LENGTH - HEAVY DUTY - 135° SPLIT POINT - TYPE "J"**

**SERIES 500**

NAS 907 - M42 COBALT



**SERIES 608**

NAS 907 - M42 COBALT  
ALTIM COATED



**WIRE SIZES**

**WIRE SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
1	2-5/8	3-7/8	12	CD50201	7.61	CD60801	13.79
2	2-5/8	3-7/8	12	CD50202	7.61	CD60802	13.79
3	2-1/2	3-3/4	12	CD50203	7.12	CD60803	12.89
4	2-1/2	3-3/4	12	CD50204	7.12	CD60804	12.89
5	2-1/2	3-3/4	12	CD50205	7.12	CD60805	12.89
6	2-1/2	3-3/4	12	CD50206	7.12	CD60806	12.89
7	2-7/16	3-5/8	12	CD50207	5.56	CD60807	10.03
8	2-7/16	3-5/8	12	CD50208	5.56	CD60808	10.03
9	2-7/16	3-5/8	12	CD50209	5.56	CD60809	10.03
10	2-7/16	3-5/8	12	CD50210	5.56	CD60810	10.03
11	2-5/16	3-1/2	12	CD50211	5.56	CD60811	10.03
12	2-5/16	3-1/2	12	CD50212	5.56	CD60812	10.03
13	2-5/16	3-1/2	12	CD50213	5.45	CD60813	9.85
14	2-3/16	3-3/8	12	CD50214	5.45	CD60814	9.85
15	2-3/16	3-3/8	12	CD50215	5.45	CD60815	9.85
16	2-3/16	3-3/8	12	CD50216	4.96	CD60816	8.99
17	2-3/16	3-3/8	12	CD50217	4.85	CD60817	8.77
18	2-1/8	3-1/4	12	CD50218	4.43	CD60818	8.01
19	2-1/8	3-1/4	12	CD50219	4.32	CD60819	7.80
20	2-1/8	3-1/4	12	CD50220	4.32	CD60820	7.80
21	2-1/8	3-1/4	12	CD50221	4.28	CD60821	7.72
22	2	3-1/8	12	CD50222	4.28	CD60822	7.72
23	2	3-1/8	12	CD50223	4.28	CD60823	7.72
24	2	3-1/8	12	CD50224	4.28	CD60824	7.72
25	1-7/8	3	12	CD50225	3.93	CD60825	7.07
26	1-7/8	3	12	CD50226	3.86	CD60826	7.00
27	1-7/8	3	12	CD50227	3.86	CD60827	7.00
28	1-3/4	2-7/8	12	CD50228	3.61	CD60828	6.57
29	1-3/4	2-7/8	12	CD50229	3.51	CD60829	6.35
30	1-5/8	2-3/4	12	CD50230	3.33	CD60830	5.96

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED	LIST PRICE	ALTIM	LIST PRICE
31	1-5/8	2-3/4	12	CD50231	3.22	CD60831	5.85
32	1-5/8	2-3/4	12	CD50232	3.19	CD60832	5.78
33	1-1/2	2-5/8	12	CD50233	3.08	CD60833	5.56
34	1-1/2	2-5/8	12	CD50234	3.08	CD60834	5.56
35	1-1/2	2-5/8	12	CD50235	3.08	CD60835	5.56
36	1-7/16	2-1/2	12	CD50236	3.05	CD60836	5.49
37	1-7/16	2-1/2	12	CD50237	3.05	CD60837	5.49
38	1-7/16	2-1/2	12	CD50238	2.83	CD60838	5.25
39	1-3/8	2-3/8	12	CD50239	2.83	CD60839	5.25
40	1-3/8	2-3/8	12	CD50240	2.83	CD60840	5.25
41	1-3/8	2-3/8	12	CD50241	2.80	CD60841	5.25
42	1-1/4	2-1/4	12	CD50242	2.76	CD60842	5.25
43	1-1/4	2-1/4	12	CD50243	2.76	CD60843	5.25
44	1-1/8	2-1/8	12	CD50244	2.76	CD60844	5.25
45	1-1/8	2-1/8	12	CD50245	2.76	CD60845	5.25
46	1-1/8	2-1/8	12	CD50246	2.76	CD60846	5.25
47	1	2	12	CD50247	2.76	CD60847	5.25
48	1	2	12	CD50248	2.76	CD60848	5.25
49	1	2	12	CD50249	2.76	CD60849	5.25
50	1	2	12	CD50250	2.76	CD60850	5.25
51	1	2	12	CD50251	2.76	CD60851	5.25
52	7/8	1-7/8	12	CD50252	2.76	CD60852	5.25
53	7/8	1-7/8	12	CD50253	3.08	CD60853	5.59
54	7/8	1-7/8	12	CD50254	3.08	CD60854	5.59
55	7/8	1-7/8	12	CD50255	3.08	CD60855	5.59
56	3/4	1-3/4	12	CD50256	3.47	CD60856	6.32
57	3/4	1-3/4	12	CD50257	3.47	CD60857	6.32
58	11/16	1-5/8	12	CD50258	3.47	CD60858	6.32
59	11/16	1-5/8	12	CD50259	3.47	CD60859	6.32
60	11/16	1-5/8	12	CD50260	3.47	CD60860	6.32

NOTE: SIZES BELOW 1/16" ARE NOT SPLIT POINT.

- For use where extreme temperatures are found
- Coating allows for increased machining speeds from 50% up to 200%
- Used in machining Stainless Steels, Nickel-based and Titanium alloys
- Not recommended for aluminum

All cobalt drills have identification ring on shank.  
For coating information see page 6. For technical information, please see pages 238 & 239.

**TAKE 55% OFF  
LIST PRICE!**

TAPER LENGTH - 118° POINT



**SERIES 525**  
OXIDE FINISH

**FRACTIONAL SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	LIST PRICE
3/64	1-1/8	2-1/4	12	CD52503	10.93
1/16	1-3/4	3	12	CD52504	10.93
5/64	2	3-3/4	12	CD52505	10.93
3/32	2-1/4	4-1/4	12	CD52506	10.18
7/64	2-1/2	4-5/8	12	CD52507	10.64
1/8	2-3/4	5-1/8	12	CD52508	10.94
9/64	3	5-3/8	12	CD52509	14.62
5/32	3	5-3/8	12	CD52510	14.77
11/64	3-3/8	5-3/4	12	CD52511	15.50
3/16	3-3/8	5-3/4	12	CD52512	14.42
13/64	3-5/8	6	12	CD52513	17.60
7/32	3-5/8	6	12	CD52514	18.98
15/64	3-3/4	6-1/8	12	CD52515	18.98
1/4	3-3/4	6-1/8	12	CD52516	16.38
17/64	3-7/8	6-1/4	6	CD52517	19.86
9/32	3-7/8	6-1/4	6	CD52518	19.86
19/64	4	6-3/8	6	CD52519	21.62
5/16	4	6-3/8	6	CD52520	21.62
21/64	4-1/8	6-1/2	6	CD52521	21.62
11/32	4-1/8	6-1/2	6	CD52522	21.62
23/64	4-1/4	6-3/4	6	CD52523	25.48
3/8	4-1/4	6-3/4	6	CD52524	25.48
25/64	4-3/8	6-3/4	6	CD52525	29.00
13/32	4-3/8	7	6	CD52526	29.00
27/64	4-5/8	7-1/4	6	CD52527	30.76
7/16	4-5/8	7-1/4	6	CD52528	30.76
29/64	4-3/4	7-1/2	6	CD52529	35.01
15/32	4-3/4	7-1/2	6	CD52530	35.01
31/64	4-3/4	7-3/4	6	CD52531	37.04
1/2	4-3/4	7-3/4	6	CD52532	37.04
33/64	4-3/4	8	1	CD52533	49.20
17/32	4-3/4	8	1	CD52534	49.20
35/64	4-7/8	8-1/4	1	CD52535	51.69
9/16	4-7/8	8-1/4	1	CD52536	51.69

**FRACTIONAL SIZES**

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	LIST PRICE
37/64	4-7/8	8-3/4	1	CD52537	60.49
19/32	4-7/8	8-3/4	1	CD52538	60.49
39/64	4-7/8	8-3/4	1	CD52539	62.67
5/8	4-7/8	8-3/4	1	CD52540	62.67
41/64	5-1/8	9	1	CD52541	71.35
21/32	5-1/8	9	1	CD52542	71.35
43/64	5-3/8	9-1/4	1	CD52543	84.40
11/16	5-3/8	9-1/4	1	CD52544	84.40
45/64	5-5/8	9-1/2	1	CD52545	88.26
23/32	5-5/8	9-1/2	1	CD52546	88.26
47/64	5-7/8	9-3/4	1	CD52547	94.92
3/4	5-7/8	9-3/4	1	CD52548	94.92
49/64	6	9-7/8	1	CD52549	102.84
25/32	6	9-7/8	1	CD52550	102.84
51/64	6-1/8	10	1	CD52551	111.03
13/16	6-1/8	10	1	CD52552	111.03
53/64	6-1/8	10	1	CD52553	116.92
27/32	6-1/8	10	1	CD52554	116.92
55/64	6-1/8	10	1	CD52555	122.70
7/8	6-1/8	10	1	CD52556	122.70
57/64	6-1/8	10	1	CD52557	127.90
29/32	6-1/8	10	1	CD52558	127.90
59/64	6-1/8	10-3/4	1	CD52559	139.04
15/16	6-1/8	10-3/4	1	CD52560	139.04
61/64	6-3/8	11	1	CD52561	153.46
31/32	6-3/8	11	1	CD52562	153.46
63/64	6-3/8	11	1	CD52563	159.96
1	6-3/8	11	1	CD52564	159.96
1-1/16	6-5/8	11-1/4	1	CD52568	198.22
1-1/8	7-1/8	11-3/4	1	CD52572	220.64
1-3/16	7-3/8	12	1	CD52576	258.60
1-1/4	7-7/8	12-1/2	1	CD52580	276.96
1-5/16	8-5/8	14-1/4	1	CD52584	330.49
1-3/8	8-7/8	14-1/2	1	CD52588	354.44

For technical information, please see pages 238 & 239.



# HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

TAPER LENGTH - 118° POINT



**SERIES 525**  
OXIDE FINISH

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	LIST PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	LIST PRICE
1	3-3/4	6-1/8	12	CD52701	19.90	21	3-3/8	5-3/4	12	CD52721	17.48
2	3-3/4	6-1/8	12	CD52702	19.90	22	3-3/8	5-3/4	12	CD52722	17.48
3	3-5/8	6	12	CD52703	19.24	23	3	5-3/8	12	CD52723	17.48
4	3-5/8	6	12	CD52704	19.24	24	3	5-3/8	12	CD52724	17.48
5	3-5/8	6	12	CD52705	19.24	25	3	5-3/8	12	CD52725	17.48
6	3-5/8	6	12	CD52706	19.24	26	3	5-3/8	12	CD52726	17.48
7	3-5/8	6	12	CD52707	19.24	27	3	5-3/8	12	CD52727	17.48
8	3-5/8	6	12	CD52708	19.24	28	3	5-3/8	12	CD52728	17.48
9	3-5/8	6	12	CD52709	19.24	29	3	5-3/8	12	CD52729	17.48
10	3-5/8	6	12	CD52710	19.24	30	3	5-3/8	12	CD52730	17.48
11	3-5/8	6	12	CD52711	19.24	31	2-3/4	5-1/8	12	CD52731	17.14
12	3-5/8	6	12	CD52712	19.24	32	2-3/4	5-1/8	12	CD52732	17.14
13	3-3/8	5-3/4	12	CD52713	17.48	33	2-3/4	5-1/8	12	CD52733	17.14
14	3-3/8	5-3/4	12	CD52714	17.48	34	2-3/4	5-1/8	12	CD52734	17.14
15	3-3/8	5-3/4	12	CD52715	17.48	35	2-3/4	5-1/8	12	CD52735	17.14
16	3-3/8	5-3/4	12	CD52716	17.48	36	2-1/2	4-5/8	12	CD52736	12.82
17	3-3/8	5-3/4	12	CD52717	17.48	37	2-1/2	4-5/8	12	CD52737	12.82
18	3-3/8	5-3/4	12	CD52718	17.48	38	2-1/2	4-5/8	12	CD52738	12.82
19	3-3/8	5-3/4	12	CD52719	17.48	39	2-1/2	4-5/8	12	CD52739	11.25
20	3-3/8	5-3/4	12	CD52720	17.48	40	2-1/2	4-5/8	12	CD52740	11.25



For technical information, please see pages 238 & 239.

## TAPER SHANK - 118° POINT



**SERIES 550**  
OXIDE FINISH

**TAKE 55% OFF  
LIST PRICE!**

### FRACTIONAL SIZES

SIZE	MORSE TAPER	FLUTE LENGTH	OAL	OXIDE	LIST PRICE
3/16	1	2-1/2	5-3/4	CD55012	38.68
13/64	1	2-3/4	6	CD55013	38.68
7/32	1	2-3/4	6	CD55014	38.68
15/64	1	2-7/8	6-1/8	CD55015	38.68
1/4	1	2-7/8	6-1/8	CD55016	38.68
17/64	1	3	6-1/4	CD55017	38.68
9/32	1	3	6-1/4	CD55018	38.68
19/64	1	3-1/8	6-3/8	CD55019	40.98
5/16	1	3-1/8	6-3/8	CD55020	43.08
21/64	1	3-1/4	6-1/2	CD55021	43.08
11/32	1	3-1/4	6-1/2	CD55022	43.08
23/64	1	3-1/2	6-3/4	CD55023	43.96
3/8	1	3-1/2	6-3/4	CD55024	43.96
25/64	1	3-5/8	7	CD55025	52.22
13/32	1	3-5/8	7	CD55026	52.22
27/64	1	3-7/8	7-1/4	CD55027	56.24
7/16	1	3-7/8	7-1/4	CD55028	56.24
29/64	1	4-1/8	7-1/2	CD55029	56.24
15/32	1	4-1/8	7-1/2	CD55030	56.24
31/64	2	4-3/8	8-1/4	CD55031	61.52
1/2	2	4-3/8	8-1/4	CD55032	57.58
33/64	2	4-5/8	8-1/2	CD55033	66.38
17/32	2	4-5/8	8-1/2	CD55034	68.56
35/64	2	4-7/8	8-3/4	CD55035	72.23
9/16	2	4-7/8	8-3/4	CD55036	70.32
37/64	2	4-7/8	8-3/4	CD55037	76.90
19/32	2	4-7/8	8-3/4	CD55038	75.60
39/64	2	4-7/8	8-3/4	CD55039	80.00
5/8	2	4-7/8	8-3/4	CD55040	76.48
41/64	2	5-1/8	9	CD55041	87.92
21/32	2	5-1/8	9	CD55042	86.16
43/64	2	5-3/8	9-1/4	CD55043	94.92
11/16	2	5-3/8	9-1/4	CD55044	89.64
45/64	2	5-5/8	9-1/2	CD55045	98.44
23/32	2	5-5/8	9-1/2	CD55046	95.11
47/64	2	5-7/8	9-3/4	CD55047	105.48
3/4	2	5-7/8	9-3/4	CD55048	104.60
49/64	2	6	9-7/8	CD55049	126.07
25/32	2	6	9-7/8	CD55050	125.34
51/64	3	6-1/8	10-3/4	CD55051	138.00

### FRACTIONAL SIZES

SIZE	MORSE TAPER	FLUTE LENGTH	OAL	OXIDE	LIST PRICE
13/16	3	6-1/8	10-3/4	CD55052	129.66
53/64	3	6-1/8	10-3/4	CD55053	143.63
27/32	3	6-1/8	10-3/4	CD55054	139.76
55/64	3	6-1/8	10-3/4	CD55055	157.71
7/8	3	6-1/8	10-3/4	CD55056	144.01
57/64	3	6-1/8	10-3/4	CD55057	152.08
29/32	3	6-1/8	10-3/4	CD55058	152.08
59/64	3	6-1/8	10-3/4	CD55059	154.19
15/16	3	6-1/8	10-3/4	CD55060	144.51
61/64	3	6-3/8	11	CD55061	158.39
31/32	3	6-3/8	11	CD55062	157.32
63/64	3	6-3/8	11	CD55063	168.07
1	3	6-3/8	11	CD55064	159.96
1-1/64	3	6-1/2	11-1/8	CD55065	185.98
1-1/32	3	6-1/2	11-1/8	CD55066	184.60
1-3/64	3	6-5/8	11-1/4	CD55067	193.40
1-1/16	3	6-5/8	11-1/4	CD55068	184.60
1-5/64	4	6-7/8	12-1/2	CD55069	219.72
1-3/32	4	6-7/8	12-1/2	CD55070	219.72
1-7/64	4	7-1/8	12-3/4	CD55071	228.52
1-1/8	4	7-1/8	12-3/4	CD55072	228.52
1-9/64	4	7-1/4	12-7/8	CD55073	246.12
1-5/32	4	7-1/4	12-7/8	CD55074	237.32
1-11/64	4	7-3/8	13	CD55075	246.12
1-3/16	4	7-3/8	13	CD55076	246.12
1-13/64	4	7-1/2	13-1/8	CD55077	263.68
1-7/32	4	7-1/2	13-1/8	CD55078	263.68
1-1/4	4	7-7/8	13-1/2	CD55080	276.00
1-5/16	4	8-5/8	14-1/4	CD55084	339.29
1-3/8	4	8-7/8	14-1/2	CD55088	362.13
1-7/16	4	9-1/8	14-3/4	CD55092	397.29
1-1/2	4	9-3/8	15	CD55096	416.65
1-9/16	5	9-5/8	16-5/8	CD55102	508.05
1-5/8	5	10	17	CD55106	548.49
1-11/16	5	10-1/8	17-1/8	CD55110	604.77
1-3/4	5	10-1/8	17-1/8	CD55114	643.45
1-13/16	5	10-1/8	17-1/8	CD55118	690.89
1-7/8	5	10-3/8	17-3/8	CD55122	720.77
1-15/16	5	10-3/8	17-3/8	CD55126	777.05
2	5	10-3/8	17-3/8	CD55130	805.17

Taper shank drills sold individually.  
For technical information, please see pages 238 & 239.

# HSS Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



EXTRA LENGTH DRILL - STRAIGHT SHANK - 118° POINT - 12" O.A.L.



**SERIES 686**  
BRIGHT FINISH

FRACTIONAL SIZES					FRACTIONAL SIZES				
SIZE	FLUTE LENGTH	OAL	BRIGHT	LIST PRICE	SIZE	FLUTE LENGTH	OAL	BRIGHT	LIST PRICE
1/8	9	12	CD68608	43.20	3/8	9	12	CD68624	57.69
9/64	9	12	CD68609	62.61	25/64	9	12	CD68625	87.31
5/32	9	12	CD68610	56.93	13/32	9	12	CD68626	87.31
11/64	9	12	CD68611	48.56	27/64	9	12	CD68627	87.31
3/16	9	12	CD68612	48.56	7/16	9	12	CD68628	74.56
13/64	9	12	CD68613	58.84	29/64	9	12	CD68629	91.12
7/32	9	12	CD68614	52.69	15/32	9	12	CD68630	81.99
15/64	9	12	CD68615	52.69	31/64	9	12	CD68631	83.89
1/4	9	12	CD68616	54.47	1/2	9	12	CD68632	83.89
17/64	9	12	CD68617	56.38	17/32	9	12	CD68634	106.29
9/32	9	12	CD68618	56.38	9/16	9	12	CD68636	106.29
19/64	9	12	CD68619	58.44	19/32	9	12	CD68638	132.85
5/16	9	12	CD68620	58.44	5/8	9	12	CD68640	129.08
21/64	9	12	CD68621	62.61	11/16	9	12	CD68644	136.66
11/32	9	12	CD68622	62.61	3/4	9	12	CD68648	153.93
23/64	9	12	CD68623	62.61					

## SCREW EXTRACTORS

**TAKE 55% OFF  
LIST PRICE!**



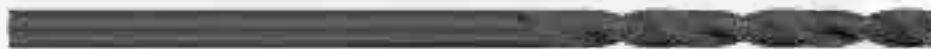
**SERIES 531**

SIZE	FOR SCREW & BOLT SIZES	PIPE SIZE	PKG. QTY.	ITEM#	LIST PRICE
1	3/16 - 1/4	-	1	CD53101	7.19
2	1/4 - 5/16	-	1	CD53102	7.66
3	5/16 - 7/16	-	1	CD53103	9.29
4	7/16 - 9/16	1/8	1	CD53104	9.85
5	9/16 - 3/4	1/4	1	CD53105	12.31
6	3/4-1	3/8	1	CD53106	27.04
7	1 - 1-3/8	1/2	1	CD53107	43.51
8	1-3/8 - 1-3/4	3/4	1	CD53108	59.20
9	1-3/4 - 2-1/8	1	1	CD53109	102.95
10	2-1/8 - 2-1/2	1-1/4	1	CD53110	267.16
SET	SIZES 1-5	-	1	CD53113	46.25

All tools sold individually.

For technical information, please see pages 238 & 239.

## 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	7.07	CD67706	11.69
7/64	6	1-1/2	12	CD67507	7.04	CD67707	13.25
1/8	6	1-5/8	12	CD67508	6.93	CD67708	10.87
9/64	6	1-3/4	12	CD67509	8.26	CD67709	14.86
5/32	6	2	12	CD67510	9.14	CD67710	14.86
11/64	6	2-1/8	12	CD67511	10.08	CD67711	16.36
3/16	6	2-5/16	12	CD67512	9.97	CD67712	13.77
13/64	6	2-7/16	12	CD67513	12.16	CD67713	20.26
7/32	6	2-1/2	12	CD67514	12.16	CD67714	20.78
15/64	6	2-5/8	12	CD67515	13.51	CD67715	22.08
1/4	6	2-3/4	12	CD67516	12.01	CD67716	21.56
17/64	6	2-7/8	6	CD67517	30.65	-	-
9/32	6	2-15/16	6	CD67518	31.69	-	-
19/64	6	3-1/16	6	CD67519	37.40	-	-
5/16	6	3-3/16	6	CD67520	40.52	-	-
21/64	6	3-5/16	6	CD67521	43.64	-	-
11/32	6	3-7/16	6	CD67522	43.64	-	-
23/64	6	3-1/2	6	CD67523	48.57	-	-
3/8	6	3-5/8	6	CD67524	49.35	-	-

**TAKE 55% OFF LIST PRICE!**

### WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1	6	2-5/8	12	CD67601	14.03	CD67801	23.12
2	6	2-5/8	12	CD67602	14.03	CD67802	23.12
10	6	2-7/16	12	CD67610	10.91	CD67810	15.76
11	6	2-5/16	12	CD67611	10.91	CD67811	15.15
20	6	2-1/8	12	CD67620	9.09	CD67820	14.34
21	6	2-1/8	12	CD67621	9.56	CD67821	14.34
29	6	1-3/4	12	CD67629	10.13	CD67829	15.84
30	6	1-5/8	12	CD67630	7.79	CD67830	10.91
40	6	1-5/8	12	CD67640	6.39	CD67840	9.91

For technical information, please see pages 238 & 239.

# Aircraft Extension Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## 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"

#### FRACTIONAL SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1/8	12	1-5/8	12	CD68008	20.05	CD68808	33.25
9/64	12	1-3/4	12	CD68009	20.24	CD68809	36.62
5/32	12	2	12	CD68010	20.24	CD68810	33.77
11/64	12	2-1/8	12	CD68011	22.81	CD68811	36.37
3/16	12	2-5/16	12	CD68012	22.58	CD68812	35.33
13/64	12	2-7/16	12	CD68013	25.90	CD68813	46.24
7/32	12	2-1/2	12	CD68014	25.63	CD68814	42.08
15/64	12	2-5/8	12	CD68015	28.88	CD68815	44.68
1/4	12	2-3/4	12	CD68016	31.43	CD68816	40.86
17/64	12	2-7/8	6	CD68017	36.37	-	-
9/32	12	2-15/16	6	CD68018	36.11	-	-
19/64	12	3-1/16	6	CD68019	40.41	-	-
5/16	12	3-3/16	6	CD68020	44.23	-	-
21/64	12	3-5/16	6	CD68021	48.05	-	-
11/32	12	3-7/16	6	CD68022	47.51	-	-
23/64	12	3-1/2	6	CD68023	53.83	-	-
3/8	12	3-5/8	6	CD68024	54.33	-	-
25/64	12	3-3/4	6	CD68025	60.60	-	-
13/32	12	3-7/8	6	CD68026	58.42	-	-
27/64	12	3-15/16	6	CD68027	64.43	-	-
7/16	12	4-1/16	6	CD68028	64.54	-	-
29/64	12	4-3/16	6	CD68029	72.81	-	-
15/32	12	4-5/16	6	CD68030	75.45	-	-
31/64	12	4-3/8	6	CD68031	78.24	-	-
1/2	12	4-1/2	6	CD68032	77.40	-	-



#### WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	LIST PRICE	COBALT	LIST PRICE
1	12	2-5/8	12	CD68101	31.45	CD68901	49.87
10	12	2-7/16	12	CD68110	25.29	CD68910	38.44
11	12	2-5/16	12	CD68111	25.52	CD68911	37.14
20	12	2-1/8	12	CD68120	22.95	CD68920	34.29
21	12	2-1/8	12	CD68121	22.54	CD68921	34.29
29	12	1-3/4	12	CD68129	23.88	CD68929	35.59
30	12	1-5/8	12	CD68130	22.54	CD68930	32.48
40	12	1-3/8	12	CD68140	22.54	CD68940	35.59

For technical information, please see pages 238 & 239.



**TAKE 55% OFF  
LIST PRICE!**

**SERIES 625**  
HIGH SPEED STEEL  
1/2" ROUND SHANK - 118° POINT

SIZE	OAL	ITEM#	LIST PRICE
33/64	6	SD91433	31.87
17/32	6	SD91434	31.87
35/64	6	SD91435	33.64
9/16	6	SD91436	33.64
37/64	6	SD91437	36.12
19/32	6	SD91438	36.12
39/64	6	SD91439	37.96
5/8	6	SD91440	37.96
41/64	6	SD91441	39.77
21/32	6	SD91442	39.77
43/64	6	SD91443	42.28
11/16	6	SD91444	42.28
45/64	6	SD91445	42.46
23/32	6	SD91446	42.46
47/64	6	SD91447	46.32

SIZE	OAL	ITEM#	LIST PRICE
3/4	6	SD91448	46.46
49/64	6	SD91449	49.26
25/32	6	SD91450	49.26
51/64	6	SD91451	51.77
13/16	6	SD91452	51.77
53/64	6	SD91453	53.79
27/32	6	SD91454	53.79
55/64	6	SD91455	55.56
7/8	6	SD91456	55.56
57/64	6	SD91457	57.83
29/32	6	SD91458	57.83
59/64	6	SD91459	62.96
15/16	6	SD91460	62.96
61/64	6	SD91461	66.01
31/32	6	SD91462	66.01

SIZE	OAL	ITEM#	LIST PRICE
63/64	6	SD91463	73.59
1	6	SD91464	73.59
1-1/32	6	SD91466	98.73
1-1/16	6	SD91468	98.73
1-3/32	6	SD91470	105.28
1-1/8	6	SD91472	112.47
1-5/32	6	SD91474	112.47
1-3/16	6	SD91476	124.51
1-7/32	6	SD91478	137.79
1-1/4	6	SD91480	137.79
1-5/16	6	SD91484	145.76
1-3/8	6	SD91488	167.89
1-7/16	6	SD91492	184.61
1-1/2	6	SD91496	202.85



**SERIES 620**  
HIGH SPEED STEEL  
1/2" SHANK - 3 FLATS - 118° POINT

SIZE	OAL	ITEM#	LIST PRICE
33/64	6	SD92533	34.74
17/32	6	SD92534	34.74
35/64	6	SD92535	36.94
9/16	6	SD92536	36.94
37/64	6	SD92537	39.70
19/32	6	SD92538	39.70
39/64	6	SD92539	41.54
5/8	6	SD92540	41.54
41/64	6	SD92541	44.30
21/32	6	SD92542	44.30
43/64	6	SD92543	46.07

SIZE	OAL	ITEM#	LIST PRICE
11/16	6	SD92544	46.07
45/64	6	SD92545	46.67
23/32	6	SD92546	46.67
47/64	6	SD92547	50.85
3/4	6	SD92548	50.85
49/64	6	SD92549	54.25
25/32	6	SD92550	54.25
51/64	6	SD92551	59.46
13/16	6	SD92552	59.46
53/64	6	SD92553	61.94
27/32	6	SD92554	61.94

SIZE	OAL	ITEM#	LIST PRICE
55/64	6	SD92555	66.08
7/8	6	SD92556	66.08
57/64	6	SD92557	68.56
29/32	6	SD92558	68.56
59/64	6	SD92559	70.19
15/16	6	SD92560	70.19
61/64	6	SD92561	73.48
31/32	6	SD92562	73.48
63/64	6	SD92563	80.53
1	6	SD92564	80.53

All S & D drills have 3" flute length.  
For technical information, please see pages 238 & 239.

# Silver & Deming Drills

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## SERIES 623

HIGH SPEED STEEL - BLACK & GOLD  
1/2" SHANK - 3 FLATS - 118° SPLIT POINT

SIZE	OAL	ITEM#	LIST PRICE
33/64	6	SD94733	40.69
17/32	6	SD94734	40.69
35/64	6	SD94735	43.10
9/16	6	SD94736	43.10
37/64	6	SD94737	45.75
19/32	6	SD94738	45.75
39/64	6	SD94739	47.56
5/8	6	SD94740	47.56
41/64	6	SD94741	50.46
21/32	6	SD94742	50.46
43/64	6	SD94743	52.62

SIZE	OAL	ITEM#	LIST PRICE
11/16	6	SD94744	52.62
45/64	6	SD94745	54.82
23/32	6	SD94746	54.82
47/64	6	SD94747	57.19
3/4	6	SD94748	57.19
49/64	6	SD94749	60.38
25/32	6	SD94750	60.38
51/64	6	SD94751	64.24
13/16	6	SD94752	64.24
53/64	6	SD94753	67.04
27/32	6	SD94754	67.04

SIZE	OAL	ITEM#	LIST PRICE
55/64	6	SD94755	68.84
7/8	6	SD94756	68.84
57/64	6	SD94757	71.85
29/32	6	SD94758	71.85
59/64	6	SD94759	77.24
15/16	6	SD94760	77.24
61/64	6	SD94761	83.18
31/32	6	SD94762	83.18
63/64	6	SD94763	87.36
1	6	SD94764	87.36



## SERIES 622

M42 COBALT  
1/2" ROUND SHANK - 135° SPLIT POINT



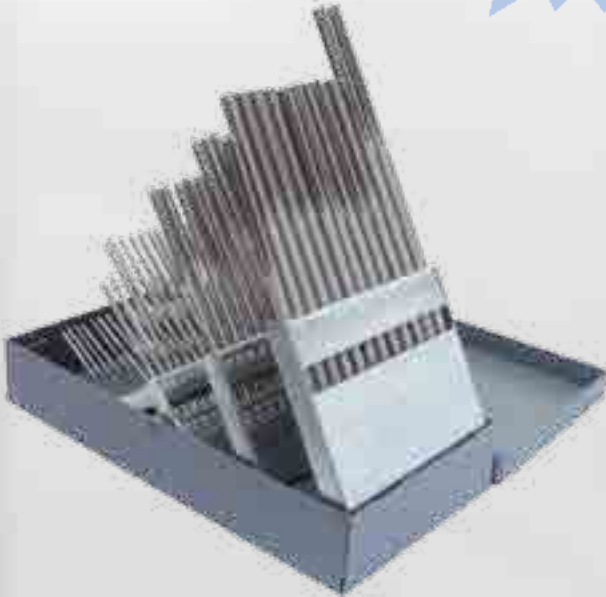
SIZE	OAL	ITEM#	LIST PRICE
33/64	6	SD93633	63.39
17/32	6	SD93634	63.39
35/64	6	SD93635	76.28
9/16	6	SD93636	76.28
37/64	6	SD93637	78.86
19/32	6	SD93638	78.86
39/64	6	SD93639	80.88
5/8	6	SD93640	80.88
41/64	6	SD93641	84.85
21/32	6	SD93642	84.85
43/64	6	SD93643	86.58

SIZE	OAL	ITEM#	LIST PRICE
11/16	6	SD93644	86.58
45/64	6	SD93645	91.33
23/32	6	SD93646	91.33
47/64	6	SD93647	95.30
3/4	6	SD93648	95.30
49/64	6	SD93649	99.65
25/32	6	SD93650	99.65
51/64	6	SD93651	102.31
13/16	6	SD93652	102.31
53/64	6	SD93653	110.56
27/32	6	SD93654	110.56

SIZE	OAL	ITEM#	LIST PRICE
55/64	6	SD93655	110.56
7/8	6	SD93656	110.56
57/64	6	SD93657	114.77
29/32	6	SD93658	114.77
59/64	6	SD93659	119.73
15/16	6	SD93660	119.73
61/64	6	SD93661	126.35
31/32	6	SD93662	126.35
63/64	6	SD93663	143.38
1	6	SD93664	143.38

All S & D drills have 3" flute length.  
For technical information, please see pages 238 & 239.

**TAKE 55% OFF  
LIST PRICE!**



**ITEM# TR96286**  
60 PC. #1 - #60  
HIGH SPEED STEEL



**ITEM# TR96283**  
29 PC. 1/16" - 1/2" BY 64ths  
HIGH SPEED STEEL

## HSS & M42 COBALT

DESCRIPTION	FLUTE STYLE	ITEM#	LIST PRICE
10Pc • #4 - 1/2" • Standard • Ctr Bore Set • HSS	RH Spiral	TR96307	642.21
10Pc • #4 - 1/2" • 1/64" OS • Ctr Bore Set • HSS	RH Spiral	TR96308	642.21
10Pc • #4 - 1/2" • 1/32" OS • Ctr Bore Set • HSS	RH Spiral	TR96309	642.21
14Pc • Dowel Pin • .1230 - .4995 • HSS	Straight	TR96279	653.35
14Pc • Dowel Pin • .1230 - .4995 • M42 Cobalt	Straight	TR96280	857.00
14Pc • O/U • .1240 - .5010 • HSS	Straight	TR96293	653.35
14Pc • O/U • .1240 - .5010 • M42 Cobalt	Straight	TR96294	818.94
20Pc • #61 - #80 • HSS	Straight	TR96305	765.85
26Pc • A-Z • HSS	Straight	TR96290	1165.66
26Pc • A-Z • M42 Cobalt	Straight	TR96291	1622.60
29Pc • 1/16" - 1/2" by 64ths • HSS	Straight	TR96283	1259.69
29Pc • 1/16" - 1/2" by 64ths • M42 Cobalt	Straight	TR96284	1650.18
60Pc • #1 - #60 • HSS	Straight	TR96286	1868.82
60Pc • #1 - #60 • M42 Cobalt	Straight	TR96287	2029.02

For technical information, please see page 240.



# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## 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	36.36	TR96310	40.25
79	.0145	3/8	2	3/4	.0145	TR96002	36.36	TR96311	40.25
1/64	.0156	3/8	2	3/4	.0156	TR96003	36.36	TR96312	40.25
78	.0160	3/8	2	7/8	.0160	TR96004	36.36	TR96313	40.25
77	.0180	3/8	2	7/8	.0180	TR96005	36.36	TR96314	40.25
76	.0200	3/8	2	7/8	.0200	TR96006	36.36	TR96315	40.25
75	.0210	1/2	3	1	.0210	TR96007	36.36	TR96316	40.25
74	.0225	1/2	3	1	.0225	TR96008	36.36	TR96317	40.25
73	.0240	1/2	3	1-1/8	.0240	TR96009	36.36	TR96318	40.25
72	.0250	1/2	3	1-1/8	.0250	TR96010	36.36	TR96319	40.25
71	.0260	1/2	3	1-1/4	.0260	TR96011	36.36	TR96320	40.25
70	.0280	1/2	3	1-1/4	.0280	TR96012	36.36	TR96321	40.25
69	.0292	1/2	3	1-3/8	.0292	TR96013	36.36	TR96322	40.25
68	.0310	1/2	3	1-3/8	.0310	TR96014	36.36	TR96323	40.25
1/32	.0312	1/2	3	1-3/8	.0312	TR96015	28.67	TR96324	33.13
67	.0320	1/2	3	1-3/8	.0320	TR96016	30.45	TR96325	33.13
66	.0330	1/2	3	1-3/8	.0330	TR96017	30.45	TR96326	33.13
65	.0350	1/2	3	1-1/2	.0350	TR96018	30.45	TR96327	33.13
64	.0360	1/2	3	1-1/2	.0360	TR96019	30.45	TR96328	33.13
63	.0370	1/2	3	1-1/2	.0370	TR96020	30.45	TR96329	33.13
62	.0380	1/2	3	1-1/2	.0380	TR96021	30.45	TR96330	33.13
61	.0390	1/2	3	1-1/2	.0390	TR96022	30.45	TR96331	33.13
1.0mm	.0394	1/2	4	2-1/2	.0394	TR96023	30.45	TR96332	32.60
60	.0400	1/2	4	2-1/2	.0390	TR96024	30.45	TR96333	32.60
59	.0410	1/2	4	2-1/2	.0390	TR96025	30.45	TR96334	32.60
58	.0420	1/2	4	2-1/2	.0390	TR96026	30.45	TR96335	32.60
57	.0430	1/2	4	2-1/2	.0390	TR96027	30.45	TR96336	32.60
56	.0465	1/2	4	2-1/2	.0455	TR96028	30.45	TR96337	32.60
3/64	.0469	1/2	4	2-1/2	.0455	TR96029	30.45	TR96338	32.60
55	.0520	1/2	4	2-1/2	.0510	TR96030	30.45	TR96339	32.60
54	.0550	1/2	4	2-1/2	.0510	TR96031	30.45	TR96340	32.60
1.5mm	.0591	1/2	4	2-1/2	.0510	TR96032	30.45	TR96341	32.60
53	.0595	1/2	4	2-1/2	.0585	TR96033	30.45	TR96342	32.60
1/16	.0625	1/2	4	2-1/2	.0585	TR96034	27.37	TR96343	32.60
52	.0635	1/2	4	2-1/2	.0585	TR96035	27.37	TR96344	32.60
51	.0670	3/4	4	3	.0660	TR96036	24.50	TR96345	26.24
50	.0700	3/4	4	3	.0660	TR96037	24.50	TR96346	26.24
49	.0730	3/4	4	3	.0660	TR96038	24.50	TR96347	26.24
48	.0760	3/4	4	3	.0720	TR96039	24.50	TR96348	26.24
5/64	.0781	3/4	4	3	.0720	TR96040	24.50	TR96349	26.24

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 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	24.50	TR96350	26.24
2.0mm	.0787	3/4	4	3	.0720	TR96042	24.50	TR96351	26.24
46	.0810	3/4	4	3	.0771	TR96043	24.50	TR96352	26.24
45	.0820	3/4	4	3	.0771	TR96044	24.50	TR96353	26.24
44	.0860	3/4	4	3	.0810	TR96045	24.50	TR96354	26.24
43	.0890	3/4	4	3	.0810	TR96046	24.50	TR96355	26.24
42	.0935	3/4	4	3	.0880	TR96047	24.50	TR96356	26.24
3/32	.0938	3/4	4	3	.0880	TR96048	22.03	TR96357	26.24
41	.0960	7/8	4	3-1/2	.0928	TR96049	24.74	TR96358	26.44
40	.0980	7/8	4	3-1/2	.0928	TR96050	24.74	TR96359	26.44
2.5mm	.0984	7/8	4	3-1/2	.0928	TR96051	24.74	TR96360	26.44
39	.0995	7/8	4	3-1/2	.0928	TR96052	24.74	TR96361	26.44
38	.1015	7/8	4	3-1/2	.0950	TR96053	24.74	TR96362	26.44
37	.1040	7/8	4	3-1/2	.0950	TR96054	24.74	TR96363	26.44
36	.1065	7/8	4	3-1/2	.1030	TR96055	24.74	TR96364	26.44
7/64	.1094	7/8	4	3-1/2	.1030	TR96056	25.51	TR96365	27.25
35	.1100	7/8	4	3-1/2	.1030	TR96057	25.51	TR96366	27.25
34	.1110	7/8	4	3-1/2	.1055	TR96058	25.51	TR96367	27.25
33	.1130	7/8	4	3-1/2	.1055	TR96059	25.51	TR96368	27.25
32	.1160	7/8	4	3-1/2	.1120	TR96060	25.51	TR96369	27.25
3.0mm	.1181	7/8	4	3-1/2	.1120	TR96061	25.51	TR96370	27.25
31	.1200	7/8	4	3-1/2	.1120	TR96062	25.51	TR96371	27.25
o/u	.1240	7/8	4	3-1/2	.1190	TR96063	25.51	TR96372	27.25
1/8	.1250	7/8	4	3-1/2	.1190	TR96064	20.33	TR96373	21.79
o/u	.1260	7/8	4	3-1/2	.1190	TR96065	25.51	TR96374	27.25
30	.1285	7/8	4	3-1/2	.1190	TR96066	25.51	TR96375	27.25
29	.1360	1	4	4	.1275	TR96067	30.45	TR96376	32.60
3.5mm	.1378	1	4	4	.1350	TR96068	30.45	TR96377	32.60
28	.1405	1	4	4	.1350	TR96069	30.45	TR96378	32.60
9/64	.1406	1	4	4	.1350	TR96070	30.45	TR96379	32.60
27	.1440	1	4	4	.1350	TR96071	30.45	TR96380	32.60
26	.1470	1	4	4	.1430	TR96072	30.45	TR96381	32.60
25	.1495	1	4	4	.1430	TR96073	30.45	TR96382	32.60
24	.1520	1	4	4	.1460	TR96074	30.45	TR96383	32.60
23	.1540	1	4	4	.1460	TR96075	30.45	TR96384	32.60
5/32	.1562	1	4	4	.1510	TR96076	30.45	TR96385	32.60
22	.1570	1	6	4	.1510	TR96077	30.45	TR96386	32.60
4.0mm	.1575	1	6	4	.1510	TR96078	30.45	TR96387	32.60
21	.1590	1-1/8	6	4-1/2	.1530	TR96079	32.52	TR96388	34.79
20	.1610	1-1/8	6	4-1/2	.1530	TR96080	32.52	TR96389	34.79

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## 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	32.52	TR96390	34.79
18	.1695	1-1/8	6	4-1/2	.1595	TR96082	32.52	TR96391	34.79
11/64	.1719	1-1/8	6	4-1/2	.1645	TR96083	32.52	TR96392	34.79
17	.1730	1-1/8	6	4-1/2	.1645	TR96084	32.52	TR96393	34.79
16	.1770	1-1/8	6	4-1/2	.1704	TR96085	32.52	TR96394	34.79
4.5mm	.1772	1-1/8	6	4-1/2	.1704	TR96086	32.52	TR96395	34.79
15	.1800	1-1/8	6	4-1/2	.1755	TR96087	32.52	TR96396	34.79
14	.1820	1-1/8	6	4-1/2	.1755	TR96088	32.52	TR96397	34.79
13	.1850	1-1/8	6	4-1/2	.1805	TR96089	32.52	TR96398	34.79
o/u	.1865	1-1/8	6	4-1/2	.1805	TR96090	32.52	TR96399	34.79
3/16	.1875	1-1/8	6	4-1/2	.1805	TR96091	29.24	TR96400	33.61
o/u	.1885	1-1/8	6	4-1/2	.1805	TR96092	32.52	TR96401	34.79
12	.1890	1-1/8	6	4-1/2	.1805	TR96093	32.52	TR96402	34.79
11	.1910	1-1/4	6	5	.1860	TR96094	36.41	TR96403	42.03
10	.1935	1-1/4	6	5	.1860	TR96095	36.41	TR96404	42.03
9	.1960	1-1/4	6	5	.1895	TR96096	36.41	TR96405	42.03
5.0mm	.1969	1-1/4	6	5	.1895	TR96097	36.41	TR96406	42.03
8	.1990	1-1/4	6	5	.1895	TR96098	36.41	TR96407	42.03
7	.2010	1-1/4	6	5	.1895	TR96099	36.41	TR96408	42.03
13/64	.2031	1-1/4	6	5	.1945	TR96100	36.41	TR96409	42.03
6	.2040	1-1/4	6	5	.1945	TR96101	36.41	TR96410	42.03
5	.2055	1-1/4	6	5	.2016	TR96102	36.41	TR96411	42.03
4	.2090	1-1/4	6	5	.2016	TR96103	36.41	TR96412	42.03
3	.2130	1-1/4	6	5	.2075	TR96104	36.41	TR96413	42.03
5.5mm	.2165	1-1/4	6	5	.2075	TR96105	36.41	TR96414	42.03
7/32	.2188	1-1/4	6	5	.2075	TR96106	36.41	TR96415	42.03
2	.2210	1-1/2	6	6	.2173	TR96107	37.42	TR96416	43.25
1	.2280	1-1/2	6	6	.2173	TR96108	37.42	TR96417	43.25
A	.2340	1-1/2	6	6	.2265	TR96109	37.42	TR96418	43.25
15/64	.2344	1-1/2	6	6	.2265	TR96110	37.42	TR96419	43.25
6.0mm	.2362	1-1/2	6	6	.2265	TR96111	39.44	TR96420	43.45
B	.2380	1-1/2	6	6	.2329	TR96112	39.44	TR96421	43.45
C	.2420	1-1/2	6	6	.2329	TR96113	39.44	TR96422	43.45
D	.2460	1-1/2	6	6	.2329	TR96114	39.44	TR96423	39.48
o/u	.2490	1-1/2	6	6	.2405	TR96115	35.51	TR96424	39.08
1/4	.2500	1-1/2	6	6	.2405	TR96116	33.49	TR96425	36.93
o/u	.2510	1-1/2	6	6	.2405	TR96117	35.51	TR96426	39.12
6.5mm	.2559	1-1/2	6	6	.2405	TR96118	39.44	TR96427	43.45
F	.2570	1-1/2	6	6	.2485	TR96119	39.44	TR96428	43.45
G	.2610	1-1/2	6	6	.2485	TR96120	39.44	TR96429	43.45

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

**TAKE 55% OFF  
LIST PRICE!**

**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	43.94	TR96430	58.92
H	.2660	1-1/2	6	6	.2485	TR96122	43.94	TR96431	58.92
I	.2720	1-1/2	6	6	.2485	TR96123	43.94	TR96432	58.92
7.0mm	.2756	1-1/2	6	6	.2485	TR96124	43.94	TR96433	58.92
J	.2770	1-1/2	6	6	.2485	TR96125	43.94	TR96434	58.92
K	.2810	1-1/2	6	6	.2485	TR96126	43.94	TR96435	58.92
9/32	.2812	1-1/2	6	6	.2485	TR96127	41.71	TR96436	55.96
L	.2900	1-1/2	6	6	.2792	TR96128	43.94	TR96437	58.92
M	.2950	1-1/2	6	6	.2792	TR96129	43.94	TR96438	58.92
7.5mm	.2953	1-1/2	6	6	.2792	TR96130	43.94	TR96439	58.92
19/64	.2969	1-1/2	6	6	.2792	TR96131	43.94	TR96440	58.92
N	.3020	1-1/2	6	6	.2792	TR96132	43.94	TR96441	58.92
o/u	.3115	1-1/2	6	6	.2792	TR96133	41.71	TR96442	55.96
5/16	.3125	1-1/2	6	6	.2792	TR96134	39.60	TR96443	53.01
o/u	.3135	1-1/2	6	6	.2792	TR96135	41.71	TR96444	55.96
8.0mm	.3150	1-1/2	6	6	.2792	TR96136	43.94	TR96445	58.92
O	.3160	1-1/2	6	6	.2792	TR96137	43.94	TR96446	58.92
P	.3230	1-1/2	6	6	.2792	TR96138	46.97	TR96447	63.50
21/64	.3281	1-1/2	6	6	.2792	TR96139	46.97	TR96448	63.50
Q	.3320	1-1/2	6	6	.2792	TR96140	46.97	TR96449	63.50
8.5mm	.3346	1-1/2	6	6	.2792	TR96141	46.97	TR96450	63.50
R	.3390	1-1/2	6	6	.2792	TR96142	46.97	TR96451	63.50
11/32	.3438	1-1/2	6	6	.2792	TR96143	46.97	TR96452	63.50
S	.3480	1-3/4	6	7	.3105	TR96144	47.46	TR96453	64.55
9.0mm	.3543	1-3/4	6	7	.3105	TR96145	47.46	TR96454	64.55
T	.3580	1-3/4	6	7	.3105	TR96146	47.46	TR96455	64.55
23/64	.3594	1-3/4	6	7	.3105	TR96147	47.46	TR96456	64.55
U	.3680	1-3/4	6	7	.3105	TR96148	47.46	TR96457	64.55
9.5mm-o/u	.3740	1-3/4	6	7	.3105	TR96149	45.07	TR96458	61.27
3/8	.3750	1-3/4	6	7	.3105	TR96150	42.64	TR96459	58.07
o/u	.3760	1-3/4	6	7	.3105	TR96151	45.07	TR96460	61.27
V	.3770	1-3/4	6	7	.3105	TR96152	51.59	TR96461	78.68
W	.3860	1-3/4	6	7	.3105	TR96153	51.59	TR96462	78.68
25/64	.3906	1-3/4	6	7	.3105	TR96154	51.59	TR96463	78.68
10.0mm	.3937	1-3/4	6	7	.3105	TR96155	51.59	TR96464	78.68
X	.3970	1-3/4	6	7	.3105	TR96156	51.59	TR96465	78.68
Y	.4040	1-3/4	6	7	.3105	TR96157	53.53	TR96466	78.68
13/32	.4062	1-3/4	6	7	.3105	TR96158	53.53	TR96467	78.68
Z	.4130	1-3/4	6	7	.3730	TR96159	53.53	TR96468	78.68
10.5mm	.4134	1-3/4	6	7	.3730	TR96160	54.06	TR96469	78.68

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE

**TAKE 55% OFF  
LIST PRICE!**



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	53.53	TR96470	78.68
11.0mm	.4331	1-3/4	6	7	.3730	TR96162	53.53	TR96471	78.68
o/u	.4365	1-3/4	6	7	.3730	TR96163	50.86	TR96472	78.68
7/16	.4375	1-3/4	6	7	.3730	TR96164	50.86	TR96473	78.68
o/u	.4385	1-3/4	6	7	.3730	TR96165	50.86	TR96474	78.68
11.5mm	.4528	1-3/4	6	7	.3730	TR96166	58.31	TR96475	90.18
29/64	.4531	1-3/4	6	7	.3730	TR96167	58.31	TR96476	90.18
15/32	.4688	1-3/4	6	7	.3730	TR96168	58.31	TR96477	90.18
12.0mm	.4724	2	6	8	.4355	TR96169	58.31	TR96478	90.18
31/64	.4844	2	6	8	.4355	TR96170	58.31	TR96479	90.18
12.5mm	.4921	2	6	8	.4355	TR96171	58.31	TR96480	90.18
o/u	.4990	2	6	8	.4355	TR96172	55.36	TR96481	90.18
1/2	.5000	2	6	8	.4355	TR96173	55.36	TR96482	90.18
o/u	.5010	2	6	8	.4355	TR96174	55.36	TR96483	90.18
13.0mm	.5118	2	6	8	.4355	TR96175	72.24	-	-
33/64	.5156	2	6	8	.4355	TR96176	72.24	-	-
17/32	.5312	2	6	8	.4355	TR96177	68.80	TR96484	101.16
13.5mm	.5315	2	6	8	.4355	TR96178	72.24	-	-
35/64	.5469	2	8	8	.4355	TR96179	72.24	-	-
14.0mm	.5512	2	8	8	.4355	TR96180	72.24	-	-
o/u	.5615	2	8	8	.4355	TR96181	72.24	-	-
9/16	.5625	2	8	8	.4355	TR96182	68.80	TR96485	101.16
o/u	.5635	2	8	8	.4355	TR96183	72.24	-	-
14.5mm	.5709	2	8	8	.4355	TR96184	72.24	-	-
37/64	.5781	2	8	8	.4355	TR96185	72.24	-	-
15.0mm	.5906	2	8	8	.4355	TR96186	72.24	-	-
19/32	.5938	2	8	8	.4355	TR96187	68.80	TR96486	101.16
39/64	.6094	2-1/4	8	9	.5615	TR96188	84.31	-	-
15.5mm	.6102	2-1/4	8	9	.5615	TR96189	84.31	-	-
o/u	.6240	2-1/4	8	9	.5615	TR96190	84.31	-	-
5/8	.6250	2-1/4	8	9	.5615	TR96191	80.59	TR96487	118.04
o/u	.6260	2-1/4	8	9	.5615	TR96192	84.31	-	-
16.0mm	.6299	2-1/4	8	9	.5615	TR96193	84.31	-	-
41/64	.6406	2-1/4	8	9	.5615	TR96194	84.31	-	-
16.5mm	.6496	2-1/4	8	9	.5615	TR96195	84.31	-	-
21/32	.6562	2-1/4	8	9	.5615	TR96196	90.79	TR96488	133.43
17.0mm	.6693	2-1/4	8	9	.5615	TR96197	95.29	-	-
43/64	.6719	2-1/4	8	9	.5615	TR96198	95.29	-	-
o/u	.6865	2-1/4	8	9	.5615	TR96199	95.29	-	-
11/16	.6875	2-1/4	8	9	.5615	TR96200	90.79	TR96489	133.43

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

**TAKE 55% OFF  
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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
<b>o/u</b>	.6885	2-1/4	8	9	.5615	TR96201	102.29	-	-
<b>17.5mm</b>	.6890	2-1/4	8	9	.5615	TR96202	102.29	-	-
<b>45/64</b>	.7031	2-1/4	8	9	.5615	TR96203	102.29	-	-
<b>18.0mm</b>	.7087	2-1/4	8	9	.5615	TR96204	102.29	-	-
<b>23/32</b>	.7188	2-1/4	8	9	.5615	TR96205	101.32	TR96490	148.94
<b>18.5mm</b>	.7283	2-1/2	8	9-1/2	.6240	TR96206	106.34	-	-
<b>47/64</b>	.7344	2-1/2	8	9-1/2	.6240	TR96207	117.80	-	-
<b>19.0mm</b>	.7480	2-1/2	8	9-1/2	.6240	TR96208	117.80	-	-
<b>o/u</b>	.7490	2-1/2	8	9-1/2	.6240	TR96209	117.80	-	-
<b>3/4</b>	.7500	2-1/2	8	9-1/2	.6240	TR96210	101.93	TR96491	149.79
<b>o/u</b>	.7510	2-1/2	8	9-1/2	.6240	TR96211	113.39	-	-
<b>49/64</b>	.7656	2-1/2	8	9-1/2	.6240	TR96212	113.39	-	-
<b>19.5mm</b>	.7677	2-1/2	8	9-1/2	.6240	TR96213	113.39	-	-
<b>25/32</b>	.7812	2-1/2	8	9-1/2	.6240	TR96214	109.90	TR96492	161.54
<b>20.0mm</b>	.7874	2-1/2	8	9-1/2	.6240	TR96215	121.40	-	-
<b>51/64</b>	.7969	2-1/2	8	9-1/2	.6240	TR96216	121.40	-	-
<b>20.5mm</b>	.8071	2-1/2	8	9-1/2	.6240	TR96217	121.40	-	-
<b>o/u</b>	.8115	2-1/2	8	9-1/2	.6240	TR96218	121.40	-	-
<b>13/16</b>	.8125	2-1/2	8	9-1/2	.6240	TR96219	109.90	TR96493	161.54
<b>o/u</b>	.8135	2-1/2	8	9-1/2	.6240	TR96220	121.40	-	-
<b>21.0mm</b>	.8268	2-1/2	8	9-1/2	.6240	TR96221	121.40	-	-
<b>53/64</b>	.8281	2-1/2	8	9-1/2	.6240	TR96222	121.40	-	-
<b>27/32</b>	.8438	2-1/2	8	9-1/2	.6240	TR96223	130.03	TR96494	191.14
<b>21.5mm</b>	.8465	2-5/8	8	10	.7490	TR96224	141.53	-	-
<b>55/64</b>	.8594	2-5/8	8	10	.7490	TR96225	141.53	-	-
<b>22.0mm</b>	.8661	2-5/8	8	10	.7490	TR96226	141.53	-	-
<b>o/u</b>	.8740	2-5/8	8	10	.7490	TR96227	141.53	-	-
<b>7/8</b>	.8750	2-5/8	8	10	.7490	TR96228	133.03	TR96495	195.59
<b>o/u</b>	.8760	2-5/8	8	10	.7490	TR96229	144.57	-	-
<b>22.5mm</b>	.8858	2-5/8	8	10	.7490	TR96230	144.57	-	-
<b>57/64</b>	.8906	2-5/8	8	10	.7490	TR96231	144.57	-	-
<b>23.0mm</b>	.9055	2-5/8	8	10	.7490	TR96232	144.57	-	-
<b>29/32</b>	.9062	2-5/8	8	10	.7490	TR96233	143.39	TR96496	210.74
<b>59/64</b>	.9219	2-5/8	8	10	.7490	TR96234	154.81	-	-
<b>23.5mm</b>	.9252	2-5/8	8	10	.7490	TR96235	154.81	-	-
<b>o/u</b>	.9365	2-5/8	8	10	.7490	TR96236	154.81	-	-
<b>15/16</b>	.9375	2-5/8	8	10	.7490	TR96237	143.39	TR96497	210.74
<b>o/u</b>	.9385	2-5/8	8	10	.7490	TR96238	154.81	-	-
<b>24.0mm</b>	.9449	2-5/8	8	10	.7490	TR96239	154.81	-	-
<b>61/64</b>	.9531	2-5/8	8	10	.7490	TR96240	154.81	-	-

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## 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	154.81	-	-
31/32	.9688	2-5/8	8	10	.7490	TR96242	160.60	TR96498	236.01
25.0mm	.9843	2-3/4	8	10-1/2	.8740	TR96243	164.37	-	-
63/64	.9844	2-3/4	8	10-1/2	.8740	TR96244	164.37	-	-
o/u	.9990	2-3/4	8	10-1/2	.8740	TR96245	164.37	-	-
1	1.0000	2-3/4	8	10-1/2	.8740	TR96246	162.10	TR96499	238.23
o/u	1.0010	2-3/4	8	10-1/2	.8740	TR96247	173.56	-	-
1-1/32	1.0312	2-3/4	8	10-1/2	.8740	TR96248	225.52	-	-
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	TR96249	179.68	TR96500	264.11
1-3/32	1.0938	2-7/8	8	11	.8740	TR96250	236.86	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	TR96251	190.98	TR96501	280.67
1-5/32	1.1562	2-7/8	10	11	.9990	TR96252	269.50	-	-
1-3/16	1.1875	2-7/8	10	11	.9990	TR96253	223.66	TR96502	328.78
1-7/32	1.2188	3	10	11-1/2	.9990	TR96254	282.90	-	-
1-1/4	1.2500	3	10	11-1/2	.9990	TR96255	237.02	TR96503	348.38
1-9/32	1.2812	3	10	11-1/2	.9990	TR96256	322.38	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	TR96257	276.46	TR96504	406.33
1-11/32	1.3438	3-1/4	10	12	.9990	TR96258	336.39	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	TR96259	290.51	TR96505	427.06
1-13/32	1.4062	3-1/4	10	12	1.2490	TR96260	357.41	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	TR96261	311.53	TR96506	458.04
1-15/32	1.4688	3-1/2	10	12-1/2	1.2490	TR96262	381.38	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	TR96263	335.46	TR96507	493.15
1-9/16	1.5625	3-1/2	12	13	1.2490	TR96910	474.93	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	TR96911	474.93	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	TR96912	545.43	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	TR96913	545.43	-	-
1-13/16	1.8125	4	12	14	1.4990	TR96914	628.20	-	-
1-7/8	1.8750	4	12	14	1.4990	TR96915	628.20	-	-
1-15/16	1.9375	4	12	14	1.4990	TR96916	736.69	-	-
2	2.0000	4	12	14	1.4990	TR96917	736.69	-	-

HSS & COBALT REAMERS

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



# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

TAKE 55% OFF LIST PRICE!

## 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	45.27	0.0490	TR94054	35.64	0.0770	TR94101	31.95	0.1060	TR94148	31.95	0.1340	TR94195	37.46
0.0150	TR94008	45.27	0.0495	TR94055	35.64	0.0775	TR94102	31.95	0.1070	TR94149	31.95	0.1345	TR94196	37.46
0.0155	TR94009	45.27	0.0500	TR94056	35.64	0.0780	TR94103	31.95	0.1075	TR94150	31.95	0.1350	TR94197	37.46
0.0165	TR94010	45.27	0.0505	TR94057	35.64	0.0790	TR94104	31.95	0.1080	TR94151	31.95	0.1355	TR94198	37.46
0.0170	TR94011	45.27	0.0510	TR94058	35.64	0.0795	TR94105	31.95	0.1085	TR94152	31.95	0.1365	TR94199	37.46
0.0175	TR94012	45.27	0.0515	TR94059	35.64	0.0800	TR94106	31.95	0.1090	TR94153	31.95	0.1370	TR94200	37.46
0.0185	TR94013	45.27	0.0525	TR94060	35.64	0.0805	TR94107	31.95	0.1095	TR94154	27.62	0.1375	TR94201	37.46
0.0190	TR94014	45.27	0.0530	TR94061	35.64	0.0815	TR94108	31.95	0.1105	TR94155	27.62	0.1380	TR94202	37.46
0.0195	TR94015	45.27	0.0535	TR94062	35.64	0.0825	TR94109	31.95	0.1115	TR94156	27.62	0.1385	TR94203	37.46
0.0205	TR94016	41.22	0.0540	TR94063	35.64	0.0830	TR94110	31.95	0.1120	TR94157	27.62	0.1390	TR94204	37.46
0.0215	TR94017	41.22	0.0545	TR94064	35.64	0.0835	TR94111	31.95	0.1125	TR94158	27.62	0.1395	TR94205	37.46
0.0220	TR94018	41.22	0.0555	TR94065	35.64	0.0840	TR94112	31.95	0.1135	TR94159	27.62	0.1400	TR94206	37.46
0.0230	TR94019	41.22	0.0560	TR94066	35.64	0.0845	TR94113	31.95	0.1140	TR94160	27.62	0.1410	TR94207	35.64
0.0235	TR94020	41.22	0.0565	TR94067	35.64	0.0850	TR94114	31.95	0.1145	TR94161	27.62	0.1415	TR94208	35.64
0.0245	TR94021	41.22	0.0570	TR94068	35.64	0.0855	TR94115	31.95	0.1150	TR94162	27.62	0.1420	TR94209	35.64
0.0255	TR94022	41.22	0.0575	TR94069	35.64	0.0865	TR94116	31.95	0.1155	TR94163	27.62	0.1425	TR94210	35.64
0.0265	TR94023	41.22	0.0580	TR94070	35.64	0.0870	TR94117	31.95	0.1165	TR94164	27.62	0.1430	TR94211	35.64
0.0270	TR94024	41.22	0.0585	TR94071	35.64	0.0875	TR94118	31.95	0.1170	TR94165	27.62	0.1435	TR94212	35.64
0.0275	TR94025	41.22	0.0590	TR94072	35.64	0.0880	TR94119	31.95	0.1175	TR94166	27.62	0.1445	TR94213	35.64
0.0285	TR94026	41.22	0.0600	TR94073	35.64	0.0885	TR94120	31.95	0.1180	TR94167	27.62	0.1450	TR94214	35.64
0.0290	TR94027	41.22	0.0605	TR94074	35.64	0.0895	TR94121	31.95	0.1185	TR94168	27.62	0.1455	TR94215	35.64
0.0295	TR94028	37.46	0.0610	TR94075	35.64	0.0900	TR94122	31.95	0.1190	TR94169	27.62	0.1460	TR94216	35.64
0.0300	TR94029	37.46	0.0615	TR94076	35.64	0.0905	TR94123	31.95	0.1195	TR94170	27.62	0.1465	TR94217	35.64
0.0305	TR94030	37.46	0.0620	TR94077	35.64	0.0910	TR94124	31.95	0.1205	TR94171	27.62	0.1475	TR94218	35.64
0.0315	TR94031	37.46	0.0630	TR94078	31.95	0.0915	TR94125	31.95	0.1210	TR94172	27.62	0.1480	TR94219	35.64
0.0325	TR94032	37.46	0.0640	TR94079	31.95	0.0920	TR94126	31.95	0.1215	TR94173	27.62	0.1485	TR94220	35.64
0.0335	TR94033	37.46	0.0645	TR94080	31.95	0.0925	TR94127	31.95	0.1220	TR94174	27.62	0.1490	TR94221	35.64
0.0340	TR94034	37.46	0.0650	TR94081	31.95	0.0930	TR94128	31.95	0.1225	TR94175	27.62	0.1500	TR94222	35.64
0.0345	TR94035	37.46	0.0655	TR94082	31.95	0.0940	TR94129	31.95	0.1230	TR94176	27.62	0.1505	TR94223	35.64
0.0355	TR94036	37.46	0.0660	TR94083	31.95	0.0945	TR94130	31.95	0.1235	TR94177	27.62	0.1510	TR94224	35.64
0.0365	TR94037	37.46	0.0665	TR94084	31.95	0.0950	TR94131	31.95	0.1245	TR94178	27.62	0.1515	TR94225	35.64
0.0375	TR94038	37.46	0.0675	TR94085	31.95	0.0955	TR94132	31.95	0.1247	TR94179	27.62	0.1525	TR94226	35.64
0.0385	TR94039	37.46	0.0680	TR94086	31.95	0.0965	TR94133	31.95	0.1255	TR94180	37.46	0.1530	TR94227	35.64
0.0395	TR94040	35.64	0.0685	TR94087	31.95	0.0970	TR94134	31.95	0.1265	TR94181	37.46	0.1535	TR94228	35.64
0.0405	TR94041	35.64	0.0690	TR94088	31.95	0.0975	TR94135	31.95	0.1270	TR94182	37.46	0.1545	TR94229	35.64
0.0415	TR94042	35.64	0.0695	TR94089	31.95	0.0985	TR94136	31.95	0.1275	TR94183	37.46	0.1550	TR94230	35.64
0.0425	TR94043	35.64	0.0705	TR94090	31.95	0.0990	TR94137	31.95	0.1280	TR94184	37.46	0.1555	TR94231	35.64
0.0435	TR94044	35.64	0.0710	TR94091	31.95	0.1000	TR94138	31.95	0.1290	TR94185	37.46	0.1560	TR94232	35.64
0.0440	TR94045	35.64	0.0715	TR94092	31.95	0.1005	TR94139	31.95	0.1295	TR94186	37.46	0.1565	TR94233	37.46
0.0445	TR94046	35.64	0.0720	TR94093	31.95	0.1010	TR94140	31.95	0.1300	TR94187	37.46	0.1580	TR94234	37.46
0.0450	TR94047	35.64	0.0725	TR94094	31.95	0.1020	TR94141	31.95	0.1305	TR94188	37.46	0.1585	TR94235	37.46
0.0455	TR94048	35.64	0.0735	TR94095	31.95	0.1025	TR94142	31.95	0.1310	TR94189	37.46	0.1595	TR94236	37.46
0.0460	TR94049	35.64	0.0740	TR94096	31.95	0.1030	TR94143	31.95	0.1315	TR94190	37.46	0.1600	TR94237	37.46
0.0470	TR94050	35.64	0.0745	TR94097	31.95	0.1035	TR94144	31.95	0.1320	TR94191	37.46	0.1605	TR94238	37.46
0.0475	TR94051	35.64	0.0750	TR94098	31.95	0.1045	TR94145	31.95	0.1325	TR94192	37.46	0.1615	TR94239	37.46
0.0480	TR94052	35.64	0.0755	TR94099	31.95	0.1050	TR94146	31.95	0.1330	TR94193	37.46	0.1620	TR94240	37.46
0.0485	TR94053	35.64	0.0765	TR94100	31.95	0.1055	TR94147	31.95	0.1335	TR94194	37.46	0.1625	TR94241	37.46

For technical information, please see page 240.



# Reamers



**TAKE 55% OFF  
LIST PRICE!**

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## CHUCKING

### STOCKED INTERMEDIATE SIZES - HIGH SPEED STEEL - SERIES 933

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	37.46	0.1925	TR94289	44.42	0.2205	TR94336	44.02	0.2470	TR94383	39.69	0.2740	TR94430	50.62
0.1635	TR94243	37.46	0.1930	TR94290	44.42	0.2215	TR94337	44.02	0.2475	TR94384	39.69	0.2745	TR94431	50.62
0.1640	TR94244	37.46	0.1940	TR94291	44.42	0.2220	TR94338	44.02	0.2480	TR94385	39.69	0.2750	TR94432	50.62
0.1645	TR94245	37.46	0.1945	TR94292	44.42	0.2225	TR94339	44.02	0.2485	TR94386	39.69	0.2755	TR94433	50.62
0.1650	TR94246	37.46	0.1950	TR94293	44.42	0.2230	TR94340	44.02	0.2495	TR94387	39.69	0.2760	TR94434	50.62
0.1655	TR94247	37.46	0.1955	TR94294	44.42	0.2235	TR94341	44.02	0.2505	TR94388	50.62	0.2765	TR94435	50.62
0.1665	TR94248	37.46	0.1965	TR94295	44.42	0.2240	TR94342	44.02	0.2515	TR94389	50.62	0.2775	TR94436	50.62
0.1670	TR94249	37.46	0.1970	TR94296	44.42	0.2245	TR94343	44.02	0.2520	TR94390	50.62	0.2780	TR94437	50.62
0.1675	TR94250	37.46	0.1975	TR94297	44.42	0.2250	TR94344	44.02	0.2525	TR94391	50.62	0.2785	TR94438	50.62
0.1680	TR94251	37.46	0.1980	TR94298	44.42	0.2255	TR94345	44.02	0.2530	TR94392	50.62	0.2790	TR94439	50.62
0.1685	TR94252	37.46	0.1985	TR94299	44.42	0.2260	TR94346	44.02	0.2535	TR94393	50.62	0.2795	TR94440	50.62
0.1690	TR94253	37.46	0.1995	TR94300	44.42	0.2265	TR94347	44.02	0.2540	TR94394	50.62	0.2800	TR94441	50.62
0.1700	TR94254	37.46	0.2000	TR94301	44.42	0.2270	TR94348	44.02	0.2545	TR94395	50.62	0.2805	TR94442	50.62
0.1705	TR94255	37.46	0.2005	TR94302	44.42	0.2275	TR94349	44.02	0.2550	TR94396	50.62	0.2815	TR94443	50.62
0.1710	TR94256	37.46	0.2015	TR94303	44.42	0.2285	TR94350	44.02	0.2555	TR94397	50.62	0.2820	TR94444	50.62
0.1715	TR94257	37.46	0.2020	TR94304	44.42	0.2290	TR94351	44.02	0.2560	TR94398	50.62	0.2825	TR94445	50.62
0.1720	TR94258	35.19	0.2025	TR94305	44.42	0.2295	TR94352	44.02	0.2565	TR94399	50.62	0.2830	TR94446	50.62
0.1725	TR94259	35.19	0.2030	TR94306	44.42	0.2300	TR94353	44.02	0.2575	TR94400	50.62	0.2835	TR94447	50.62
0.1735	TR94260	35.19	0.2035	TR94307	43.29	0.2305	TR94354	44.02	0.2580	TR94401	50.62	0.2840	TR94448	50.62
0.1740	TR94261	35.19	0.2045	TR94308	43.29	0.2310	TR94355	44.02	0.2585	TR94402	50.62	0.2845	TR94449	50.62
0.1745	TR94262	35.19	0.2050	TR94309	43.29	0.2315	TR94356	44.02	0.2590	TR94403	50.62	0.2850	TR94450	50.62
0.1750	TR94263	35.19	0.2060	TR94310	43.29	0.2320	TR94357	44.02	0.2595	TR94404	50.62	0.2855	TR94451	50.62
0.1755	TR94264	35.19	0.2065	TR94311	43.29	0.2325	TR94358	44.02	0.2600	TR94405	50.62	0.2860	TR94452	50.62
0.1760	TR94265	35.19	0.2070	TR94312	43.29	0.2330	TR94359	44.02	0.2605	TR94406	50.62	0.2865	TR94453	50.62
0.1765	TR94266	35.19	0.2075	TR94313	43.29	0.2335	TR94360	44.02	0.2615	TR94407	50.62	0.2870	TR94454	50.62
0.1775	TR94267	35.19	0.2080	TR94314	43.29	0.2345	TR94361	39.69	0.2620	TR94408	50.62	0.2875	TR94455	50.62
0.1780	TR94268	35.19	0.2085	TR94315	43.29	0.2350	TR94362	39.69	0.2625	TR94409	50.62	0.2880	TR94456	50.62
0.1785	TR94269	35.19	0.2095	TR94316	43.29	0.2355	TR94363	39.69	0.2630	TR94410	50.62	0.2885	TR94457	50.62
0.1790	TR94270	35.19	0.2100	TR94317	43.29	0.2360	TR94364	39.69	0.2635	TR94411	50.62	0.2890	TR94458	50.62
0.1795	TR94271	35.19	0.2105	TR94318	43.29	0.2365	TR94365	39.69	0.2640	TR94412	50.62	0.2895	TR94459	50.62
0.1805	TR94272	35.19	0.2110	TR94319	43.29	0.2370	TR94366	39.69	0.2645	TR94413	50.62	0.2905	TR94460	50.62
0.1810	TR94273	35.19	0.2115	TR94320	43.29	0.2375	TR94367	39.69	0.2650	TR94414	50.62	0.2910	TR94461	50.62
0.1815	TR94274	35.19	0.2120	TR94321	43.29	0.2385	TR94368	39.69	0.2655	TR94415	50.62	0.2915	TR94462	50.62
0.1825	TR94275	35.19	0.2125	TR94322	43.29	0.2390	TR94369	39.69	0.2665	TR94416	50.62	0.2920	TR94463	50.62
0.1830	TR94276	35.19	0.2135	TR94323	43.29	0.2395	TR94370	39.69	0.2670	TR94417	50.62	0.2925	TR94464	50.62
0.1835	TR94277	35.19	0.2140	TR94324	43.29	0.2400	TR94371	39.69	0.2675	TR94418	50.62	0.2930	TR94465	50.62
0.1840	TR94278	35.19	0.2145	TR94325	43.29	0.2405	TR94372	39.69	0.2680	TR94419	50.62	0.2935	TR94466	50.62
0.1845	TR94279	35.19	0.2150	TR94326	43.29	0.2410	TR94373	39.69	0.2685	TR94420	50.62	0.2940	TR94467	50.62
0.1855	TR94280	35.19	0.2155	TR94327	43.29	0.2415	TR94374	39.69	0.2690	TR94421	50.62	0.2945	TR94468	50.62
0.1860	TR94281	35.19	0.2160	TR94328	43.29	0.2425	TR94375	39.69	0.2695	TR94422	50.62	0.2955	TR94469	50.62
0.1870	TR94282	35.19	0.2170	TR94329	43.29	0.2430	TR94376	39.69	0.2700	TR94423	50.62	0.2960	TR94470	50.62
0.1880	TR94283	44.42	0.2175	TR94330	43.29	0.2435	TR94377	39.69	0.2705	TR94424	50.62	0.2965	TR94471	50.62
0.1895	TR94284	44.42	0.2180	TR94331	43.29	0.2440	TR94378	39.69	0.2710	TR94425	50.62	0.2970	TR94472	45.31
0.1900	TR94285	44.42	0.2185	TR94332	43.29	0.2445	TR94379	39.69	0.2715	TR94426	50.62	0.2975	TR94473	45.31
0.1905	TR94286	44.42	0.2190	TR94333	44.02	0.2450	TR94380	39.69	0.2725	TR94427	50.62	0.2980	TR94474	45.31
0.1915	TR94287	44.42	0.2195	TR94334	44.02	0.2455	TR94381	39.69	0.2730	TR94428	50.62	0.2985	TR94475	45.31
0.1920	TR94288	44.42	0.2200	TR94335	44.02	0.2465	TR94382	39.69	0.2735	TR94429	50.62	0.2990	TR94476	45.31

HSS & COBALT REAMERS

For technical information, please see page 240.



# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## 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
0.2995	TR94477	45.31	0.3265	TR94524	53.37	0.3515	TR94571	54.14	0.3780	TR94618	58.39	0.4025	TR94665	59.89
0.3000	TR94478	45.31	0.3270	TR94525	53.37	0.3520	TR94572	54.14	0.3785	TR94619	58.39	0.4030	TR94666	59.89
0.3005	TR94479	45.31	0.3275	TR94526	53.37	0.3525	TR94573	54.14	0.3790	TR94620	58.39	0.4035	TR94667	59.89
0.3010	TR94480	45.31	0.3280	TR94527	53.37	0.3530	TR94574	54.14	0.3795	TR94621	58.39	0.4045	TR94668	59.89
0.3015	TR94481	45.31	0.3285	TR94528	53.37	0.3535	TR94575	54.14	0.3800	TR94622	58.39	0.4050	TR94669	59.89
0.3025	TR94482	45.31	0.3290	TR94529	53.37	0.3540	TR94576	54.14	0.3805	TR94623	58.39	0.4055	TR94670	59.89
0.3030	TR94483	45.31	0.3295	TR94530	53.37	0.3545	TR94577	54.14	0.3810	TR94624	58.39	0.4060	TR94671	59.89
0.3035	TR94484	45.31	0.3300	TR94531	53.37	0.3550	TR94578	54.14	0.3815	TR94625	58.39	0.4065	TR94672	59.89
0.3040	TR94485	45.31	0.3305	TR94532	53.37	0.3555	TR94579	54.14	0.3820	TR94626	58.39	0.4070	TR94673	59.89
0.3045	TR94486	45.31	0.3310	TR94533	53.37	0.3560	TR94580	54.14	0.3825	TR94627	58.39	0.4075	TR94674	59.89
0.3050	TR94487	45.31	0.3315	TR94534	53.37	0.3565	TR94581	54.14	0.3830	TR94628	58.39	0.4080	TR94675	59.89
0.3055	TR94488	45.31	0.3325	TR94535	53.37	0.3570	TR94582	54.14	0.3835	TR94629	58.39	0.4085	TR94676	59.89
0.3060	TR94489	45.31	0.3330	TR94536	53.37	0.3575	TR94583	54.14	0.3840	TR94630	58.39	0.4090	TR94677	59.89
0.3065	TR94490	45.31	0.3335	TR94537	53.37	0.3585	TR94584	54.14	0.3845	TR94631	58.39	0.4095	TR94678	59.89
0.3070	TR94491	45.31	0.3340	TR94538	53.37	0.3590	TR94585	54.14	0.3850	TR94632	58.39	0.4100	TR94679	59.89
0.3075	TR94492	45.31	0.3345	TR94539	53.37	0.3595	TR94586	48.51	0.3855	TR94633	58.39	0.4105	TR94680	59.89
0.3080	TR94493	45.31	0.3350	TR94540	53.37	0.3600	TR94587	48.51	0.3865	TR94634	58.39	0.4110	TR94681	59.89
0.3085	TR94494	45.31	0.3355	TR94541	53.37	0.3605	TR94588	48.51	0.3870	TR94635	58.39	0.4115	TR94682	59.89
0.3090	TR94495	45.31	0.3360	TR94542	53.37	0.3610	TR94589	48.51	0.3875	TR94636	58.39	0.4120	TR94683	59.89
0.3095	TR94496	45.31	0.3365	TR94543	53.37	0.3615	TR94590	48.51	0.3880	TR94637	58.39	0.4125	TR94684	59.89
0.3100	TR94497	45.31	0.3370	TR94544	53.37	0.3620	TR94591	48.51	0.3885	TR94638	58.39	0.4135	TR94685	59.89
0.3105	TR94498	45.31	0.3375	TR94545	53.37	0.3625	TR94592	48.51	0.3890	TR94639	58.39	0.4140	TR94686	59.89
0.3110	TR94499	45.31	0.3380	TR94546	53.37	0.3630	TR94593	48.51	0.3895	TR94640	58.39	0.4145	TR94687	59.89
0.3120	TR94500	45.31	0.3385	TR94547	53.37	0.3635	TR94594	48.51	0.3900	TR94641	58.39	0.4150	TR94688	59.89
0.3130	TR94501	53.37	0.3395	TR94548	53.37	0.3640	TR94595	48.51	0.3905	TR94642	58.39	0.4155	TR94689	59.89
0.3140	TR94502	53.37	0.3400	TR94549	53.37	0.3645	TR94596	48.51	0.3910	TR94643	59.89	0.4160	TR94690	59.89
0.3145	TR94503	53.37	0.3405	TR94550	53.37	0.3650	TR94597	48.51	0.3915	TR94644	59.89	0.4165	TR94691	59.89
0.3155	TR94504	53.37	0.3410	TR94551	53.37	0.3655	TR94598	48.51	0.3920	TR94645	59.89	0.4170	TR94692	59.89
0.3165	TR94505	53.37	0.3415	TR94552	53.37	0.3660	TR94599	48.51	0.3925	TR94646	59.89	0.4175	TR94693	59.89
0.3170	TR94506	53.37	0.3420	TR94553	53.37	0.3665	TR94600	48.51	0.3930	TR94647	59.89	0.4180	TR94694	59.89
0.3175	TR94507	53.37	0.3425	TR94554	53.37	0.3670	TR94601	48.51	0.3935	TR94648	59.89	0.4185	TR94695	59.89
0.3180	TR94508	53.37	0.3430	TR94555	53.37	0.3675	TR94602	48.51	0.3940	TR94649	59.89	0.4190	TR94696	59.89
0.3185	TR94509	53.37	0.3435	TR94556	53.37	0.3685	TR94603	48.51	0.3945	TR94650	59.89	0.4195	TR94697	59.89
0.3190	TR94510	53.37	0.3440	TR94557	54.14	0.3690	TR94604	48.51	0.3950	TR94651	59.89	0.4200	TR94698	59.89
0.3195	TR94511	53.37	0.3445	TR94558	54.14	0.3695	TR94605	48.51	0.3955	TR94652	59.89	0.4205	TR94699	59.89
0.3200	TR94512	53.37	0.3450	TR94559	54.14	0.3700	TR94606	48.51	0.3960	TR94653	59.89	0.4210	TR94700	59.89
0.3205	TR94513	53.37	0.3455	TR94560	54.14	0.3705	TR94607	48.51	0.3965	TR94654	59.89	0.4215	TR94701	59.89
0.3210	TR94514	53.37	0.3460	TR94561	54.14	0.3710	TR94608	48.51	0.3975	TR94655	59.89	0.4220	TR94702	56.17
0.3215	TR94515	53.37	0.3465	TR94562	54.14	0.3715	TR94609	48.51	0.3980	TR94656	59.89	0.4225	TR94703	56.17
0.3220	TR94516	53.37	0.3470	TR94563	54.14	0.3720	TR94610	48.51	0.3985	TR94657	59.89	0.4230	TR94704	56.17
0.3225	TR94517	53.37	0.3475	TR94564	54.14	0.3725	TR94611	48.51	0.3990	TR94658	59.89	0.4235	TR94705	56.17
0.3235	TR94518	53.37	0.3485	TR94565	54.14	0.3730	TR94612	48.51	0.3995	TR94659	59.89	0.4240	TR94706	56.17
0.3240	TR94519	53.37	0.3490	TR94566	54.14	0.3735	TR94613	48.51	0.4000	TR94660	59.89	0.4245	TR94707	56.17
0.3245	TR94520	53.37	0.3495	TR94567	54.14	0.3745	TR94614	48.51	0.4005	TR94661	59.89	0.4250	TR94708	56.17
0.3250	TR94521	53.37	0.3500	TR94568	54.14	0.3755	TR94615	58.39	0.4010	TR94662	59.89	0.4255	TR94709	56.17
0.3255	TR94522	53.37	0.3505	TR94569	54.14	0.3765	TR94616	58.39	0.4015	TR94663	59.89	0.4260	TR94710	56.17
0.3260	TR94523	53.37	0.3510	TR94570	54.14	0.3775	TR94617	58.39	0.4020	TR94664	59.89	0.4265	TR94711	56.17

For technical information, please see page 240.

# Reamers



YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**

## CHUCKING

### STOCKED INTERMEDIATE SIZES - HIGH SPEED STEEL - SERIES 933

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	56.17	0.4525	TR94760	63.70	0.4765	TR94808	63.70	0.5020	TR94856	80.59	0.7525	TR94903	129.26
0.4275	TR94713	56.17	0.4530	TR94761	63.70	0.4770	TR94809	63.70	0.5025	TR94857	80.59	0.7530	TR94904	129.26
0.4280	TR94714	56.17	0.4535	TR94762	63.70	0.4775	TR94810	63.70	0.5030	TR94858	80.59	0.7540	TR94905	129.26
0.4285	TR94715	56.17	0.4540	TR94763	63.70	0.4780	TR94811	63.70	0.5035	TR94859	80.59	0.7550	TR94906	129.26
0.4290	TR94716	56.17	0.4545	TR94764	63.70	0.4785	TR94812	63.70	0.5040	TR94860	80.59	0.8095	TR94907	129.26
0.4295	TR94717	56.17	0.4550	TR94765	63.70	0.4790	TR94813	63.70	0.5045	TR94861	80.59	0.8100	TR94908	129.26
0.4300	TR94718	56.17	0.4555	TR94766	63.70	0.4795	TR94814	63.70	0.5050	TR94862	80.59	0.8105	TR94909	129.26
0.4305	TR94719	56.17	0.4560	TR94767	63.70	0.4800	TR94815	63.70	0.5060	TR94863	80.59	0.8110	TR94910	129.26
0.4310	TR94720	56.17	0.4565	TR94768	63.70	0.4805	TR94816	63.70	0.5070	TR94864	80.59	0.8120	TR94911	129.26
0.4315	TR94721	56.17	0.4570	TR94769	63.70	0.4810	TR94817	63.70	0.5080	TR94865	80.59	0.8130	TR94912	142.34
0.4320	TR94722	56.17	0.4575	TR94770	63.70	0.4815	TR94818	63.70	0.5090	TR94866	80.59	0.8140	TR94913	142.34
0.4325	TR94723	56.17	0.4580	TR94771	63.70	0.4820	TR94819	63.70	0.5100	TR94867	80.59	0.8145	TR94914	142.34
0.4330	TR94724	56.17	0.4585	TR94772	63.70	0.4825	TR94820	63.70	0.5600	TR94868	78.93	0.8150	TR94915	142.34
0.4335	TR94725	56.17	0.4590	TR94773	63.70	0.4830	TR94821	63.70	0.5605	TR94869	78.93	0.8155	TR94916	142.34
0.4340	TR94726	56.17	0.4595	TR94774	63.70	0.4835	TR94822	63.70	0.5610	TR94870	78.93	0.8720	TR94917	146.03
0.4345	TR94727	56.17	0.4600	TR94775	63.70	0.4840	TR94823	63.70	0.5620	TR94871	78.93	0.8725	TR94918	146.03
0.4350	TR94728	56.17	0.4605	TR94776	63.70	0.4845	TR94824	59.89	0.5630	TR94872	90.63	0.8730	TR94919	146.03
0.4355	TR94729	56.17	0.4610	TR94777	63.70	0.4850	TR94825	59.89	0.5640	TR94873	90.63	0.8735	TR94920	146.03
0.4360	TR94730	56.17	0.4615	TR94778	63.70	0.4855	TR94826	59.89	0.5645	TR94874	90.63	0.8745	TR94921	146.03
0.4370	TR94731	56.17	0.4620	TR94779	63.70	0.4860	TR94827	59.89	0.5650	TR94875	90.63	0.8755	TR94922	159.11
0.4380	TR94732	63.70	0.4625	TR94780	63.70	0.4865	TR94828	59.89	0.5655	TR94876	90.63	0.8765	TR94923	159.11
0.4390	TR94733	63.70	0.4630	TR94781	63.70	0.4870	TR94829	59.89	0.6220	TR94877	91.03	0.8770	TR94924	159.11
0.4395	TR94734	63.70	0.4635	TR94782	63.70	0.4875	TR94830	59.89	0.6225	TR94878	91.03	0.8775	TR94925	159.11
0.4400	TR94735	63.70	0.4640	TR94783	63.70	0.4880	TR94831	59.89	0.6230	TR94879	91.03	0.8780	TR94926	159.11
0.4405	TR94736	63.70	0.4645	TR94784	63.70	0.4885	TR94832	59.89	0.6235	TR94880	91.03	0.9340	TR94927	159.11
0.4410	TR94737	63.70	0.4650	TR94785	63.70	0.4890	TR94833	59.89	0.6245	TR94881	91.03	0.9345	TR94928	159.11
0.4415	TR94738	63.70	0.4655	TR94786	63.70	0.4895	TR94834	59.89	0.6255	TR94882	101.68	0.9350	TR94929	159.11
0.4420	TR94739	63.70	0.4660	TR94787	63.70	0.4900	TR94835	59.89	0.6265	TR94883	101.68	0.9355	TR94930	159.11
0.4425	TR94740	63.70	0.4665	TR94788	63.70	0.4905	TR94836	59.89	0.6270	TR94884	101.68	0.9360	TR94931	159.11
0.4430	TR94741	63.70	0.4670	TR94789	63.70	0.4910	TR94837	59.89	0.6275	TR94885	101.68	0.9370	TR94932	159.11
0.4435	TR94742	63.70	0.4675	TR94790	63.70	0.4915	TR94838	59.89	0.6280	TR94886	101.68	0.9380	TR94933	174.66
0.4440	TR94743	63.70	0.4680	TR94791	63.70	0.4920	TR94839	59.89	0.6300	TR94949	101.68	0.9390	TR94934	174.66
0.4445	TR94744	63.70	0.4685	TR94792	63.70	0.4925	TR94840	59.89	0.6845	TR94887	101.68	0.9395	TR94935	174.66
0.4450	TR94745	63.70	0.4690	TR94793	63.70	0.4930	TR94841	59.89	0.6850	TR94888	101.68	0.9400	TR94936	174.66
0.4455	TR94746	63.70	0.4695	TR94794	63.70	0.4935	TR94842	59.89	0.6855	TR94889	101.68	0.9405	TR94937	174.66
0.4460	TR94747	63.70	0.4700	TR94795	63.70	0.4940	TR94843	59.89	0.6860	TR94890	101.68	0.9970	TR94938	178.02
0.4465	TR94748	63.70	0.4705	TR94796	63.70	0.4945	TR94844	59.89	0.6870	TR94891	101.68	0.9975	TR94939	178.02
0.4470	TR94749	63.70	0.4710	TR94797	63.70	0.4950	TR94845	59.89	0.6880	TR94892	112.09	0.9980	TR94940	178.02
0.4475	TR94750	63.70	0.4715	TR94798	63.70	0.4955	TR94846	59.89	0.6895	TR94893	112.09	0.9985	TR94941	178.02
0.4480	TR94751	63.70	0.4720	TR94799	63.70	0.4960	TR94847	59.89	0.6900	TR94894	112.09	0.9995	TR94942	178.02
0.4485	TR94752	63.70	0.4725	TR94800	63.70	0.4965	TR94848	59.89	0.6905	TR94895	112.09	1.0005	TR94943	247.26
0.4490	TR94753	63.70	0.4730	TR94801	63.70	0.4970	TR94849	59.89	0.7470	TR94896	119.10	1.0015	TR94944	247.26
0.4495	TR94754	63.70	0.4735	TR94802	63.70	0.4975	TR94850	59.89	0.7475	TR94897	119.10	1.0020	TR94945	247.26
0.4500	TR94755	63.70	0.4740	TR94803	63.70	0.4980	TR94851	59.89	0.7485	TR94898	119.10	1.0025	TR94946	247.26
0.4505	TR94756	63.70	0.4745	TR94804	63.70	0.4985	TR94852	59.89	0.7495	TR94899	119.10	1.0030	TR94947	247.26
0.4510	TR94757	63.70	0.4750	TR94805	63.70	0.4995	TR94853	59.89	0.7505	TR94900	129.26	-	-	-
0.4515	TR94758	63.70	0.4755	TR94806	63.70	0.5005	TR94854	80.59	0.7515	TR94901	129.26	-	-	-
0.4520	TR94759	63.70	0.4760	TR94807	63.70	0.5015	TR94855	80.59	0.7520	TR94902	129.26	-	-	-

For technical information, please see page 240.

**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	218.04	142.49	106.18	70.07	63.30	53.80	48.68	45.28	44.10	40.41	39.18	38.67	37.76
.0196 - .0290	198.24	129.54	96.60	63.69	57.52	50.42	44.24	41.23	38.22	36.69	36.53	36.47	36.34
.0291 - .0390	180.20	117.56	87.77	57.85	52.27	45.88	40.26	37.46	34.71	33.37	32.43	31.97	31.21
.0391 - .0624	162.88	108.44	87.77	55.80	50.31	43.60	38.36	35.64	32.87	30.85	30.37	30.26	30.06
.0626 - .1093	171.50	109.78	84.66	52.75	46.24	38.34	34.71	31.95	29.27	27.62	26.95	26.46	25.56
.1095 - .1249	169.23	107.41	79.58	46.10	40.48	37.04	30.37	27.62	27.22	26.78	26.33	25.84	25.64
.1251 - .1405	180.20	117.56	79.37	57.85	54.49	45.88	40.26	37.46	34.71	33.37	32.52	31.97	30.90
.1407 - .1561	177.47	115.70	87.87	56.10	50.31	43.94	38.36	35.64	33.64	32.87	32.13	31.37	30.58
.1563 - .1718	180.20	112.46	87.36	57.85	52.40	45.88	40.26	37.46	34.71	34.17	33.64	33.37	32.72
.1720 - .1874	172.83	107.88	87.31	53.89	48.43	43.28	38.08	35.19	34.82	34.29	33.80	32.94	32.52
.1876 - .2030	185.06	123.29	96.75	64.76	59.24	52.66	47.10	44.42	41.39	39.18	38.34	38.08	37.77
.2032 - .2187	185.06	123.29	95.71	63.76	58.27	51.58	45.95	43.30	40.48	38.08	37.60	37.15	36.97
.2189 - .2343	185.80	124.26	96.49	64.57	59.03	52.40	46.79	44.01	41.29	39.63	39.04	38.67	38.36
.2345 - .2499	185.80	124.26	91.85	59.92	54.33	47.93	42.45	39.68	36.74	36.53	36.04	35.66	35.51
.2501 - .2968	192.97	131.19	103.35	71.43	65.95	58.91	53.37	50.62	47.69	45.21	44.77	44.38	43.94
.2970 - .3124	187.61	125.89	98.03	65.99	60.45	53.80	48.14	45.31	45.12	44.73	44.51	44.21	43.94
.3126 - .3437	197.09	134.35	106.35	68.89	66.79	61.62	56.25	53.37	50.37	48.18	47.69	47.37	46.98
.3439 - .3593	196.81	135.08	107.15	75.18	69.60	65.33	56.25	54.14	51.39	48.93	48.43	48.04	47.69
.3595 - .3749	191.16	129.24	101.40	69.24	63.76	57.02	51.51	48.51	48.25	48.18	47.85	47.61	47.44
.3751 - .3905	200.09	138.42	110.74	78.47	72.94	66.86	61.17	58.39	55.69	52.75	52.46	52.02	51.58
.3907 - .4218	202.61	140.81	112.88	80.93	75.40	68.12	62.61	59.90	57.06	54.57	54.05	53.80	53.65
.4220 - .4374	198.78	137.12	109.05	77.22	71.72	64.57	58.91	56.16	55.69	55.50	55.26	54.12	53.53
.4376 - .4843	207.99	146.16	118.30	86.36	80.82	73.25	65.01	63.69	62.30	60.36	59.92	59.24	58.71
.4845 - .4999	203.09	141.31	113.41	81.33	75.94	68.42	60.07	59.90	59.41	59.18	58.71	58.51	58.32
.5001 - .5311	294.71	183.05	145.93	108.55	99.37	89.96	83.83	80.58	77.48	76.05	75.08	74.47	73.74
.5313 - .5624	293.06	181.34	144.14	106.83	97.65	88.21	82.16	78.94	75.75	74.22	73.29	72.61	72.27
.5626 - .5937	304.59	192.86	155.59	118.30	111.21	99.78	96.52	90.62	87.31	85.89	84.89	84.26	83.40
.5939 - .6249	305.02	193.17	155.94	118.66	109.48	100.17	93.98	91.03	87.67	86.27	85.22	84.66	84.29
.6251 - .6874	315.90	204.17	166.92	129.64	120.34	115.50	104.78	101.69	98.63	97.03	96.10	95.58	95.28
.6876 - .7187	326.12	214.49	177.19	139.46	130.37	121.26	115.12	112.10	109.02	107.41	106.39	105.65	105.04
.7189 - .7499	330.24	218.52	181.47	144.06	134.93	125.55	119.26	119.10	118.97	118.86	118.43	118.19	117.79
.7501 - .8124	343.25	231.61	194.52	157.15	147.89	138.61	132.39	129.26	126.17	124.63	123.72	123.01	122.18
.8126 - .8437	356.42	244.63	207.58	170.25	160.94	151.77	145.45	142.34	139.30	137.68	136.67	136.13	135.35
.8439 - .8749	359.72	248.02	210.71	173.42	164.16	154.90	148.60	146.02	144.66	140.81	139.81	139.22	136.58
.8751 - .9374	373.24	261.51	224.28	186.99	177.76	168.58	162.21	159.11	156.10	155.62	155.35	155.12	154.83
.9376 - .9687	388.74	275.37	239.81	202.61	193.32	184.03	177.76	174.65	171.59	170.16	169.00	168.64	167.70
.9689 - .9999	391.96	280.28	243.07	205.72	196.55	187.22	181.07	178.02	174.76	173.29	172.29	171.59	170.89
1.0001 - 1.0624	420.65	314.21	303.09	291.97	280.73	269.60	258.43	247.26	236.16	234.70	229.33	227.45	225.53
1.0626 - 1.1249	444.21	338.34	326.12	313.85	301.59	289.35	277.16	264.93	252.71	240.50	239.36	238.17	236.82
1.1251 - 1.1874	474.38	370.04	357.34	345.21	333.03	320.88	309.09	296.60	286.67	272.25	260.08	247.98	235.79
1.1876 - 1.2499	500.76	394.92	381.66	368.52	355.37	342.24	329.05	315.90	302.75	289.62	276.46	263.28	250.16
1.2501 - 1.3749	569.60	458.76	444.44	430.44	416.46	400.36	388.47	374.56	360.48	346.49	342.89	339.32	336.39
1.3751 - 1.4999	630.09	522.82	507.20	491.64	476.01	460.38	444.87	429.20	413.66	398.00	393.76	387.98	381.36

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

# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## 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	314.97	166.51	123.42	80.55	69.81	59.00	51.89	48.28	44.70	42.93	41.88	40.41	40.26
.0196 - .0290	286.38	151.29	112.20	73.23	63.46	53.65	47.10	43.88	40.67	40.48	40.43	40.41	40.26
.0291 - .0390	260.36	137.64	102.04	66.51	57.64	51.57	42.84	39.93	36.97	35.51	34.64	34.00	33.21
.0391 - .0624	237.04	135.55	100.00	64.42	55.53	46.66	40.79	37.82	34.85	33.38	33.19	32.92	32.62
.0626 - .1093	238.67	132.51	96.97	61.40	52.59	43.61	37.76	34.78	31.80	30.37	30.19	30.06	29.81
.1095 - .1249	233.21	126.99	91.54	55.97	47.09	38.25	32.32	30.57	28.83	28.33	27.93	27.56	27.24
.1251 - .1405	243.76	137.57	101.62	66.51	57.64	48.79	42.84	39.93	36.97	35.51	34.64	34.00	33.21
.1407 - .1561	241.74	135.55	100.00	64.42	55.53	46.66	40.79	37.82	34.85	33.38	32.94	32.82	32.58
.1563 - .1718	243.98	137.68	102.14	66.68	57.82	48.93	43.05	40.06	37.07	35.58	35.32	35.07	34.78
.1720 - .1874	242.19	136.07	100.46	65.01	57.63	47.25	41.30	38.36	35.39	35.32	35.11	34.85	34.84
.1876 - .2030	252.12	145.93	110.30	74.83	65.98	57.02	51.19	48.20	45.22	43.73	42.84	42.29	42.06
.2032 - .2343	251.05	144.91	109.39	73.82	65.01	56.16	50.17	48.63	47.06	46.56	46.27	45.88	45.17
.2345 - .2499	246.74	140.81	105.29	69.81	60.88	52.00	46.10	45.83	45.53	45.17	44.74	43.94	43.38
.2501 - .2968	268.74	162.58	126.92	91.54	82.60	73.76	67.69	64.81	61.89	60.41	59.96	59.09	58.91
.2970 - .3124	261.97	155.70	120.18	84.66	75.71	66.88	61.03	60.65	60.27	59.99	59.48	59.40	58.98
.3126 - .3437	272.07	165.79	130.24	94.76	85.89	76.96	71.09	68.11	65.09	64.84	64.48	63.87	63.52
.3439 - .3593	272.55	166.39	130.83	95.32	86.47	77.63	71.63	68.75	65.84	65.37	64.99	64.84	64.42
.3595 - .3749	266.33	160.10	124.58	88.99	80.13	71.24	65.33	65.17	64.99	64.76	32.52	64.62	64.36
.3751 - .3905	290.90	184.74	149.23	113.70	104.78	95.94	89.76	86.93	84.10	82.60	81.69	81.15	80.39
.3907 - .4218	294.62	188.53	152.91	117.40	108.57	99.65	93.73	90.79	87.85	86.47	85.37	84.84	84.10
.4220 - .4374	288.84	182.65	147.13	111.59	102.77	93.85	87.89	84.97	81.99	80.58	79.65	79.08	78.35
.4376 - .4843	302.87	196.73	161.18	125.68	116.81	107.90	102.10	99.13	96.15	94.63	93.73	93.17	92.39
.4845 - .4999	295.23	188.99	153.50	117.96	109.02	100.20	94.32	92.72	91.10	90.85	90.53	90.34	90.19
.5001 - .5311	311.52	203.80	168.64	130.23	126.61	123.23	119.88	116.52	113.15	109.79	106.39	103.04	99.72
.5313 - .5624	313.85	207.23	173.28	134.39	130.44	126.61	122.83	119.05	115.26	111.48	107.69	103.91	100.11
.5626 - .5937	319.80	212.57	177.62	138.52	134.20	129.97	125.76	132.23	117.37	113.15	108.94	104.72	100.48
.5939 - .6249	329.91	223.23	189.31	150.09	146.06	142.34	138.61	134.88	131.16	127.34	123.63	119.88	116.15
.6251 - .6874	340.41	233.31	201.13	161.71	158.06	154.63	151.21	147.77	144.31	140.92	138.81	133.97	130.61
.6876 - .7187	350.75	243.51	209.19	169.58	166.63	163.87	160.94	158.26	155.59	152.87	150.09	149.23	148.96
.7189 - .7499	363.13	257.06	225.09	185.15	180.83	176.55	172.33	168.12	163.87	159.62	155.35	151.13	146.84
.7501 - .8124	382.30	275.36	241.98	203.39	190.67	186.59	182.48	178.41	174.35	170.25	166.13	162.06	157.99
.8126 - .8437	401.54	295.76	260.75	224.75	214.09	210.42	206.92	203.39	199.82	196.23	192.67	189.16	185.62
.8439 - .8749	422.42	315.38	281.01	243.12	228.95	224.12	219.41	214.69	209.94	205.22	200.44	195.78	191.03
.8751 - .9374	439.27	331.82	297.83	258.15	243.76	238.92	234.17	229.37	224.59	219.83	215.00	212.91	210.70
.9376 - .9687	461.78	352.09	318.52	279.85	274.02	268.82	263.28	257.85	252.31	246.78	241.32	238.56	235.99
.9689 - .9999	477.85	370.93	338.03	300.22	292.72	285.33	277.99	270.71	263.43	256.17	248.86	241.52	234.21
1.0001 - 1.0624	514.18	407.12	372.38	333.74	325.54	319.05	309.05	300.87	292.68	284.44	276.22	267.94	259.81
1.0626 - 1.1249	550.84	444.20	410.15	372.40	361.58	351.15	340.64	330.18	319.66	309.26	298.77	288.30	277.85
1.1251 - 1.1874	586.36	477.85	446.87	405.40	395.99	386.77	377.61	368.38	359.19	349.94	340.69	331.54	322.27
1.1876 - 1.2499	623.52	518.50	485.03	444.60	432.65	421.44	410.16	399.00	387.84	376.62	365.43	354.18	343.06
1.2501 - 1.3749	660.97	552.05	516.08	479.40	472.13	461.35	450.33	439.06	427.79	416.53	405.28	394.03	382.78
1.3751 - 1.4999	697.65	590.37	556.91	518.10	512.98	508.19	503.35	500.29	497.22	496.17	495.31	494.12	493.13

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

**TAKE 55% OFF  
LIST PRICE!**

**CHUCKING**  
**STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT**



HSS & COBALT REAMERS

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	35.03	TR96726	38.31
#60	.0400	1/2	4	2-1/2	.0390	TR96551	35.03	TR96727	38.31
#59	.0410	1/2	4	2-1/2	.0390	TR96552	35.03	TR96728	38.31
#58	.0420	1/2	4	2-1/2	.0390	TR96553	35.03	TR96729	38.31
#57	.0430	1/2	4	2-1/2	.0390	TR96554	35.03	TR96730	38.31
#56	.0465	1/2	4	2-1/2	.0455	TR96555	35.03	TR96731	38.31
3/64	.0469	1/2	4	2-1/2	.0455	TR96556	35.03	TR96732	38.31
#55	.0520	1/2	4	2-1/2	.0510	TR96557	35.03	TR96733	38.31
#54	.0550	1/2	4	2-1/2	.0510	TR96558	35.03	TR96734	38.31
1.5mm	.0591	1/2	4	2-1/2	.0510	TR96559	35.03	TR96735	38.31
#53	.0595	1/2	4	2-1/2	.0585	TR96560	35.03	TR96736	38.31
1/16	.0625	1/2	4	2-1/2	.0585	TR96561	35.03	TR96737	38.31
#52	.0635	1/2	4	2-1/2	.0585	TR96562	35.03	TR96738	38.31
#51	.0670	3/4	4	3	.0660	TR96563	28.18	TR96739	30.86
#50	.0700	3/4	4	3	.0660	TR96564	28.18	TR96740	30.86
#49	.0730	3/4	4	3	.0660	TR96565	28.18	TR96741	30.86
#48	.0760	3/4	4	3	.0720	TR96566	28.18	TR96742	30.86
5/64	.0781	3/4	4	3	.0720	TR96567	28.18	TR96743	30.86
#47	.0785	3/4	4	3	.0720	TR96568	28.18	TR96744	30.86
2.0mm	.0787	3/4	4	3	.0720	TR96569	28.18	TR96745	30.86
#46	.0810	3/4	4	3	.0771	TR96570	28.18	TR96746	30.86
#45	.0820	3/4	4	3	.0771	TR96571	28.18	TR96747	30.86
#44	.0860	3/4	4	3	.0810	TR96572	28.18	TR96748	30.86
#43	.0890	3/4	4	3	.0810	TR96573	28.18	TR96749	30.86
#42	.0935	3/4	4	3	.0880	TR96574	28.18	TR96750	30.86
3/32	.0938	3/4	4	3	.0880	TR96575	27.94	TR96751	30.86
#41	.0960	7/8	4	3-1/2	.0928	TR96576	28.39	TR96752	31.14
#40	.0980	7/8	4	3-1/2	.0928	TR96577	28.39	TR96753	31.14
2.5mm	.0984	7/8	4	3-1/2	.0928	TR96578	28.39	TR96754	31.14
#39	.0995	7/8	4	3-1/2	.0928	TR96579	28.39	TR96755	31.14
#38	.1015	7/8	4	3-1/2	.0950	TR96580	28.39	TR96756	31.14
#37	.1040	7/8	4	3-1/2	.0950	TR96581	28.39	TR96757	31.14
#36	.1065	7/8	4	3-1/2	.1030	TR96582	28.39	TR96758	31.14
7/64	.1094	7/8	4	3-1/2	.1030	TR96583	29.24	TR96759	32.11
#35	.1100	7/8	4	3-1/2	.1030	TR96584	29.24	TR96760	32.11
#34	.1110	7/8	4	3-1/2	.1055	TR96585	29.24	TR96761	32.11
#33	.1130	7/8	4	3-1/2	.1055	TR96586	29.24	TR96762	32.11
#32	.1160	7/8	4	3-1/2	.1120	TR96587	29.24	TR96763	32.11
3.0mm	.1181	7/8	4	3-1/2	.1120	TR96588	29.24	TR96764	32.11
#31	.1200	7/8	4	3-1/2	.1120	TR96589	29.24	TR96765	32.11
o/u	.1240	7/8	4	3-1/2	.1190	TR96590	29.24	TR96766	32.11
1/8	.1250	7/8	4	3-1/2	.1190	TR96591	26.36	TR96767	28.87
o/u	.1260	7/8	4	3-1/2	.1190	TR96592	29.24	TR96768	32.11
#30	.1285	7/8	4	3-1/2	.1190	TR96593	29.24	TR96769	32.11
#29	.1360	1	4	4	.1275	TR96594	35.03	TR96770	38.35
3.5mm	.1378	1	4	4	.1350	TR96595	35.03	TR96771	38.35

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF  
LIST PRICE!**

## CHUCKING STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



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	35.03	TR96772	38.35
9/64	.1406	1	4	4	.1350	TR96597	35.03	TR96773	38.35
#27	.1440	1	4	4	.1350	TR96598	35.03	TR96774	38.35
#26	.1470	1	4	4	.1430	TR96599	35.03	TR96775	38.35
#25	.1495	1	4	4	.1430	TR96600	35.03	TR96776	38.35
#24	.1520	1	4	4	.1460	TR96601	36.45	TR96777	38.35
#23	.1540	1	4	4	.1460	TR96602	36.45	TR96778	38.35
5/32	.1562	1	4	4	.1510	TR96603	36.45	TR96779	38.35
#22	.1570	1	6	4	.1510	TR96604	36.45	TR96780	38.35
4.0mm	.1575	1	6	4	.1510	TR96605	36.45	TR96781	38.35
#21	.1590	1-1/8	6	4-1/2	.1530	TR96606	37.38	TR96782	40.94
#20	.1610	1-1/8	6	4-1/2	.1530	TR96607	37.38	TR96783	40.94
#19	.1660	1-1/8	6	4-1/2	.1595	TR96608	37.38	TR96784	40.94
#18	.1695	1-1/8	6	4-1/2	.1595	TR96609	37.38	TR96785	40.94
11/64	.1719	1-1/8	6	4-1/2	.1645	TR96610	37.38	TR96786	40.94
#17	.1730	1-1/8	6	4-1/2	.1645	TR96611	37.38	TR96787	40.94
#16	.1770	1-1/8	6	4-1/2	.1704	TR96612	37.38	TR96788	40.94
4.5mm	.1772	1-1/8	6	4-1/2	.1704	TR96613	37.38	TR96789	40.94
#15	.1800	1-1/8	6	4-1/2	.1755	TR96614	37.38	TR96790	40.94
#14	.1820	1-1/8	6	4-1/2	.1755	TR96615	37.38	TR96791	40.94
#13	.1850	1-1/8	6	4-1/2	.1805	TR96616	37.38	TR96792	40.94
o/u	.1865	1-1/8	6	4-1/2	.1805	TR96617	37.38	TR96793	40.94
3/16	.1875	1-1/8	6	4-1/2	.1805	TR96618	35.51	TR96794	38.88
o/u	.1885	1-1/8	6	4-1/2	.1805	TR96619	37.38	TR96795	40.94
#12	.1890	1-1/8	6	4-1/2	.1805	TR96620	37.38	TR96796	40.94
#11	.1910	1-1/4	6	5	.1860	TR96621	41.87	TR96797	45.88
#10	.1935	1-1/4	6	5	.1860	TR96622	41.87	TR96798	45.88
#9	.1960	1-1/4	6	5	.1895	TR96623	41.87	TR96799	45.88
5.0mm	.1969	1-1/4	6	5	.1895	TR96624	41.87	TR96800	45.88
#8	.1990	1-1/4	6	5	.1895	TR96625	41.87	TR96801	45.88
#7	.2010	1-1/4	6	5	.1895	TR96626	41.87	TR96802	45.88
13/64	.2031	1-1/4	6	5	.1945	TR96627	41.87	TR96803	45.88
#6	.2040	1-1/4	6	5	.1945	TR96628	41.87	TR96804	45.88
#5	.2055	1-1/4	6	5	.2016	TR96629	41.87	TR96805	45.88
#4	.2090	1-1/4	6	5	.2016	TR96630	41.87	TR96806	45.88
#3	.2130	1-1/4	6	5	.2075	TR96631	41.87	TR96807	45.88
5.5mm	.2165	1-1/4	6	5	.2075	TR96632	41.87	TR96808	45.88
7/32	.2188	1-1/4	6	5	.2075	TR96633	41.87	TR96809	45.88
#2	.2210	1-1/2	6	6	.2173	TR96634	43.05	TR96810	47.18
#1	.2280	1-1/2	6	6	.2173	TR96635	43.05	TR96811	47.18
A	.2340	1-1/2	6	6	.2265	TR96636	43.05	TR96812	47.18
15/64	.2344	1-1/2	6	6	.2265	TR96637	43.05	TR96813	47.18
6.0mm	.2362	1-1/2	6	6	.2265	TR96638	43.33	TR96814	49.65
B	.2380	1-1/2	6	6	.2329	TR96639	43.33	TR96815	49.65
C	.2420	1-1/2	6	6	.2329	TR96640	43.33	TR96816	49.65
D	.2460	1-1/2	6	6	.2329	TR96641	43.33	TR96817	45.15

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, +.0004	+0.002, +.0006

**TAKE 55% OFF  
LIST PRICE!**

**CHUCKING**  
**STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT**



HSS & COBALT REAMERS

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	SERIES 935R		SERIES 1935R	
						HSS	LIST PRICE	M42 COBALT	LIST PRICE
o/u	.2490	1-1/2	6	6	.2405	TR96642	46.25	TR96818	53.17
1/4	.2500	1-1/2	6	6	.2405	TR96643	36.89	TR96819	42.20
o/u	.2510	1-1/2	6	6	.2405	TR96644	46.25	TR96820	53.17
6.5mm	.2559	1-1/2	6	6	.2405	TR96645	43.33	TR96821	49.65
F	.2570	1-1/2	6	6	.2485	TR96646	43.33	TR96822	49.65
G	.2610	1-1/2	6	6	.2485	TR96647	43.33	TR96823	49.65
17/64	.2656	1-1/2	6	6	.2485	TR96648	48.35	TR96824	61.31
H	.2660	1-1/2	6	6	.2485	TR96649	48.35	TR96825	61.31
I	.2720	1-1/2	6	6	.2485	TR96650	48.35	TR96826	61.31
7.0mm	.2756	1-1/2	6	6	.2485	TR96651	48.35	TR96827	61.31
J	.2770	1-1/2	6	6	.2485	TR96652	48.35	TR96828	61.31
K	.2810	1-1/2	6	6	.2485	TR96653	48.35	TR96829	61.31
9/32	.2812	1-1/2	6	6	.2485	TR96654	45.88	TR96830	58.27
L	.2900	1-1/2	6	6	.2792	TR96655	48.35	TR96831	61.31
M	.2950	1-1/2	6	6	.2792	TR96656	48.35	TR96832	61.31
7.5mm	.2953	1-1/2	6	6	.2792	TR96657	48.35	TR96833	61.31
19/64	.2969	1-1/2	6	6	.2792	TR96658	48.35	TR96834	61.31
N	.3020	1-1/2	6	6	.2792	TR96659	48.35	TR96835	61.31
o/u	.3115	1-1/2	6	6	.2792	TR96660	45.88	TR96836	58.27
5/16	.3125	1-1/2	6	6	.2792	TR96661	43.49	TR96837	55.20
o/u	.3135	1-1/2	6	6	.2792	TR96662	45.88	TR96838	58.27
8.0mm	.3150	1-1/2	6	6	.2792	TR96663	48.35	TR96839	61.31
O	.3160	1-1/2	6	6	.2792	TR96664	48.35	TR96840	61.31
P	.3230	1-1/2	6	6	.2792	TR96665	51.71	TR96841	66.05
21/64	.3281	1-1/2	6	6	.2792	TR96666	51.71	TR96842	66.05
Q	.3320	1-1/2	6	6	.2792	TR96667	51.71	TR96843	66.05
8.5mm	.3346	1-1/2	6	6	.2792	TR96668	51.71	TR96844	66.05
R	.3390	1-1/2	6	6	.2792	TR96669	51.71	TR96845	66.05
11/32	.3438	1-1/2	6	6	.2792	TR96670	51.71	TR96846	66.05
S	.3480	1-3/4	6	6	.3105	TR96671	52.16	TR96847	66.94
9.0mm	.3543	1-3/4	6	7	.3105	TR96672	52.16	TR96848	66.94
T	.3580	1-3/4	6	7	.3105	TR96673	52.16	TR96849	66.94
23/64	.3594	1-3/4	6	7	.3105	TR96674	52.16	TR96850	66.94
U	.3680	1-3/4	6	7	.3105	TR96675	52.16	TR96851	66.94
9.5mm-o/u	.3740	1-3/4	6	7	.3105	TR96676	49.57	TR96852	63.54
3/8	.3750	1-3/4	6	7	.3105	TR96677	46.97	TR96853	60.26
o/u	.3760	1-3/4	6	7	.3105	TR96678	49.57	TR96854	63.54
V	.3770	1-3/4	6	7	.3105	TR96679	56.77	TR96855	84.31
W	.3860	1-3/4	6	7	.3105	TR96680	56.77	TR96856	84.31
25/64	.3906	1-3/4	6	7	.3105	TR96681	56.77	TR96857	84.31
10.0mm	.3937	1-3/4	6	7	.3105	TR96682	56.77	TR96858	84.31
X	.3970	1-3/4	6	7	.3105	TR96683	56.77	TR96859	84.31
Y	.4040	1-3/4	6	7	.3105	TR96684	58.88	TR96860	84.31
13/32	.4062	1-3/4	6	7	.3105	TR96685	58.88	TR96861	84.31
Z	.4130	1-3/4	6	7	.3730	TR96686	58.88	TR96862	84.31
10.5mm	.4134	1-3/4	6	7	.3730	TR96687	58.88	TR96863	84.31

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## CHUCKING

### 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
27/64	.4219	1-3/4	6	7	.3730	TR96688	58.88	TR96864	84.31
11.0mm	.4331	1-3/4	6	7	.3730	TR96689	58.88	TR96865	84.31
o/u	.4365	1-3/4	6	7	.3730	TR96690	58.88	TR96866	84.31
7/16	.4375	1-3/4	6	7	.3730	TR96691	55.92	TR96867	80.06
o/u	.4385	1-3/4	6	7	.3730	TR96692	58.88	TR96868	84.31
11.5mm	.4528	1-3/4	6	7	.3730	TR96693	64.19	TR96869	96.62
29/64	.4531	1-3/4	6	7	.3730	TR96694	64.19	TR96870	96.62
15/32	.4688	1-3/4	6	7	.3730	TR96695	64.19	TR96871	96.62
12.0mm	.4724	2	6	8	.4355	TR96696	64.19	TR96872	96.62
31/64	.4844	2	6	8	.4355	TR96697	64.19	TR96873	96.62
12.5mm	.4921	2	6	8	.4355	TR96698	64.19	TR96874	96.62
o/u	.4990	2	6	8	.4355	TR96699	64.19	TR96875	96.62
1/2	.5000	2	6	8	.4355	TR96700	60.86	TR96876	91.76
o/u	.5010	2	6	8	.4355	TR96701	64.19	TR96877	96.62
17/32	.5312	2	6	8	.4355	TR96702	75.69	TR96878	108.41
9/16	.5625	2	8	8	.4355	TR96703	75.69	TR96880	108.41
19/32	.5938	2	8	8	.4355	TR96704	75.69	TR96881	108.41
5/8	.6250	2-1/4	8	9	.5615	TR96705	88.32	TR96882	126.47
21/32	.6562	2-1/4	8	9	.5615	TR96706	92.90	TR96883	142.99
11/16	.6875	2-1/4	8	9	.5615	TR96707	99.86	TR96884	142.99
23/32	.7188	2-1/4	8	9	.5615	TR96708	111.48	TR96885	159.55
3/4	.7500	2-1/2	8	9-1/2	.6240	TR96709	111.48	TR96886	160.44
25/32	.7812	2-1/2	8	9-1/2	.6240	TR96710	120.84	TR96887	173.12
13/16	.8125	2-1/2	8	9-1/2	.6240	TR96711	120.84	TR96888	173.12
27/32	.8438	2-1/2	8	9-1/2	.6240	TR96712	143.03	TR96889	204.83
7/8	.8750	2-5/8	8	10	.7490	TR96713	146.31	TR96890	209.56
29/32	.9062	2-5/8	8	10	.7490	TR96714	157.73	TR96891	225.80
15/16	.9375	2-5/8	8	10	.7490	TR96715	157.73	TR96892	225.80
31/32	.9688	2-5/8	8	10	.7490	TR96716	176.60	TR96893	252.89
1	1.0000	2-3/4	8	10-1/2	.8740	TR96717	178.30	TR96894	254.92
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	TR96718	197.66	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	TR96719	210.05	-	-
1-3/16	1.1875	2-7/8	8	11	.9990	TR96720	245.97	-	-
1-1/4	1.2500	3	8	11-1/2	.9990	TR96721	260.71	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	TR96722	304.12	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	TR96723	319.63	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	TR96724	342.71	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	TR96725	368.95	-	-
1-9/16	1.5625	3-1/2	12	13	1.2490	TR96900	522.55	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	TR96901	522.55	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	TR96902	600.02	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	TR96903	600.02	-	-
1-13/16	1.8125	4	12	14	1.4990	TR96904	691.05	-	-
1-7/8	1.8750	4	12	14	1.4990	TR96905	691.05	-	-
1-15/16	1.9375	4	12	14	1.4990	TR96906	809.01	-	-
2	2.0000	4	12	14	1.4990	TR96907	809.01	-	-

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

**TAKE 55% OFF  
LIST PRICE!**

## DOWEL PIN

STRAIGHT SHANK - STRAIGHT FLUTE



**SERIES 9700**  
HIGH SPEED STEEL

**SERIES 1970**  
M42 COBALT

STRAIGHT SHANK - STRAIGHT FLUTE



**SERIES 9750**  
HIGH SPEED STEEL

**SERIES 1975**  
M42 COBALT

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	9700	LIST PRICE	1970	LIST PRICE	9750	LIST PRICE	1975	LIST PRICE
.1230	7/8	4	3-1/2	.1190	TR96264	25.51	TR96508	26.40	TR96950	29.24	TR96970	30.49
.1247	7/8	4	3-1/2	.1190	TR96265	25.51	TR96509	26.40	TR96951	29.24	TR96971	30.49
.1855	1-1/8	6	4-1/2	.1805	TR96266	32.56	TR96510	33.17	TR96952	37.38	TR96972	39.20
.1870	1-1/8	6	4-1/2	.1805	TR96267	32.56	TR96511	33.17	TR96953	37.38	TR96973	39.20
.2480	1-1/2	6	6	.2405	TR96268	35.51	TR96512	37.22	TR96954	39.04	TR96974	42.56
.2495	1-1/2	6	6	.2405	TR96269	35.51	TR96513	37.22	TR96955	39.04	TR96975	42.56
.3105	1-1/2	6	6	.2792	TR96270	41.71	TR96514	53.29	TR96956	45.92	TR96976	55.28
.3120	1-1/2	6	6	.2792	TR96271	41.71	TR96515	53.29	TR96957	45.92	TR96977	55.28
.3730	1-3/4	6	7	.3105	TR96272	45.03	TR96516	58.39	TR96958	49.57	TR96978	60.54
.3745	1-3/4	6	7	.3105	TR96273	45.03	TR96517	58.39	TR96959	49.57	TR96979	60.54
.4355	1-3/4	6	7	.3730	TR96274	50.82	TR96518	74.92	TR96960	58.88	TR96980	80.30
.4370	1-3/4	6	7	.3730	TR96275	50.82	TR96519	74.92	TR96961	58.88	TR96981	80.30
.4980	2	6	8	.4355	TR96276	55.36	TR96520	85.93	TR96962	64.14	TR96982	92.05
.4995	2	6	8	.4355	TR96277	55.36	TR96521	85.93	TR96963	64.14	TR96983	92.05

TAPER SHANK - STRAIGHT FLUTE



## SERIES 936

HIGH SPEED STEEL

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE	SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE
1/4	.2500	1-1/2	6	6	1	TR97801	59.77	29/32	.9062	2-5/8	8	10	2	TR97822	160.12
9/32	.2812	1-1/2	6	6	1	TR97802	62.57	15/16	.9375	2-5/8	8	10	3	TR97823	160.12
5/16	.3125	1-1/2	6	6	1	TR97803	61.51	31/32	.9688	2-5/8	8	10	3	TR97824	175.71
11/32	.3438	1-1/2	6	6	1	TR97804	66.66	1	1.0000	2-3/4	8	10-1/2	3	TR97825	177.25
3/8	.3750	1-3/4	6	7	1	TR97805	68.76	1-1/16	1.0625	2-3/4	8	10-1/2	3	TR97826	193.77
13/32	.4062	1-3/4	6	7	1	TR97806	69.98	1-1/8	1.1250	2-7/8	8	11	3	TR97827	215.03
7/16	.4375	1-3/4	6	7	1	TR97807	70.30	1-3/16	1.1875	2-7/8	10	11	3	TR97828	240.99
15/32	.4688	1-3/4	6	7	1	TR97808	75.93	1-1/4	1.2500	3	10	11-1/2	4	TR97829	260.91
1/2	.5000	2	6	8	1	TR97809	76.98	1-5/16	1.3125	3	10	11-1/2	4	TR97830	285.33
17/32	.5312	2	6	8	1	TR97810	85.69	1-3/8	1.3750	3-1/4	10	12	4	TR97831	308.37
9/16	.5625	2	8	8	1	TR97811	91.40	1-7/16	1.4375	3-1/4	10	12	4	TR97832	334.25
19/32	.5938	2	8	8	1	TR97812	93.02	1-1/2	1.5000	3-1/2	10	12-1/2	4	TR97833	355.27
5/8	.6250	2-1/4	8	9	2	TR97813	99.09	1-9/16	1.5625	3-1/2	12	13	4	TR97834	498.82
21/32	.6562	2-1/4	8	9	2	TR97814	100.02	1-5/8	1.6250	3-1/2	12	13	4	TR97835	498.82
11/16	.6875	2-1/4	8	9	2	TR97815	100.02	1-11/16	1.6875	4	12	13-1/2	5	TR97836	572.77
23/32	.7188	2-1/4	8	9	2	TR97816	112.78	1-3/4	1.7500	4	12	13-1/2	5	TR97837	572.77
3/4	.7500	2-1/2	8	9-1/2	2	TR97817	112.78	1-13/16	1.8125	4	12	14	5	TR97838	659.67
25/32	.7812	2-1/2	8	9-1/2	2	TR97818	128.90	1-7/8	1.8750	4	12	14	5	TR97839	659.67
13/16	.8125	2-1/2	8	9-1/2	2	TR97819	128.90	1-15/16	1.9375	4	12	14	5	TR97840	772.29
27/32	.8438	2-1/2	8	9-1/2	2	TR97820	143.92	2	2.0000	4	12	14	5	TR97841	772.29
7/8	.8750	2-5/8	8	10	2	TR97821	145.46								

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

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**

## EXPANSION

STRAIGHT SHANK - STRAIGHT FLUTE



END VIEW

### SERIES 931

HIGH SPEED STEEL

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
3/8	3/4	6	7	5/16	TR97201	154.73
13/32	3/4	6	7	5/16	TR97202	164.82
7/16	7/8	6	7	3/8	TR97203	164.82
15/32	7/8	6	8	27/64	TR97204	171.17
1/2	1	6	8	7/16	TR97205	174.21
17/32	1	6	8	7/16	TR97206	181.58
9/16	1-1/8	6	8	7/16	TR97207	186.20
19/32	1-1/8	6	8	7/16	TR97208	189.03
5/8	1-1/4	6	9	9/16	TR97209	194.78
21/32	1-1/4	6	9	9/16	TR97210	202.56
11/16	1-1/4	6	9	9/16	TR97211	203.97
23/32	1-1/4	6	9	9/16	TR97212	217.22
3/4	1-3/8	6	9-1/2	5/8	TR97213	224.71
25/32	1-3/8	8	9-1/2	5/8	TR97214	237.91
13/16	1-3/8	8	9-1/2	5/8	TR97215	247.02
27/32	1-3/8	8	9-1/2	5/8	TR97216	260.26
7/8	1-1/2	8	10	3/4	TR97217	265.00

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
29/32	1-1/2	8	10	3/4	TR97218	279.05
15/16	1-1/2	8	10	3/4	TR97219	292.13
31/32	1-1/2	8	10	3/4	TR97220	305.33
1	1-5/8	8	10-1/2	7/8	TR97221	322.06
1-1/32	1-5/8	8	10-1/2	7/8	TR97222	448.08
1-1/16	1-5/8	8	10-1/2	7/8	TR97223	355.95
1-3/32	1-5/8	8	10-1/2	7/8	TR97224	372.88
1-1/8	1-3/4	8	11	7/8	TR97225	389.52
1-5/32	1-3/4	8	11	7/8	TR97226	394.83
1-3/16	1-3/4	8	11	1	TR97227	410.26
1-7/32	1-3/4	8	11	1	TR97228	425.20
1-1/4	1-7/8	8	11-1/2	1	TR97229	442.17
1-5/16	1-7/8	8	11-1/2	1	TR97230	456.95
1-3/8	2	8	12	1	TR97231	473.75
1-7/16	2	8	12	1-1/4	TR97232	492.50
1-1/2	2-1/8	8	12-1/2	1-1/4	TR97233	513.28

TAPER SHANK - STRAIGHT FLUTE



END VIEW

### SERIES 932

HIGH SPEED STEEL

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE
3/8	3/4	6	7	1	TR97250	175.55
13/32	3/4	6	7	1	TR97251	203.57
7/16	7/8	6	7	1	TR97252	185.87
15/32	7/8	6	8	1	TR97253	190.29
1/2	1	6	8	1	TR97254	194.09
17/32	1	6	8	1	TR97255	201.79
9/16	1-1/8	6	8	1	TR97256	201.79
19/32	1-1/8	6	8	1	TR97257	209.16
5/8	1-1/4	6	9	2	TR97258	216.65
21/32	1-1/4	6	9	2	TR97259	222.60
11/16	1-1/4	6	9	2	TR97260	223.94
23/32	1-1/4	6	9	2	TR97261	238.88
3/4	1-3/8	6	9-1/2	2	TR97262	246.25
25/32	1-3/8	8	9-1/2	2	TR97263	257.59
13/16	1-3/8	8	9-1/2	2	TR97264	261.44
27/32	1-3/8	8	9-1/2	2	TR97265	276.66
7/8	1-1/2	8	10	2	TR97266	287.56

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	LIST PRICE
29/32	1-1/2	8	10	2	TR97267	302.50
15/16	1-1/2	8	10	3	TR97268	310.03
31/32	1-1/2	8	10	3	TR97269	323.11
1	1-5/8	8	10-1/2	3	TR97270	341.74
1-1/32	1-5/8	8	10-1/2	3	TR97271	354.82
1-1/16	1-5/8	8	10-1/2	3	TR97272	371.79
1-3/32	1-5/8	8	10-1/2	3	TR97273	388.39
1-1/8	1-3/4	8	11	3	TR97274	401.79
1-5/32	1-3/4	8	11	3	TR97275	418.36
1-3/16	1-3/4	8	11	3	TR97276	435.08
1-7/32	1-3/4	8	11	3	TR97277	451.85
1-1/4	1-7/8	8	11-1/2	4	TR97278	472.74
1-5/16	1-7/8	8	11-1/2	4	TR97279	491.25
1-3/8	2	8	12	4	TR97280	511.62
1-7/16	2	8	12	4	TR97281	541.62
1-1/2	2-1/8	8	12-1/2	4	TR97282	560.13

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+0.0002, -0.0000	+0.0003, -0.0000	+0.0001, +0.0004

# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**HAND  
STRAIGHT SHANK  
STRAIGHT FLUTE**

**HAND  
STRAIGHT SHANK  
LEFT HAND SPIRAL - RIGHT HAND CUT**



**SERIES 9000  
HIGH SPEED STEEL**

**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	TR97606	72.20
5/64	.0781	1	4	2	.0781	TR97607	72.20
3/32	.0938	1-1/4	4	2-1/2	.0938	TR97608	72.20
7/64	.1094	1-1/4	4	2-1/2	.1094	TR97609	72.20
1/8	.1250	1-1/2	4	3	.1250	TR97610	68.07
9/64	.1406	1-5/8	4	3-1/4	.1406	TR97611	68.07
5/32	.1562	1-5/8	4	3-1/4	.1562	TR97612	73.58
11/64	.1719	1-3/4	6	3-1/2	.1719	TR97613	73.58
3/16	.1875	1-3/4	6	3-1/2	.1875	TR97614	72.20
13/64	.2031	1-7/8	6	3-3/4	.2031	TR97615	72.20
7/32	.2188	1-7/8	6	3-3/4	.2188	TR97616	79.57
15/64	.2344	2	6	4	.2344	TR97617	79.57
1/4	.2500	2	6	4	.2500	TR97618	79.09
17/64	.2656	2-1/8	6	4-1/4	.2656	TR97619	79.57
9/32	.2812	2-1/8	6	4-1/4	.2812	TR97620	85.61
19/64	.2969	2-1/4	6	4-1/2	.2969	TR97621	85.61
5/16	.3125	2-1/4	6	4-1/2	.3125	TR97622	83.70
11/32	.3438	2-3/8	6	4-3/4	.3438	TR97623	97.15
3/8	.3750	2-1/2	6	5	.3750	TR97624	94.84
13/32	.4062	2-5/8	6	5-1/4	.4062	TR97625	110.07
7/16	.4375	2-3/4	6	5-1/2	.4375	TR97626	107.84
15/32	.4688	2-7/8	6	5-3/4	.4688	TR97627	119.30
1/2	.5000	3	6	6	.5000	TR97628	114.68
17/32	.5312	3-1/8	8	6-1/4	.5312	TR97629	123.92
9/16	.5625	3-1/4	8	6-1/2	.5625	TR97630	132.54
19/32	.5938	3-3/8	8	6-3/4	.5938	TR97631	147.32
5/8	.6250	3-1/2	8	7	.6250	TR97632	142.83
21/32	.6562	3-11/16	8	7-3/8	.6562	TR97633	160.08
11/16	.6875	3-7/8	8	7-3/4	.6875	TR97634	156.92
23/32	.7188	4-1/16	8	8-1/8	.7188	TR97635	171.90
3/4	.7500	4-3/16	8	8-3/8	.7500	TR97636	167.33
25/32	.7812	4-3/8	8	8-3/4	.7812	TR97637	183.61
13/16	.8125	4-9/16	8	9-1/8	.8125	TR97638	167.33
27/32	.8438	4-11/16	8	9-3/8	.8438	TR97639	201.02
7/8	.8750	4-7/8	8	9-3/4	.8750	TR97640	202.76
29/32	.9062	5	8	10	.9062	TR97641	224.06
15/16	.9375	5-1/8	8	10-1/4	.9375	TR97642	202.92
31/32	.9688	5-5/16	8	10-5/8	.9688	TR97643	246.70
1	1.0000	5-7/16	8	10-7/8	1.0000	TR97644	245.60
1-1/8	1.1250	5-13/16	8	11-5/8	1.1250	TR97645	320.97
1-1/4	1.2500	6-1/8	8	12-1/4	1.2500	TR97646	394.14
1-3/8	1.3750	6-5/16	10	12-5/8	1.3750	TR97647	465.86
1-1/2	1.5000	6-1/2	10	13	1.5000	TR97648	549.84

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
1/16	.0625	1	4	2	.0625	TR97350	84.72
5/64	.0781	1	4	2	.0781	TR97351	84.72
3/32	.0938	1-1/4	4	2-1/2	.0938	TR97352	84.72
7/64	.1094	1-1/4	4	2-1/2	.1094	TR97353	84.72
1/8	.1250	1-1/2	4	3	.1250	TR97354	83.70
9/64	.1406	1-5/8	4	3-1/4	.1406	TR97355	83.70
5/32	.1562	1-5/8	4	3-1/4	.1562	TR97356	90.26
11/64	.1719	1-3/4	6	3-1/2	.1719	TR97357	90.26
3/16	.1875	1-3/4	6	3-1/2	.1875	TR97358	90.26
13/64	.2031	1-7/8	6	3-3/4	.2031	TR97359	90.26
7/32	.2188	1-7/8	6	3-3/4	.2188	TR97360	87.87
15/64	.2344	2	6	4	.2344	TR97361	87.87
1/4	.2500	2	6	4	.2500	TR97362	87.47
17/64	.2656	2-1/8	6	4-1/4	.2656	TR97363	87.87
9/32	.2812	2-1/8	6	4-1/4	.2812	TR97364	97.15
19/64	.2969	2-1/4	6	4-1/2	.2969	TR97365	97.15
5/16	.3125	2-1/4	6	4-1/2	.3125	TR97366	96.22
11/32	.3438	2-3/8	6	4-3/4	.3438	TR97367	108.20
3/8	.3750	2-1/2	6	5	.3750	TR97368	107.88
13/32	.4062	2-5/8	6	5-1/4	.4062	TR97369	119.87
7/16	.4375	2-3/4	6	5-1/2	.4375	TR97370	120.27
15/32	.4688	2-7/8	6	5-3/4	.4688	TR97371	132.78
1/2	.5000	3	6	6	.5000	TR97372	129.54
17/32	.5312	3-1/8	8	6-1/4	.5312	TR97373	151.25
9/16	.5625	3-1/4	8	6-1/2	.5625	TR97374	152.10
19/32	.5938	3-3/8	8	6-3/4	.5938	TR97375	165.42
5/8	.6250	3-1/2	8	7	.6250	TR97376	162.39
21/32	.6562	3-11/16	8	7-3/8	.6562	TR97377	178.06
11/16	.6875	3-7/8	8	7-3/4	.6875	TR97378	177.53
23/32	.7188	4-1/16	8	8-1/8	.7188	TR97379	191.42
3/4	.7500	4-3/16	8	8-3/8	.7500	TR97380	187.74
25/32	.7812	4-3/8	8	8-3/4	.7812	TR97381	204.02
13/16	.8125	4-9/16	8	9-1/8	.8125	TR97382	204.02
27/32	.8438	4-11/16	8	9-3/8	.8438	TR97383	223.29
7/8	.8750	4-7/8	8	9-3/4	.8750	TR97384	223.29
29/32	.9062	5	8	10	.9062	TR97385	248.92
15/16	.9375	5-1/8	8	10-1/4	.9375	TR97386	248.92
31/32	.9688	5-5/16	8	10-5/8	.9688	TR97387	274.11
1	1.0000	5-7/16	8	10-7/8	1.0000	TR97388	274.11
1-1/8	1.1250	5-13/16	8	11-5/8	1.1250	TR97389	352.84
1-1/4	1.2500	6-1/8	10	12-1/4	1.2500	TR97390	434.15
1-3/8	1.3750	6-5/16	10	12-5/8	1.3750	TR97391	512.22
1-1/2	1.5000	6-1/2	10	13	1.5000	TR97392	606.70

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 PRICE!**

## TAPER PIPE LEFT HAND SPIRAL - RIGHT HAND CUT



**SERIES 906**  
HIGH SPEED STEEL

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SIZE OF SQUARE	ITEM#	LIST PRICE
1/16	0.2320	0.2750	3/4	6	2-1/8	.3125	.235	TR97649	94.43
1/8	0.3160	0.3620	3/4	6	2-1/8	.4375	.328	TR97650	88.04
1/4	0.4060	0.4720	1-1/16	6	2-7/16	.5625	.421	TR97651	100.79
3/8	0.5400	0.6060	1-1/16	6	2-9/16	.7000	.531	TR97652	114.12
1/2	0.6650	0.7510	1-3/8	6	3-1/8	.6875	.515	TR97653	144.16
3/4	0.8760	0.9620	1-3/8	8	3-1/4	.9063	.679	TR97654	199.88
1	1.1030	1.2120	1-3/4	8	3-3/4	1.1250	.843	TR97655	294.12
1-1/4	1.4440	1.5530	1-3/4	10	4	1.3125	.984	TR97656	495.38
1-1/2	1.6840	1.7930	1-3/4	12	4-1/4	1.5000	1.125	TR97657	626.38
2	2.1590	2.2680	1-3/4	12	4-1/2	1.8750	1.406	TR97658	836.67

## 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	0.0497	0.0666	4	TR97525 75.52	TR97567 78.36	TR97546 70.06
6/0	0.0611	0.0806	4	TR97526 75.52	TR97568 78.36	TR97547 65.97
5/0	0.0719	0.0966	4	TR97527 68.84	TR97569 75.52	TR97548 68.44
4/0	0.0869	0.1142	4	TR97528 68.84	TR97570 75.52	TR97549 68.44
3/0	0.1029	0.1302	4	TR97529 68.84	TR97571 75.52	TR97550 61.80
2/0	0.1137	0.1462	4	TR97530 61.55	TR97572 65.97	TR97551 62.52
0	0.1287	0.1638	4	TR97531 59.20	TR97573 63.05	TR97552 64.02
1	0.1447	0.1798	6	TR97532 57.34	TR97574 64.02	TR97553 65.00
2	0.1605	0.2008	6	TR97533 57.34	TR97575 64.02	TR97554 73.58
3	0.1813	0.2294	6	TR97534 57.34	TR97576 64.02	TR97555 76.05
4	0.2071	0.2604	6	TR97535 64.02	TR97577 69.81	TR97556 85.61
5	0.2409	0.2994	6	TR97536 68.84	TR97578 74.47	TR97557 93.67
6	0.2773	0.3540	6	TR97537 83.10	TR97579 91.76	TR97558 109.94
7	0.3297	0.4220	6	TR97538 107.03	TR97580 116.02	TR97559 135.70
8	0.3971	0.5050	6	TR97539 137.15	TR97581 150.03	TR97560 159.23
9	0.4805	0.6066	6	TR97540 166.31	TR97582 181.05	TR97561 174.94
10	0.5799	0.7216	6	TR97541 182.59	TR97583 200.69	TR97562 222.12
11	0.7060	0.8780	8	TR97542 194.58	TR97584 214.10	TR97563 235.44
12	0.8420	1.0500	8	TR97543 301.08	TR97585 331.17	TR97564 364.46
13	1.0090	1.2590	10	TR97544 583.98	TR97586 642.38	TR97565 987.05
14	1.2500	1.5420	10	TR97545 935.72	TR97587 1038.46	TR97566 1140.27

For technical information, please see page 240.

## CAPSCREW COUNTERBORES HIGH SPEED STEEL



**TAKE 55% OFF  
LIST PRICE!**

### SERIES 901 - STANDARD TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE
4	0.1120	1/8	0.1830	9/16	3-7/8	TR97470	43.33
5	0.1250	5/32	0.2050	5/8	4-1/8	TR97471	43.33
6	0.1380	3/16	0.2270	3/4	4-5/8	TR97472	45.88
8	0.1640	7/32	0.2700	3/4	5	TR97473	49.16
10	0.1900	1/4	0.3120	7/8	5-1/4	TR97474	50.21
1/4	0.2500	9/32	0.3800	1	5-5/8	TR97475	52.81
5/16	0.3125	5/16	0.4740	1	6-1/8	TR97476	65.97
3/8	0.3750	3/8	0.5690	1-1/4	6-1/2	TR97477	72.04
7/16	0.4370	7/16	0.6610	1-1/4	7	TR97478	86.66
1/2	0.5000	1/2	0.7550	1-1/2	7-1/2	TR97479	99.17
5/8	0.6250	5/8	0.9430	1-1/2	7-5/8	TR97480	161.82
3/4	0.7500	3/4	1.1310	1-5/8	7-3/4	TR97481	188.26
7/8	0.8750	7/8	1.3200	1-7/8	8	TR97482	229.32
1	1.0000	1	1.5080	2	8-1/2	TR97483	290.92

### SERIES 902 - 1/64 o/s TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE
4	0.1270	1/8	0.1990	9/16	3-7/8	TR97484	43.33
5	0.1400	5/32	0.2210	5/8	4-1/8	TR97485	43.33
6	0.1530	3/16	0.2430	3/4	4-5/8	TR97486	45.88
8	0.1790	7/32	0.2860	3/4	5	TR97487	49.16
10	0.2050	1/4	0.3280	7/8	5-1/4	TR97488	50.21
1/4	0.2650	9/32	0.3960	1	5-5/8	TR97489	52.81
5/16	0.3280	5/16	0.4890	1	6-1/8	TR97490	65.97
3/8	0.3900	3/8	0.5850	1-1/4	6-1/2	TR97491	72.04
7/16	0.4520	7/16	0.6760	1-1/4	7	TR97492	86.66
1/2	0.5150	1/2	0.7710	1-1/2	7-1/2	TR97493	99.17
5/8	0.6400	5/8	0.9590	1-1/2	7-5/8	TR97494	161.82
3/4	0.7650	3/4	1.1470	1-5/8	7-3/4	TR97495	188.26
7/8	0.8910	7/8	1.3360	1-7/8	8	TR97496	229.32
1	1.0150	1	1.5240	2	8-1/2	TR97497	290.92

### SERIES 903 - 1/32 o/s TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	LIST PRICE
4	0.1430	1/8	0.2150	9/16	3-7/8	TR97501	43.33
5	0.1560	5/32	0.2370	5/8	4-1/8	TR97502	43.33
6	0.1690	3/16	0.2590	3/4	4-5/8	TR97503	45.88
8	0.1950	7/32	0.3020	3/4	5	TR97504	49.16
10	0.2180	1/4	0.3440	7/8	5-1/4	TR97505	50.21
1/4	0.2810	9/32	0.4120	1	5-5/8	TR97506	52.81
5/16	0.3430	5/16	0.5040	1	6-1/8	TR97507	65.97
3/8	0.4060	3/8	0.6010	1-1/4	6-1/2	TR97508	72.04
7/16	0.4680	7/16	0.6910	1-1/4	7	TR97509	86.66
1/2	0.5310	1/2	0.7870	1-1/2	7-1/2	TR97510	99.17
5/8	0.6560	5/8	0.9750	1-1/2	7-5/8	TR97511	161.82
3/4	0.7810	3/4	1.1630	1-5/8	7-3/4	TR97512	188.26
7/8	0.9060	7/8	1.3520	1-7/8	8	TR97513	229.32
1	1.0310	1	1.5400	2	8-1/2	TR97514	290.92

For technical information, please see page 240.

# Reamers

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



**TAKE 55% OFF LIST PRICE!**



## CONSTRUCTION

**SERIES 9950**  
HIGH SPEED STEEL  
LEFT HAND SPIRAL  
RIGHT HAND CUT  
BLACK & GOLD  
3 FLATS

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	LIST PRICE
3/8	2-1/2	5	4-5/8	3/8	TR97595	83.13
7/16	3-1/4	5	5-3/8	7/16	TR97596	89.71
1/2	3-3/4	5	5-7/8	1/2	TR97597	99.29
9/16	3-3/4	5	5-7/8	1/2	TR97598	103.34
5/8	4-1/4	5	6-3/8	1/2	TR97599	114.94
11/16	4-1/4	5	6-3/8	1/2	TR97600	125.30
3/4	4-1/2	5	6-7/8	1/2	TR97601	145.09
13/16	4-1/2	5	6-7/8	1/2	TR97602	145.09
7/8	4-1/2	5	6-7/8	1/2	TR97603	164.58
15/16	4-1/2	5	6-7/8	1/2	TR97604	164.58
1	4-1/2	5	6-7/8	1/2	TR97605	187.92
1-1/16	4-1/2	5	6-7/8	1/2	TR97660	221.08



## SAFETY MAGNETIC HEX SHANK

**SERIES 996**  
HIGH SPEED STEEL  
LEFT HAND SPIRAL  
RIGHT HAND CUT  
BLACK & GOLD  
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 DIA.	ITEM#	LIST PRICE
9/16	4	5	5-1/2	1-1/16	TR99050	175.23
11/16	4-1/2	5	6-3/8	1-1/16	TR99052	211.90
13/16	5	5	7	1-1/4	TR99054	253.39
15/16	5	5	7	1-7/16	TR99056	286.31
1-1/16	5	5	7	1-5/8	TR99058	379.22
1-3/16	5	5	7	1-13/16	TR99060	488.49
1-5/16	5	5	7-7/8	2	TR99062	583.54



## BRIDGE

**SERIES 9850**  
HIGH SPEED STEEL  
LEFT HAND SPIRAL  
RIGHT HAND CUT

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	SMALL DIA.	ITEM#	LIST PRICE
7/16	5-1/8	5	9	2	.3050	TR98974	110.65
1/2	5-1/8	5	9	2	.3125	TR98976	120.19
9/16	5-1/8	5	9	2	.3430	TR97589	120.19
5/8	6-1/8	5	10	2	.3750	TR98978	129.88
11/16	7-1/8	5	11-3/4	3	.3906	TR97590	138.81
3/4	7-3/8	5	12	3	.5000	TR97591	180.79
13/16	7-3/8	5	12	3	.5000	TR97592	180.79
7/8	7-3/8	5	12	3	.5625	TR98980	198.14
15/16	7-3/8	5	12	3	.6250	TR97593	211.54
1	7-3/8	5	12	3	.6875	TR98982	230.14
1-1/16	7-3/8	5	12	3	.7500	TR97594	238.82
1-1/8	7-3/8	5	12	3	.8125	TR98984	291.23
1-3/16	7-3/8	5	12	3	.8750	TR98986	372.23
1-1/4	7-3/8	5	13	4	.9375	TR98988	423.60
1-5/16	7-3/8	5	13	4	1.000	TR98990	500.80

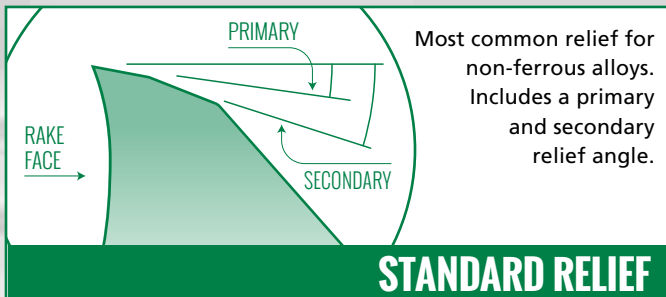
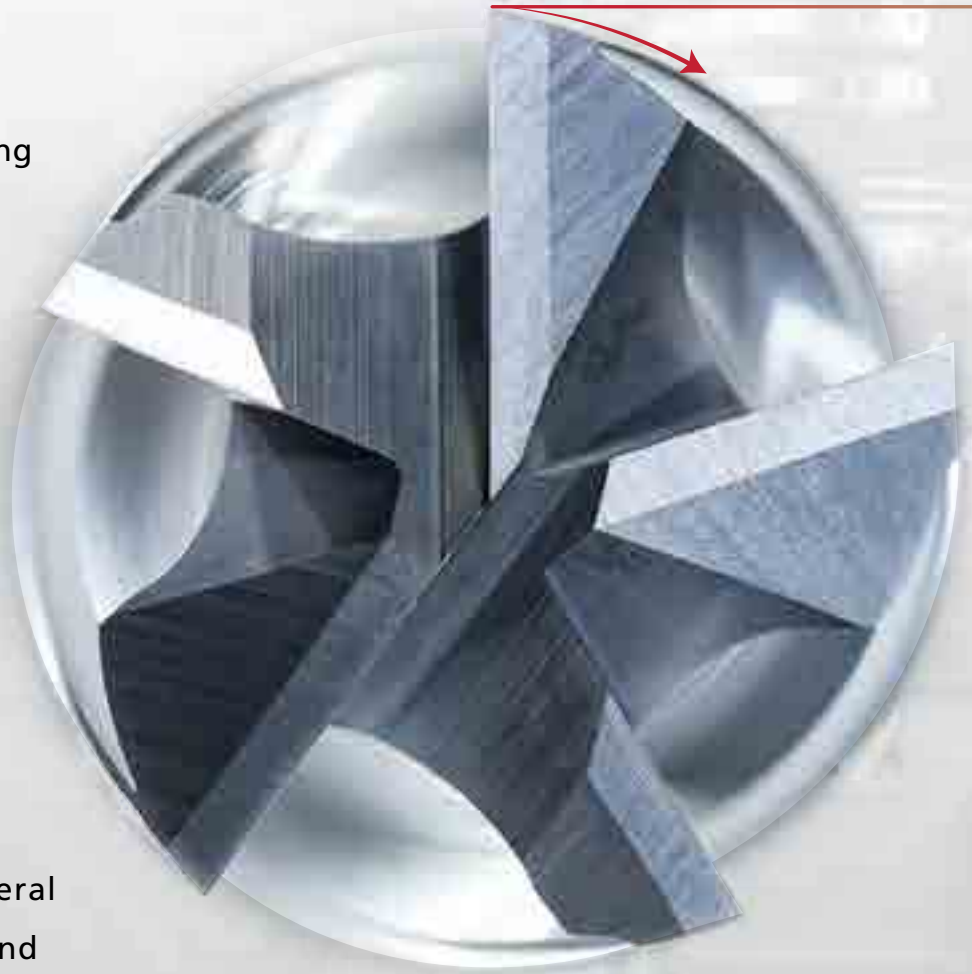
For technical information, please see page 240.

HSS & COBALT REAMERS

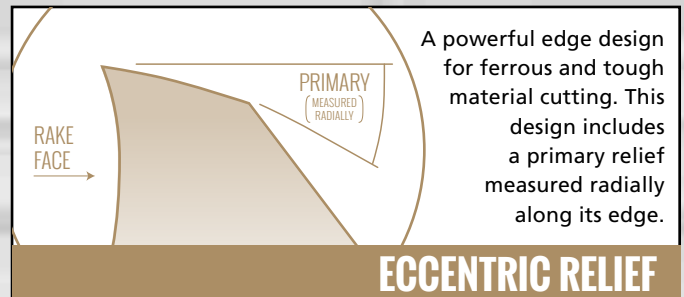
## RADIAL RELIEF

Relief in a radial direction behind the cutting edge along the length of the flute - measured in the plane of rotation. The relief can be measured by the amount of indicator drop at a given radius in a given amount of angular rotation.

The two most common styles of radial relief found in our tools are **Standard Relief**, in our general purpose and cobalt tools, and **Eccentric Relief** in our high performance cutting tools.



**STANDARD RELIEF**



**ECCENTRIC RELIEF**



## VI-PRO CARBIDE END MILLS



- Running at 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:

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$

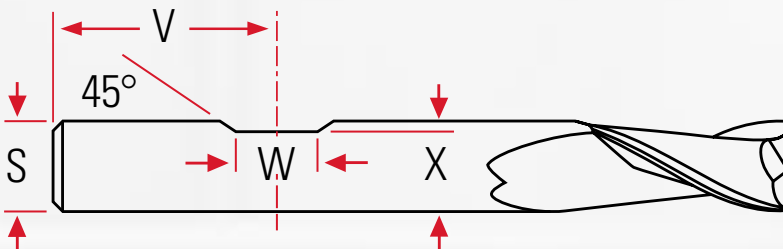


3 on-site Otec Post Polish machines

### 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"
-	-	-	-	-

## 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
<b>COBALT BASE ALLOYS</b>					
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
<b>NICKEL BASE ALLOYS</b>					
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
<b>IRON BASE ALLOYS</b>					
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
<b>MONEL</b>					
MONEL-65% NICKEL	-	150 - 200	150 - 200	105 - 140	105 - 140
<b>TITANIUM ALLOYS</b>					
COMMERCIAL PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	-	-	-	-
	-	200 - 325	200 - 325	140 - 230	140 - 230
<b>STAINLESS STEEL (PRECIPITATION)</b>					
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
<b>STAINLESS STEEL (AUSTENITIC)</b>					
200 SERIES, 302, 303, 304, 316	-	290 - 375	290 - 375	200 - 260	200 - 260
<b>STAINLESS STEEL (AUSTENITIC)</b>					
304L, 316L	UNDER 32	250 - 300	250 - 300	175 - 210	175 - 210
	OVER 32	200 - 250	200 - 250	140 - 175	140 - 175
<b>STAINLESS STEEL (MARTENSITIC)</b>					
403, 410, 416, 440	-	250 - 300	250 - 300	175 - 210	175 - 210
<b>HIGH STRENGTH TOOL STEELS</b>					
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
<b>CARBON STEELS</b>					
1000's, 1100's, 1300's	-	560 - 595	560 - 595	300 - 500	300 - 500
<b>DUCTILE</b>					
DUCTILE CAST IRONS	-	560 - 595	560 - 595	400 - 500	400 - 500
<b>CAST IRONS</b>					
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 up to 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



## 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"
<b>COBALT BASE ALLOYS</b>										
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
<b>NICKEL BASE ALLOYS</b>										
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
<b>IRON BASE ALLOYS</b>										
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
<b>MONEL</b>										
MONEL-65% NICKEL	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
<b>TITANIUM ALLOYS</b>										
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
<b>STAINLESS STEEL (PRECIPITATION)</b>										
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
<b>STAINLESS STEEL (AUSTENITIC)</b>										
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
<b>STAINLESS STEEL (AUSTENITIC)</b>										
304L, 316L	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>STAINLESS STEEL (MARTENSITIC)</b>										
403, 410, 416, 440	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>HIGH STRENGTH TOOL STEELS</b>										
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
<b>CARBON STEELS</b>										
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
<b>DUCTILE</b>										
DUCTILE CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
<b>CAST IRONS</b>										
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

## 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
<b>COBALT BASE ALLOYS</b>					
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
<b>NICKEL BASE ALLOYS</b>					
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
<b>IRON BASE ALLOYS</b>					
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
<b>MONEL</b>					
MONEL-65% NICKEL	-	550 - 570	550 - 570	385 - 400	385 - 400
<b>TITANIUM ALLOYS</b>					
COMMERCIALLY PURE, 6Al-4V,	-	-	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	550 - 570	385 - 400	385 - 400
<b>STAINLESS STEEL (PRECIPITATION)</b>					
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
<b>STAINLESS STEEL (AUSTENITIC)</b>					
200 SERIES, 302, 303, 304, 316	-	600 - 625	600 - 625	420 - 440	420 - 440
<b>STAINLESS STEEL (AUSTENITIC)</b>					
304L, 316L	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
<b>STAINLESS STEEL (MARTENSITIC)</b>					
403, 410, 416, 440	-	600 - 625	600 - 625	420 - 440	420 - 440
<b>HIGH STRENGTH TOOL STEELS</b>					
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
<b>CARBON STEELS</b>					
1000's, 1100's, 1300's	-	800 - 850	800 - 850	560 - 595	560 - 595
<b>DUCTILE</b>					
DUCTILE CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595
<b>CAST IRONS</b>					
GRAY CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595

**Chip Thinning recommended for optimized tool life:**

5% of Diameter Radial engaged: Multiply Feed 3X  
10% of Diameter Radial engaged: Multiply Feed 2X

# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO CARBIDE END MILLS

### VI-PRO VARIABLE INDEX GEOMETRY 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"
<b>COBALT BASE ALLOYS</b>										
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
<b>NICKEL BASE ALLOYS</b>										
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
<b>IRON BASE ALLOYS</b>										
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
<b>MONEL</b>										
MONEL-65% NICKEL	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
<b>TITANIUM ALLOYS</b>										
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
<b>STAINLESS STEEL (PRECIPITATION)</b>										
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
<b>STAINLESS STEEL (AUSTENITIC)</b>										
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
<b>STAINLESS STEEL (AUSTENITIC)</b>										
304L, 316L	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>STAINLESS STEEL (MARTENSITIC)</b>										
403, 410, 416, 440	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>HIGH STRENGTH TOOL STEELS</b>										
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
<b>CARBON STEELS</b>										
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
<b>DUCTILE</b>										
DUCTILE CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
<b>CAST IRONS</b>										
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 optimized tool life:

5% of Diameter Radial engaged: Multiply Feed 3X  
10% of Diameter Radial engaged: Multiply Feed 2X

TECHNICAL INFORMATION



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 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
<b>COBALT BASE ALLOYS</b>			
STELLITE, HS-21,	UNDER 32	550 - 570	385 - 400
HAYNES 25/188, X-40, L-605	OVER 32	200 - 225	140 - 160
<b>NICKEL BASE ALLOYS</b>			
INCONEL-625/718, WASPALLOY,	UNDER 32	550 - 570	385 - 400
RENE, HASTELLOY	OVER 32	200 - 225	140 - 160
<b>IRON BASE ALLOYS</b>			
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
<b>MONEL</b>			
MONEL-65% NICKEL	-	550 - 570	385 - 400
<b>TITANIUM ALLOYS</b>			
COMMERCIALLY PURE, 6Al-4V,	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	385 - 400
<b>STAINLESS STEEL (PRECIPITATION)</b>			
12/8, 15/5, 17/4, AM-350/355	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
<b>STAINLESS STEEL (AUSTENITIC)</b>			
200 SERIES, 302, 303, 304, 316	-	600 - 625	420 - 440
<b>STAINLESS STEEL (AUSTENITIC)</b>			
304L, 316L	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
<b>STAINLESS STEEL (MARTENSITIC)</b>			
403, 410, 416, 440	-	600 - 625	420 - 440
<b>HIGH STRENGTH TOOL STEELS</b>			
4140, 4340, 6150, 5210, A2,	UNDER 32	600 - 625	420 - 440
D2, P20, H11, H13, S2, 01	OVER 32	550 - 570	385 - 400
<b>CARBON STEELS</b>			
1000's, 1100's, 1300's	-	800 - 850	560 - 595
<b>DUCTILE</b>			
DUCTILE CAST IRONS	-	800 - 850	560 - 595
<b>CAST IRONS</b>			
GRAY CAST IRONS	-	800 - 850	560 - 595

**Chip Thinning recommended for optimized tool life:**

5% of Diameter Radial engaged: Multiply Feed 3X  
10% of Diameter Radial engaged: Multiply Feed 2X

TECHNICAL INFORMATION

# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## VI-PRO CARBIDE END MILLS

### VI-PRO VARIABLE INDEX GEOMETRY 6 FLUTE

#### I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
<b>COBALT BASE ALLOYS</b>							
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
<b>NICKEL BASE ALLOYS</b>							
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
<b>IRON BASE ALLOYS</b>							
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
<b>MONEL</b>							
MONEL-65% NICKEL	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
<b>TITANIUM ALLOYS</b>							
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
<b>STAINLESS STEEL (PRECIPITATION)</b>							
12/8, 15/5, 17/4, AM-350/355	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>STAINLESS STEEL (AUSTENITIC)</b>							
200 SERIES, 302, 303, 304, 316	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>STAINLESS STEEL (AUSTENITIC)</b>							
304L, 316L	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>STAINLESS STEEL (MARTENSITIC)</b>							
403, 410, 416, 440	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>HIGH STRENGTH TOOL STEELS</b>							
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
<b>CARBON STEELS</b>							
1000's, 1100's, 1300's	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
<b>DUCTILE</b>							
DUCTILE CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
<b>CAST IRONS</b>							
GRAY CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

#### Chip Thinning recommended for optimized tool life:

5% of Diameter Radial engaged: Multiply Feed 3X  
10% of Diameter Radial engaged: Multiply Feed 2X

TECHNICAL INFORMATION



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## HIGH PERFORMANCE THREAD MILLS - CARBIDE

TECHNICAL INFORMATION

MATERIAL	GRADES	SFM	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4
			(.0625)	(.1250)	(.1875)	(.2500)	(.3125)	(.3750)	(.5000)	(.6250)	(.7500)
			IPT	IPT	IPT	IPT	IPT	IPT	IPT	IPT	IPT
<b>ALLOYS</b>											
COBALT BASE	STELLITE, HS-21, HAYNES 25/188,	50-90	.00015-.00025	.0002-.0005	.0003-.0005	.0004-.0006	.0006-.0009	.0008-.0015	.0010-.0020	.0014-.0028	.0018-.0030
IRON BASE	INCOLOY 800-802, MULTMET N-15, TIMKIN 16-25-6, CARPENTER 22-B3, TIMKIN 16-25-6, CARPENTER 22-B3	50-90	.00015-.00025	.0002-.0005	.0003-.0005	.0004-.0006	.0006-.0009	.0008-.0015	.0010-.0020	.0014-.0028	.0018-.0030
NICKEL BASE	INCONEL 625/718, INCO 700, 713C, 718, MONEL 400-401, 404, K401, RENE, RENE 41 & 95 HASTELLOY, WASPOLOY, UDIMET 500 & 700	60-100	.0002-.0003	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.0015-.0025	.002-.003	.0025-.0040
TITANIUM	COMMERCIALLY PURE, 6AL-4V, ASTM 1/2/3, 6AL-25N-4ZR-2MO-SI, TI-8AL-1MO, TI-8AL-4MO	80-150	.0002-.0005	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.0015-.0025	.0025-.0035	.0030-.0045
<b>ALUMINUM</b>											
ALUMINUM ALLOYS	2014, 2024, 6061, 7075	800-1400	.0002-.0004	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.006-.010
HIGH SILICON	A380, A390	475-750	.00015-.00022	.00035-.00040	.00075-.0008	.0010-.0020	.0015-.0025	.0018-.0028	.0023-0.0030	.0028-.0031	.0035-.0050
<b>BRASS/BRONZE</b>											
	ALUMINUM BRONZE, LOW SILICON BRONZE	550-800	.0002-.0005	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.006-.010
<b>CAST IRON</b>											
DUCTILE	A536, J434, 60-40-18	200-300	.00025-.00035	.0003-.0006	.0005-.0010	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0030-.0050
GRAY	A48, A436, A319, CLASS 20, G4000	250-350	.00025-.00035	.0004-.0008	.0007-.0013	.0007-.0013	.0015-.002	.002-.003	.002-.004	.003-.005	.0040-.0060
MALLEABLE	A220, A602, J158	200-300	.00025-.00035	.0003-.0006	.0005-.0010	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0030-.0050
<b>COMPOSITES</b>											
	G-10, FIBERGLASS, GRAPHITE, GRAPHITE EPOXY, PLASTICS	800-1400	.0003-.0005	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.0060-.0100
<b>COPPER</b>											
		450-1000	.00025-.00035	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0035-.0050
<b>MAGNESIUM</b>											
		800-1400	.0003-.0005	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.0060-.0100
<b>STAINLESS STEEL</b>											
AUSTENITIC	301-304L, 310, 316L, 321, 347	100-250	.00015-.00025	.00025-.00055	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0035-.0050
MARTENSITIC	403, 410, 416, 420, 430, 431, 440	150-250	.0002-.0003	.0004-.0008	.0006-.001	.001-.0015	.0015-.002	.0015-.003	.002-.0035	.003-.004	.0030-.0040
PRECIPITATION HARDENING	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	100-250	.00015-.00025	.00025-.00055	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0035-.0050
<b>STEELALLOY</b>											
HIGH STRENGTH TOOL STEEL	A2, D2, P20, H11, H13,	250-400	.00015-.0003	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0035-.0050
LOW CARBON	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	350-500	.0002-.0004	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.0060-.0080
MEDIUM CARBON	1040-1095, 1140-1151, 1330-1345	300-450	.0002-.0004	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.0060-.0080



## END MILLS - CARBIDE

### Trouble Shooting Guide

PROBLEM	CAUSE	SOLUTION
<b>Premature Wear</b>	<ul style="list-style-type: none"> <li>• Cutting speed is too fast</li> <li>• Hard/Abrasive work-piece material</li> <li>• Speed and/or feed is too light</li> <li>• Helix angle is incorrect for application</li> <li>• Re-cutting chips</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease spindle speed</li> <li>• Use coatings (TiCN, AlTiN)</li> <li>• Increase speed and/or feed</li> <li>• Select tool with appropriate helix angle</li> <li>• Adjust speed &amp; feed, axial and/or radial D.O.C., Increase coolant pressure and/or air to clear chips.</li> </ul>
<b>Edge Chipping</b>	<ul style="list-style-type: none"> <li>• Feed rate too aggressive</li> <li>• Feed rate too aggressive on initial cut</li> <li>• D.O.C. too aggressive</li> <li>• Tool rigidity</li> <li>• Work-piece rigidity</li> <li>• Machine tool rigidity</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Reduce feed rate on initial pass</li> <li>• Decrease axial and/or radial D.O.C.</li> <li>• Change tool holder, hold shank deeper and/or use shorter tool</li> <li>• Re-fixturing work-piece and/or improve setup</li> <li>• Check spindle for run-out</li> </ul>
<b>Breakage</b>	<ul style="list-style-type: none"> <li>• Feed rate too aggressive</li> <li>• D.O.C. too aggressive</li> <li>• Excessive tool overhang</li> <li>• Chip packing</li> <li>• Excessive wear</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Reduce axial and/or radial D.O.C.</li> <li>• Hold shank deeper, use shorter endmill</li> <li>• Adjust speed and/or feed, select endmill with fewer flutes, increase coolant pressure and/or air</li> <li>• Re-grind tool sooner</li> </ul>
<b>Chip Packing</b>	<ul style="list-style-type: none"> <li>• Speed and/or feed too aggressive</li> <li>• Flute gullet too small for chips</li> <li>• Insufficient coolant volume and/or pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce speed and/or feed</li> <li>• Use endmill with less flutes</li> <li>• Increase coolant and/or air pressure, reposition nozzle to point of cut</li> </ul>
<b>Chattering</b>	<ul style="list-style-type: none"> <li>• Speed and/or feed too aggressive</li> <li>• Tool rigidity</li> <li>• Work-piece rigidity</li> <li>• Machine tool rigidity</li> <li>• D.O.C. too aggressive</li> <li>• Wrong tool geometry</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce speed and/or feed</li> <li>• Change tool holder, hold shank deeper and/or use shorter tool</li> <li>• Re-fixturing work-piece and/or improve setup</li> <li>• Check spindle for run-out</li> <li>• Reduce axial and/or radial D.O.C.</li> </ul>
<b>Burs</b>	<ul style="list-style-type: none"> <li>• Incorrect speed &amp; feed</li> <li>• Helix angle is incorrect for application</li> <li>• Primary cutting edge(s) are dull</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust speed &amp; feed</li> <li>• Change to correct helix angle, use climb milling</li> <li>• Re-grind tool sooner</li> </ul>
<b>Poor Finish</b>	<ul style="list-style-type: none"> <li>• Feed rate too aggressive</li> <li>• Speed is too slow</li> <li>• D.O.C. too aggressive</li> <li>• Excessive wear</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce feed rate</li> <li>• Increase spindle speed (RPM)</li> <li>• Reduce axial and/or radial D.O.C.</li> <li>• Re-grind tool sooner</li> </ul>
<b>Poor Dimensional Accuracy</b>	<ul style="list-style-type: none"> <li>• D.O.C. too aggressive</li> <li>• Tool Rigidity</li> <li>• Machine tool rigidity</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce axial and/or radial D.O.C.</li> <li>• Use tool with more flutes</li> <li>• Check, inspect &amp; repair machine tool, tool holder and fixtures</li> </ul>

## 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:

$$\text{RPM} = (3.82 \times \text{SFM}) \div \text{Dia.}$$

$$\text{IPR} = \text{IPM} \div \text{RPM}$$

$$\text{SFM} = (\text{RPM} \times \text{Dia.}) \div 3.82$$

$$\text{IPM} = \text{IPT}(\text{chip load}) \times \text{No. of Teeth} \times \text{RPM}$$

$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$

## 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



## ROUGHING END MILLS - CARBIDE

MATERIAL	GRADES	STUB & REGULAR		LONG LENGTH		1/4	3/8	1/2	5/8	3/4	1
		SFM	SFM	SFM	SFM	(.2500)	(.3750)	(.5000)	(.0625)	(.7500)	(1.000)
		UNCOATED	ALTIM	UNCOATED	ALTIM	IPT	IPT	IPT	IPT	IPT	IPT
<b>ALLOYS</b>											
COBALT BASE	STELLITE, HS-21, HAYNES 25/188	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
COBALT BASE >32HRC	X40, L605	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
IRON BASE	INCOLOY 800-802, MULTMET N-155	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
IRON BASE >32HRC	TIMKIN 16-25-6, CARPENTER 22-B3	25-45	45-75	20-35	35-60	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
NICKEL BASE	INCONEL 625/718, INCO 700, 713C, 718	40-85	65-145	30-65	50-115	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
NICKEL BASE >32HRC	MONEL 400-401, 404, K401, RENE, RENE 41 & 95 HASTELLOY, WASPOLOY, UDIMET 500 & 700	30-65	55-110	25-50	45-90	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
TITANIUM	COMMERCIAL PURE, 6AL-4VASTM 1/2/3, 6AL-25N-4ZR-2MO-SITI-8AL-1MO, TI-8AL-4MO	75-130	125-215	60-100	100-170	.0009-.0012	.0012-.0015	.0015-.0018	.0018-.0021	.0021-.0025	.0025-.0027
<b>ALUMINUM</b>											
ALUMINUM ALLOYS		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
HIGH SILICON		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>BRASS/BRONZE</b>											
	ALUMINUM BRONZE, LOW SILICON BRONZE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>CAST IRON</b>											
DUCTILE	A536, J434, 60-40-18	200-250	300-350	140-175	210-250	.0005-.0015	.0015-.002	.002-.0025	.0025-.003	.003-.0035	.0035-.004
GRAY	A48, A436, A319, CLASS 20, G4000	250-300	450-500	175-210	315-350	.0005-.0015	.0015-.002	.002-.0025	.0025-.003	.003-.0035	.0035-.004
MALLEABLE	A220, A602, J158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>COMPOSITES</b>											
	G-10, FIBERGLASS, GRAPHITE, GRAPHITE EPOXY, PLASTICS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>COPPER</b>											
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>MAGNESIUM</b>											
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>STAINLESS STEEL</b>											
AUSTENITIC	301-304L, 310, 316L, 321, 347	150-300	250-500	120-240	200-400	.0010-.0015	.0015-.0020	.0020-.0025	.0025-.0030	.0030-.0035	.0035-.0040
MARTENSITIC	403, 410, 416, 420, 430,	135-255	225-430	110-200	180-340	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
PRECIPITATION HARDENING	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	135-255	225-430	110-200	180-340	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
<b>STEELALLOY</b>											
HIGH STRENGTH TOOL STEEL	A2, D2, P20, H11, H13,	200-230	250-320	140-160	180-210	.0003-.001	.001-.0015	.0015-.002	.002-.003	.003-.0035	.0035-.004
HIGH STRENGTH TOOL STEEL >32 HRC		180-220	240-280	130-150	170-190	.0003-.001	.001-.0015	.0015-.002	.002-.003	.003-.0035	.0035-.004
LOW CARBON	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	210-345	350-575	165-275	280-460	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
LOW CARBON >32HRC		125-190	210-320	100-150	165-255	.0011-.0015	.0015-.0020	.0020-.0025	.0023-.0025	.0025-.0030	.0028-.0032
MEDIUM CARBON	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	210-345	350-575	165-275	280-460	.0015-.0020	.0020-.0030	.0030-.0035	.0035-.0040	.0038-.0042	.0040-.0045
MEDIUM CARBON >32 HRC		180-220	240-280	130-150	170-190	.0003-.001	.001-.0015	.0015-.002	.002-.003	.003-.0035	.0035-.004

TECHNICAL INFORMATION



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 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
<b>COBALT BASE ALLOYS</b>				
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	200 - 275 125 - 175	250 - 300 150 - 200
<b>NICKEL BASE ALLOYS</b>				
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	150 - 200 90 - 125	250 - 300 150 - 200
<b>IRON BASE ALLOYS</b>				
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
<b>MONEL</b>				
MONEL-65% NICKEL	-	-	200 - 300	225 - 350
<b>TITANIUM ALLOYS</b>				
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	500 min. -	250 - 400 -	250 - 400 -
<b>STAINLESS STEEL (PRECIPITATION)</b>				
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
<b>STAINLESS STEEL (AUSTENITIC)</b>				
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	250 - 350 175 - 275	250 - 350 175 - 275
<b>STAINLESS STEEL (AUSTENITIC)</b>				
304L, 316L	UNDER 32 OVER 32	- -	125 - 200 90 - 125	125 - 200 90 - 125
<b>STAINLESS STEEL (MARTENSITIC)</b>				
403, 410, 416, 440	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
<b>HIGH STRENGTH TOOL STEELS</b>				
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	225 - 300 125 - 200	225 - 300 125 - 200
<b>MEDIUM ALLOY STEELS</b>				
200, 250, 300	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
<b>CARBON STEELS</b>				
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
<b>DUCTILE</b>				
DUCTILE CAST IRONS	-	-	350 - 450	300 - 400
<b>CAST IRONS</b>				
GRAY CAST IRONS	-	-	300 - 400	250 - 350
<b>ALUMINUM</b>				
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -
<b>MAGNESIUM</b>				
	-	500 min.	500 min.	500 min.
<b>COPPER, COPPER ALLOYS</b>				
	-	400 - 500	400 - 500	250 - 350
<b>BRASS BRONZE</b>				
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	- -
<b>COMPOSITES</b>				
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	250 - 1000 -	- -	- -

TECHNICAL INFORMATION

# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## 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"
<b>COBALT BASE ALLOYS</b>					
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"
<b>NICKEL BASE ALLOYS</b>					
INCONEL-625/718, WASSPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
<b>IRON BASE ALLOYS</b>					
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"
<b>MONEL</b>					
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"
<b>TITANIUM ALLOYS</b>					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0030"-.0050" -
<b>STAINLESS STEEL (PRECIPITATION)</b>					
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"
<b>STAINLESS STEEL (AUSTENITIC)</b>					
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"
<b>STAINLESS STEEL (AUSTENITIC)</b>					
304L, 316L	UNDER 32 OVER 32	.0005"-.0008" .0003"-.0005"	.0005"-.0008" .0003"-.0005"	.0008"-.0015" .0005"-.0010"	.0015"-.0030" .0010"-.0020"
<b>STAINLESS STEEL (MARTENSITIC)</b>					
403, 410, 416, 440	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
<b>HIGH STRENGTH TOOL STEELS</b>					
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"
<b>MEDIUM ALLOY STEELS</b>					
200, 250, 300	UNDER 32 OVER 32	.0007"-.0015" .0005"-.0010"	.0007"-.0015" .0005"-.0010"	.0010"-.0025" .0008"-.0020"	.0030"-.0050" .0020"-.0040"
<b>CARBON STEELS</b>					
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"
<b>DUCTILE</b>					
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
<b>CAST IRONS</b>					
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
<b>ALUMINUM</b>					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	.0010"-.0020" -	.0010"-.0020" -	.0015"-.0040" -	.0030"-.0150" -
<b>MAGNESIUM</b>					
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
<b>COPPER, COPPER ALLOYS</b>					
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"
<b>BRASS BRONZE</b>					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0020"-.0080" -
<b>COMPOSITES</b>					
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

## 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
<b>COBALT BASE ALLOYS</b>					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	- -	175 - 225 125 - 175	150 - 200 100 - 150
<b>NICKEL BASE ALLOYS</b>					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	- -	125 - 175 70 - 115	150 - 200 100 - 150
<b>IRON BASE ALLOYS</b>					
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
<b>MONEL</b>					
MONEL-65% NICKEL	-	175 - 300	125 - 175	175 - 300	125 - 175
<b>TITANIUM ALLOYS</b>					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	200 - 300 -	125 - 250 -	200 - 300 -	125 - 250 -
<b>STAINLESS STEEL (PRECIPITATION)</b>					
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
<b>STAINLESS STEEL (AUSTENITIC)</b>					
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	- -	200 - 250 150 - 200	125 - 175 100 - 150
<b>STAINLESS STEEL (AUSTENITIC)</b>					
304L, 316L	UNDER 32 OVER 32	- -	- -	90 - 125 75 - 110	80 - 120 60 - 90
<b>STAINLESS STEEL (MARTENSITIC)</b>					
403, 410, 416, 440	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
<b>HIGH STRENGTH TOOL STEELS</b>					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	- -	150 - 225 60 - 125	125 - 175 80 - 120
<b>MEDIUM ALLOY STEELS</b>					
200, 250, 300	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
<b>CARBON STEELS</b>					
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
<b>DUCTILE</b>					
DUCTILE CAST IRONS	-	250 - 350	200 - 300	300 - 400	200 - 300
<b>CAST IRONS</b>					
GRAY CAST IRONS	-	225 - 325	175 - 250	250 - 350	175 - 250
<b>ALUMINUM</b>					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -	500 min. -
<b>MAGNESIUM</b>					
	-	500 min.	500 min.	500 min.	500 min.
<b>COPPER, COPPER ALLOYS</b>					
	-	400 - 500	400 - 500	300 - 400	250 - 350
<b>BRASS BRONZE</b>					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	250 - 350 -	200 - 300 -
<b>COMPOSITES</b>					
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



## GENERAL PURPOSE END MILLS - CARBIDE

### 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"
<b>COBALT BASE ALLOYS</b>						
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"
<b>NICKEL BASE ALLOYS</b>						
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"
<b>IRON BASE ALLOYS</b>						
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"
<b>MONEL</b>						
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
<b>TITANIUM ALLOYS</b>						
COMMERCIALLY PURE, 6Al-4V,	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	-	-	-	-	-
<b>STAINLESS STEEL (PRECIPITATION)</b>						
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"
<b>STAINLESS STEEL (AUSTENITIC)</b>						
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"
<b>STAINLESS STEEL (AUSTENITIC)</b>						
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"
<b>STAINLESS STEEL (MARTENSITIC)</b>						
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"
<b>HIGH STRENGTH TOOL STEELS</b>						
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"
<b>MEDIUM ALLOY STEELS</b>						
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"
<b>CARBON STEELS</b>						
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"
<b>DUCTILE</b>						
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
<b>CAST IRONS</b>						
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
<b>ALUMINUM</b>						
2014, 2024, 6061-(T1-T6)	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0150"	.0050"-.0150"
7075, DIE CAST, EXTRUDED	-	-	-	-	-	-
<b>MAGNESIUM</b>						
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
<b>COPPER, COPPER ALLOYS</b>						
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
<b>BRASS BRONZE</b>						
BRASS, ALUM/BRONZE,	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
LOW SILICON BRONZE	-	-	-	-	-	-
<b>COMPOSITES</b>						
G-10 FIBERGLASS, GRAPHITE,	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
GRAPHITE/EPOXY, PLASTICS	-	-	-	-	-	-

TECHNICAL INFORMATION



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## 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"
<b>NON FERROUS</b>							
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
<b>STAINLESS STEEL</b>							
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
<b>HIGH TEMP ALLOYS</b>							
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
<b>STEEL</b>							
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
<b>CAST IRON</b>							
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



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## DRILLS - CARBIDE

THESE VALUES ARE FOR UNCOATED TOOLS. FOR ALTiN COATED TOOLS INCREASE SFM +40%

CARBIDE DRILLING - SFM & CHIP LOAD									
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"	
<b>COBALT BASE ALLOYS</b>									
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"	
<b>NICKEL BASE ALLOYS</b>									
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"	
<b>IRON BASE ALLOYS</b>									
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"	
<b>MONEL</b>									
MONEL-65% NICKEL	-	100 - 150	100 - 150	.0004"-.0010"	.0008"-.0015"	.0010"-.0015"	.0015"-.0030"	.0020"-.0040"	
<b>TITANIUM ALLOYS</b>									
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" -	
<b>STAINLESS STEEL (PRECIPITATION)</b>									
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"	
<b>STAINLESS STEEL (AUSTENITIC)</b>									
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"	
<b>STAINLESS STEEL (AUSTENITIC)</b>									
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"	
<b>STAINLESS STEEL (MARTENSITIC)</b>									
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"	
<b>HIGH STRENGTH TOOL STEELS</b>									
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	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"	
<b>MEDIUM ALLOY STEELS</b>									
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"	
<b>CARBON STEELS</b>									
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"	
<b>DUCTILE</b>									
DUCTILE CAST IRONS	-	125 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"	
<b>CAST IRONS</b>									
GRAY CAST IRONS	-	100 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"	
<b>ALUMINUM</b>									
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	150 - 300 -	- -	.0010"-.0020" -	.0015"-.0040" -	.0020"-.0020" -	.0030"-.0060" -	.0035"-.0070" -	
<b>MAGNESIUM</b>									
	-	200 - 500	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"	
<b>COPPER, COPPER ALLOYS</b>									
	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"	
<b>BRASS BRONZE</b>									
BRASS, ALUM/BRONZE	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"	
<b>BRASS BRONZE</b>									
LOW SILICON BRONZE	-	125 - 200	-	.0008"-.0015"	.0010"-.0020"	.0015"-.0030"	.0020"-.0040"	.0025"-.0050"	
<b>COMPOSITES</b>									
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	150 - 300 -	150 - 300 -	.0010"-.0020" -	.0010"-.0030" -	.0015"-.0035" -	.0025"-.0040" -	.0030"-.0050" -	

TECHNICAL INFORMATION

## 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
<b>STAINLESS STEELS</b>										
<b>PRECIPITATION</b> 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"
<b>AUSTENITIC</b> 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"
<b>MARTENSITIC</b> 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"
<b>HIGH TEMP ALLOYS</b>										
<b>COBALT BASE</b> 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"
<b>NICKEL BASE</b> 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"
<b>IRON BASE</b> 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"
<b>STEELS</b>										
<b>HIGH STRENGTH STEELS</b> 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"
<b>HIGH ALLOY STEELS MOLD &amp; DIE</b> 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"
<b>MEDIUM ALLOY STEELS</b> 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"
<b>LOW ALLOY STEELS MARAGING</b> 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"
<b>CAST IRONS</b>										
<b>DUCTILE IRON</b> 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"
<b>CAST IRON</b> 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"
<b>TITANIUMS</b>										
<b>TITANIUM ALLOYS</b> 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"
<b>ALUMINUM</b>										
<b>ALUMINUM ALLOYS</b> 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

$$RPM = (3.82 \times SFM) \div \text{Dia.}$$

$$IPR = IPM \div RPM$$

$$SFM = (RPM \times \text{Dia.}) \div 3.82$$

$$IPM = IPT(\text{chip load}) \times \text{No. of Teeth} \times RPM$$

$$IPT(\text{chip load}) = IPM \div (\text{No. of teeth} \times RPM)$$

# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## ROUGHING END MILLS - M42 COBALT

TECHNICAL INFORMATION

SFM & CHIP LOAD									
MATERIAL / TYPE	CONDITIONS	STARTING SFM ALTIN	DIAMETER RANGE - SUGGESTED CHIP LOAD PER TOOTH						
			1/4"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
<b>STAINLESS STEELS</b>									
<b>PRECIPITATION</b> 13-8, 15-5, 17-4PH	Slotting Axial 1 x D	100-150	.0015"	.0020"	.0026"	.0036"	.0046"	.0054"	.0070"
	Heavy Profiling		.0015"	.0020"	.0029"	.0040"	.0050"	.0060"	.0075"
<b>AUSTENITIC</b> 302, 303, 304L, 316L	Slotting 1 x D	100-150	.0015"	.0020"	.0030"	.0045"	.0056"	.0067"	.0090"
	Heavy Profiling		.0019"	.0025"	.0034"	.0049"	.0061"	.0074"	.0098"
<b>MARTENSITIC</b> 403, 410, 416	Slotting Axial 1 x D	100-170	.0015"	.0020"	.0030"	.0045"	.0056"	.0067"	.0090"
	Heavy Profiling		.0019"	.0025"	.0034"	.0049"	.0061"	.0074"	.0098"
<b>HIGH TEMP ALLOYS</b>									
<b>COBALT BASE</b> Stellite, Haynes 25, 188, X-40, L-605	Slotting 1 x D	10-40	.0011"	.0014"	.0018"	.0026"	.0033"	.0040"	.0053"
	Heavy Profiling		.0011"	.0014"	.0020"	.0029"	.0037"	.0045"	.0059"
<b>NICKEL BASE</b> Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel PermaNickel 300, Incoly 600	Slotting Axial 1 x D	20-40	.0011"	.0014"	.0018"	.0026"	.0033"	.0040"	.0053"
	Heavy Profiling		.0011"	.0014"	.0020"	.0029"	.0037"	.0045"	.0059"
<b>IRON BASE</b> Incoly 800-802, Multimet N-155, Timken 16-26-6	Slotting 1 x D	30-80	.0011"	.0014"	.0018"	.0026"	.0033"	.0040"	.0053"
	Heavy Profiling		.0011"	.0014"	.0020"	.0029"	.0037"	.0045"	.0059"
<b>STEELS</b>									
<b>HIGH STRENGTH STEELS</b> 4140, 4340, 52100	Slotting Axial 1 x D	100-150	.0015"	.0020"	.0025"	.0035"	.0045"	.0053"	.0071"
	Heavy Profiling		.0015"	.0020"	.0028"	.0039"	.0050"	.0059"	.0079"
<b>HIGH ALLOY STEELS MOLD &amp; DIE</b> A-2, P20, O1, O2, D2, H-13	Slotting 1 x D	80-115	.0015"	.0020"	.0025"	.0035"	.0045"	.0053"	.0071"
	Heavy Profiling		.0015"	.0020"	.0028"	.0039"	.0050"	.0059"	.0079"
<b>MEDIUM ALLOY STEELS</b> 200, 250, 300	Slotting Axial 1 x D	100-180	.0016"	.0023"	.0033"	.0050"	.0032"	.0075"	.0093"
	Heavy Profiling		.0020"	.0027"	.0040"	.0054"	.0070"	.0082"	.0110"
<b>LOW ALLOY STEELS MARAGING</b> 10XX, 11XX, 13XX	Slotting 1 x D	130-200	.0018"	.0025"	.0037"	.0053"	.0068"	.0080"	.0100"
	Heavy Profiling		.0022"	.0029"	.0042"	.0059"	.0074"	.0090"	.0115"
<b>CAST IRONS</b>									
<b>DUCTILE IRON</b> Ductile Cast Iron	Slotting Axial 1 x D	70-130	.0015"	.0019"	.0030"	.0042"	.0056"	.0065"	.0087"
	Heavy Profiling		.0018"	.0024"	.0034"	.0048"	.0061"	.0073"	.0093"
<b>CAST IRON</b> Gray Cast Iron	Slotting 1 x D	120-200	.0014"	.0018"	.0024"	.0034"	.0044"	.0053"	.0070"
	Heavy Profiling		.0014"	.0018"	.0027"	.0038"	.0050"	.0058"	.0078"
<b>TITANIUMS</b>									
<b>TITANIUM ALLOYS</b> 6AL-4V, ASTM 1, 2, 3, 6AL-2S For 5553, decrease SFM & IPM 25%	Slotting Axial 1 x D	75-150	.0015"	.0020"	.0028"	.0040"	.0052"	.0062"	.0080"
	Heavy Profiling		.0017"	.0022"	.0030"	.0045"	.0057"	.0067"	.0090"
<b>ALUMINUM</b>									
<b>ALUMINUM ALLOYS</b> 6061-T6, 7075	Slotting Axial 1 x D	650-950	.0024"	.0058"	.0067"	.0103"	.0112"	.0180"	.0210"
	Heavy Profiling		.0027"	.0058"	.0076"	.0110"	.0120"	.0205"	.0260"

### SPEED & FEED CALCULATION FORMULAS

<b>RPM = (3.82 x SFM) ÷ Dia.</b>	<b>IPR = IPM ÷ RPM</b>	<b>SFM = (RPM x Dia.) ÷ 3.82</b>
<b>IPM = IPT(chip load) x No. of Teeth x RPM</b>		<b>IPT(chip load) = IPM ÷ (No. of teeth x RPM)</b>



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS

## PREDATOR TAPS - HIGH PERFORMANCE



### SPEED CHART

MATERIAL / TYPE	HARDNESS		CUTTING SPEED (fpm)		CUTTING FLUID*
	Bhn	Rc	SPIRAL POINT	SPIRAL FLUTE	
<b>ALUMINUM ALLOYS</b>					
UNALLOYED - 1000 SERIES	-	-	80	60	WS, CO
CAST - 360, A380	-	-	60	45	WS, CO
WROUGHT - 2000-7000 SERIES	-	-	80	60	WS, CO
<b>BRASS</b>					
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60	45	WS
NAVAL, RED - C46400-C46700, C23000	-	-	60	45	WS
<b>CAST IRON</b>					
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
<b>NICKEL ALLOYS</b>					
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
<b>STEEL</b>					
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
<b>STAINLESS STEEL</b>					
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
<b>TITANIUM ALLOYS</b>					
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
<b>TOOL STEEL</b>					
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.

## THREAD FORMING TAPS

### SPEED CHART FOR THREAD FORMING TAPS

MATERIAL / TYPE	HARDNESS		FORMING SPEED (fpm)
	Bhn	Rc	
<b>ALUMINUM ALLOYS</b>			
UNALLOYED - 1000 SERIES	-	-	80
CAST - 360, A380	-	-	60
WROUGHT - 2000-7000 SERIES	-	-	80
<b>BRASS</b>			
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60
NAVAL, RED - C46400-C46700, C23000	-	-	60
<b>NICKEL ALLOYS</b>			
NICKEL BASE ALLOY, WROUGHT & CAST - NICKEL 200, MONEL ALLOY 400	< 253	< 25	15
<b>STEEL</b>			
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
<b>STAINLESS STEEL</b>			
AUSTENITIC - SAE (300 SERIES)	< 253	< 25	20
MARTENSITIC & FERRITIC - 400 SERIES, 416, 420F, 446	253 - 301	25 - 32	15
<b>TITANIUM ALLOYS</b>			
ALPHA & ALPHA-BETA ALLOYS ANNEALED - Ti-6Al-4V	253 - 301	25 - 32	10
<b>TOOL STEEL</b>			
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	190 - 253	10 - 25	20

### CALCULATING TAP DRILL SIZES - THREAD FORMING TAPS

$$\text{DRILL SIZE} = \text{MAJOR DIAMETER} - [(0.0068 \times \text{desired \% of thread}) \div \text{Threads Per Inch}]$$

$$\text{DRILL SIZE (mm)} = \text{MAJOR DIAMETER} - [(0.0068 \times \text{desired \% of thread} \times \text{Pitch (mm)})]$$

### 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.

## 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



## 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

TECHNICAL INFORMATION

## 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.



# Technical Information

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



## DRILLS - HIGH SPEED STEEL & M42 COBALT

ALTiN COATED INCREASE SFM BY 40%

### SFM & CHIP LOAD

MATERIAL / TYPE	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"
<b>STEEL</b>													
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
<b>STAINLESS STEEL</b>													
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
<b>CAST IRON</b>													
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
<b>TITANIUM</b>													
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
<b>NICKEL</b>													
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
<b>COPPER</b>													
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
<b>ALUMINUM, MAGNESIUM</b>													
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
<b>SYNTHETIC MATERIALS</b>													
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

TECHNICAL INFORMATION

## REAMERS - CARBIDE

### CARBIDE REAMERS - SFM & CHIP LOAD

MATERIAL	SFM	FEED (IPR)
<b>ALUMINUM / ALUMINUM ALLOYS</b>	100 - 250	.005 - .015
<b>ALUMINUM - HIGH SILICON</b>	80 - 200	.003 - .012
<b>BRASS</b>	100 - 250	.005 - .015
<b>BRONZE</b>	90 - 175	.003 - .012
<b>COPPER / COPPER ALLOYS</b>	90 - 220	.005 - .015
<b>CAST IRON - SOFT</b>	80 - 200	.006 - .015
<b>CAST IRON - MEDIUM</b>	60 - 150	.006 - .012
<b>CAST IRON - HARD</b>	40 - 90	.004 - .010
<b>MAGNESIUM</b>	100 - 250	.005 - .015
<b>MONEL</b>	40 - 120	.004 - .012
<b>STEEL - CAST &amp; FORGED</b>	40 - 100	.003 - .010
<b>STEEL - HEAT TREATED (35-40 Rc)</b>	40 - 70	.004 - .008
<b>STEEL - HEAT TREATED (40-45 Rc)</b>	30 - 50	.002 - .006
<b>STEEL - HEAT TREATED (45+ Rc)</b>	15 - 40	.001 - .004

MATERIAL	SFM	FEED (IPR)
<b>STEEL - MEDIUM CARBON</b>	50 - 100	.005 - .010
<b>MOLD STEEL</b>	40 - 120	.004 - .006
<b>TOOL STEEL</b>	30 - 90	.004 - .006
<b>STAINLESS STEEL - 300 SERIES</b>	20 - 80	.004 - .008
<b>STAINLESS STEEL - 400 SERIES</b>	30 - 120	.005 - .010
<b>INCONEL</b>	20 - 60	.001 - .005
<b>RENE</b>	20 - 60	.002 - .006
<b>TITANIUM</b>	30 - 90	.002 - .008
<b>WASPOLOY</b>	20 - 60	.002 - .006
<b>EPOXY FIBER</b>	100 - 250	.005 - .015
<b>PLASTIC</b>	100 - 300	.005 - .015
<b>RESIN - FIBER GLASS</b>	100 - 300	.005 - .015
<b>MASONITE</b>	60 - 150	.005 - .015
<b>PHENOLIC</b>	60 - 100	.005 - .015

## REAMERS - HIGH SPEED STEEL

### RECOMMENDED SPEEDS

MATERIAL	SFM
<b>STEEL - ALL TYPES</b>	
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
<b>CAST IRON &amp; MALLEABLE IRON</b>	50 - 85
<b>NON-FERROUS</b>	
<b>ALUMINUM, BRASS, BRONZE, COPPER</b>	90 - 175
<b>FIBER, PLASTIC, HARD RUBBER, etc.</b>	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)
<b>STEEL - ALL TYPES</b>	
50+ Rc	.002 - .004
30 - 50 Rc	.004 - .008
<b>CAST IRON &amp; MALLEABLE IRON</b>	.005 - .012
<b>NON-FERROUS</b>	
<b>ALUMINUM, BRASS, BRONZE, COPPER</b>	.005 - .012
<b>FIBER, PLASTIC, HARD RUBBER, etc.</b>	.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 Soluble Oil and Water
Cast Iron & Malleable Iron	Soluble Oil and Water
Non-Ferrous Materials	Soluble Oil and Water

# Decimal Equivalent Chart

YOUR #1 SOURCE FOR AMERICAN-MADE PREMIUM CUTTING TOOLS



MADE IN THE U.S.A.

## DECIMAL EQUIVALENTS AND TAP SIZES OF FRACTION, WIRE, LETTER AND METRIC SIZES

DRILL SIZE	DECIMAL INCHES	DRILL SIZE	DECIMAL INCHES	TAP SIZE	DRILL SIZE	DECIMAL INCHES	TAP SIZE	DRILL SIZE	DECIMAL INCHES	TAP SIZE	DRILL SIZE	DECIMAL INCHES	TAP SIZE
.97	.0059	58	.0420		27	.1440		H	.2660		17/32	.5312	5/8-11
.15mm	.0059	57	.0430		3.7mm	.1457		6.8mm	.2677		13.5mm	.5315	
96	.0063	1.1mm	.0433		26	.1470	3/16-24NS	6.9mm	.2717		35/64	.5469	
.16mm	.0063	1.15mm	.0453		3.75mm	.1476	m4.5x0.75	I	.2720	5/16-24NF	14mm	.5512	m16x2
95	.0067	56	.0465		25	.1495	#10-24	l	.2756	m8x1	9/16	.5625	3/8-18NPT
.17mm	.0067	3/64	.0469	#0-80	3.8mm	.1496		J	.2770		14.5mm	.5709	m16x1.5
94	.0071	1.2mm	.0472		24	.1520		7.1mm	.2795		37/64	.5781	5/8-18NF
.18mm	.0071	1.25mm	.0492	m1.6x0.35	3.9mm	.1535		K	.2810		15mm	.5906	
93	.0075	1.3mm	.0512		23	.1540		9/32	.2812	5/16-32NS	19/32	.5938	3/8-18 NPS PIPE
.19mm	.0075	55	.0520		5/32	.1562		7.2mm	.2835		39/64	.6094	
92	.0079	1.35mm	.0531		22	.1570	3/16-32NS	7.25mm	.2854		15.5mm	.6102	m18x2.5
.2mm	.0079	54	.0550		4mm	.1575		7.3mm	.2874		5/8	.6250	11/16-16NS
91	.0083	1.4mm	.0551		21	.1590	#10-32	L	.2900		16mm	.6299	m18x2.0
.21mm	.0083	1.45mm	.0571	m1.8x0.35	20	.1610		7.4mm	.2913		41/64	.6406	
90	.0087	1.5mm	.0591		4.1mm	.1614		M	.2950		16.5mm	.6496	
.22mm	.0087	53	.0595	#1-64,72	4.2mm	.1654	m5x0.8	7.5mm	.2953		21/32	.6562	3/4-10NC
89	.0091	1.55mm	.0610		19	.1660		19/64	.2969		17mm	.6693	
.23mm	.0091	1/16	.0625		4.25mm	.1673		7.6mm	.2992		43/64	.6719	
.24mm	.0094	1.6mm	.0630	m2x0.4	4.3mm	.1693		N	.3020		11/16	.6875	3/4-16NF
88	.0095	52	.0635		18	.1695		7.7mm	.3031		17.5mm	.6890	m20x2.5
.25mm	.0098	1.65mm	.0650		11/64	.1719		7.75mm	.3051	m9x1.25	45/64	.7031	1/2-14NPT PIPE
87	.0100	1.7mm	.0669		17	.1730		7.8mm	.3071		18mm	.7087	m20x2.0
.26mm	.0102	51	.0670	#2-56	4.4mm	.1732		7.9mm	.3110		23/32	.7188	
86	.0105	1.75mm	.0689	m2.2x0.45	16	.1770	#12-24	5/16	.3125	3/8-16NC	18.5mm	.7283	m20x1.5
.27mm	.0106	50	.0700	#2-64	4.5mm	.1772		8mm	.3150		47/64	.7344	1/2-14NPS PIPE
85	.0110	1.8mm	.0709		15	.1800		O	.3160		19mm	.7480	
.28mm	.0110	1.85mm	.0728		4.6mm	.1811		8.1mm	.3189		3/4	.7500	
.29mm	.0114	49	.0730		14	.1820	#12-28	8.2mm	.3228		49/64	.7656	7/8-9NC
84	.0115	1.9mm	.0748	m2.3x.04	13	.1850		P	.3230		19.5mm	.7677	m22x2.5
.3mm	.0118	48	.0760		4.7mm	.1850		8.25mm	.3248		25/32	.7812	
83	.0120	1.95mm	.0768		4.75mm	.1870		8.3mm	.3268		20mm	.7874	m22x2.0
82	.0125	5/64	.0781		3/16	.1875		21/64	.3281		51/64	.7969	
.32mm	.0126	47	.0785	#3-48	4.8mm	.1890		8.4mm	.3307		20.5mm	.8071	m22x1.5
81	.0130	2mm	.0787		12	.1890	7/32-32NS	Q	.3320	1/8-27NPT PIPE 3/8-24NF	13/16	.8125	7/8-14NF
.34mm	.0134	2.05mm	.0807	m2.5x0.45	11	.1910		8.5mm	.3346	m10x1.5	21mm	.8268	m24x3
80	.0135	46	.0810		4.9mm	.1929		8.6mm	.3386		53/64	.8281	
.35mm	.0138	45	.0820	#3-56	10	.1935		R	.3390		27/32	.8438	
.36mm	.0142	2.1mm	.0827		9	.1960		8.7mm	.3425		21.5mm	.8465	
79	.0145	2.15mm	.0846	m2.6x0.45	5mm	.1969	m6x1	11/32	.3438		55/64	.8594	
.38mm	.0150	44	.0860	#4-36	8	.1990		8.75mm	.3445	m10x1.25	22mm	.8661	m24x2
1/64	.0156	2.2mm	.0866		5.1mm	.2008		8.8mm	.3465		7/8	.8750	1-8NC
.4mm	.0157	2.25mm	.0886		7	.2010	1/4-20	S	.3480	1/8-27NPS PIPE	22.25mm	.8760	
78	.0160	43	.0890	#4-40	13/64	.2031		8.9mm	.3504		22.5mm	.8858	m24x1.50
.42mm	.0165	2.3mm	.0906		6	.2040		9mm	.3543	m10x1.00	57/64	.8906	
.44mm	.0173	2.35mm	.0925		5.2mm	.2047		T	.3580		23mm	.9055	
.45mm	.0177	42	.0935	#4-48	5	.2055		9.1mm	.3583		29/32	.9062	3/4-14NPT PIPE
77	.0180	3/32	.0938		5.25mm	.2067	m6x0.75	23/64	.3594		59/64	.9219	
.46mm	.0181	2.4mm	.0945		5.3mm	.2087		9.2mm	.3622		23.5mm	.9252	
.48mm	.0189	41	.0960		4	.2090	1/4-24	9.25mm	.3642		15/16	.9375	3/4-14 NPS 1-14 NF
.5mm	.0197	2.45mm	.0965		5.4mm	.2126		9.3mm	.3661		24mm	.9449	m27x3
76	.0200	40	.0980		3	.2130	1/4-28	U	.3680	7/16-14NC	61/64	.9531	
75	.0210	2.5mm	.0984	m3x0.5	5.5mm	.2165		9.4mm	.3701		24.5mm	.9646	
.55mm	.0217	39	.0995		7/32	.2188		9.5mm	.3740	m11x1.50	31/32	.9688	
74	.0225	38	.1015	#5-40	5.6mm	.2205		3/8	.3750		25mm	.9843	m27x2
.6mm	.0236	2.6mm	.1024		2	.2210		V	.3770		63/64	.9844	1-1/8-7NC
73	.0240	37	.1040	#5-44	5.7mm	.2244		9.6mm	.3780		1	1.0000	
72	.0250	2.7mm	.1063		5.75mm	.2264		9.7mm	.3819		25.5mm	1.0039	
.65mm	.0256	36	.1065	#6-32	1	.2280		9.75mm	.3839		1-1/64	1.0156	
71	.0260	2.75mm	.1083		5.8mm	.2283		9.8mm	.3858		26mm	1.0236	
.7mm	.0276	7/64	.1094		5.9mm	.2323		W	.3860		1-1/32	1.0312	
70	.0280	35	.1100		A	.2340		9.9mm	.3898		26.5mm	1.0433	m30x3.5
69	.0292	2.8mm	.1102		15/64	.2344		25/64	.3906	7/16-20	1-3/64	1.0469	1-1/8-12NF
.75mm	.0295	34	.1110		6mm	.2362	m7x1	10mm	.3937	m12x1.75	1-1/16	1.0625	
68	.0310	33	.1130	#6-40	B	.2380		X	.3970		27mm	1.0630	
1/32	.0312	2.9mm	.1142	m3.5x0.6	6.1mm	.2402		Y	.4040		1-5/64	1.0781	
.8mm	.0315	32	.1160		C	.2420	1/16-27 NPT PIPE	13/32	.4062		27.5mm	1.0827	
67	.0320	3mm	.1181		6.2mm	.2441		Z	.4130		1-3/32	1.0938	
66	.0330	31	.1200		D	.2460		10.5mm	.4134	m12x1.25	28mm	1.1024	m30x2.0
.85mm	.0335	3.1mm	.1220		6.25mm	.2461		27/64	.4219	1/2-13	1-7/64	1.1094	1-1/4-7NC
65	.0350	1/8	.1250	5/32-32NS	6.3mm	.2480		11mm	.4331		28.5mm	1.1220	
.9mm	.0354	3.2mm	.1260		E	.2500	1/16-27 NPS PIPE	7/16	.4375	1/4-18 NPT PIPE	1-1/8	1.1250	
64	.0360	3.25mm	.1280		1/4	.2500		11.5mm	.4528		1-9/64	1.1406	
63	.0370	30	.1285	5/32-36NS	6.4mm	.2520		29/64	.4531	1/4-18NPS PIPE 1/2-20	29mm	1.1417	
.95mm	.0374	3.3mm	.1299	m4x0.70	6.5mm	.2559		15/32	.4688		1-5/32	1.1562	1-11/2NPT PIPE
62	.0380	3.4mm	.1339		F	.2570	5/16-18NC	12mm	.4724	m14x2	29.5mm	1.1614	
61	.0390	29	.1360	#8-32	6.6mm	.2598		31/64	.4844	9/16-12	1-11/64	1.1719	1-1/4-12NF
1mm	.0394	3.5mm	.1378		G	.2610		12.5mm	.4921	m14x1.5			
60	.0400	28	.1405		6.7mm	.2638		1/2	.5000				
59	.0410	9/64	.1406		17/64	.2656		13mm	.5118	m14x1.25			
1.05mm	.0413	3.6mm	.1417		6.75mm	.2657	m8x1.25	33/64	.5156	9/16-18			

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