

PREMIUM QUALITY AMERICAN MADE CUTTING TOOLS

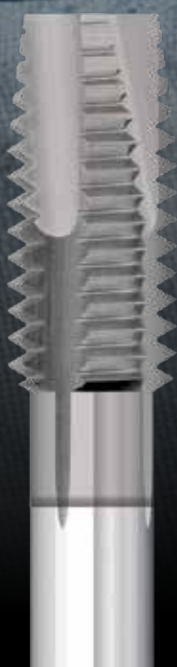


Kodiak Cutting Tools
MADE IN THE USA

PRODUCT CATALOG
2018-2019

KODIAKCUTTINGTOOLS.COM • 800-892-1006

END MILLS • MICRO END MILLS • THREAD MILLS • DRILLS • DRILL MILLS
CHAMFER MILLS • BURS • COUNTERSINKS • TAPS & DIES • REAMERS
SOLID CARBIDE • COBALT • HIGH SPEED STEEL



Made Right. Made Here.

We believe in American manufacturing and the American workforce. That's why great care is taken to ensure that every step of production, from grinding to coating, on every one of the over 13,000 tools in this catalog is done right here in the USA.

The result is a premium, industrial quality tool that you can be as proud to run in your facility, as we are to offer it.





Our Commitment

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

95% Order Fulfillment

Our top-notch warehouse and distribution facility is an industry leader in fast accurate order fulfillment. We work hard to maintain an on-shelf, ready-to-ship inventory of all 13,000 plus tools offered in this catalog.



Exceptional Quality Control

Orders are barcoded upon receipt, and tracked at every step through the fulfillment center. Before boxing, all orders are subject to the scrutiny of our quality control personnel.



Our Commitment

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



Same Day Shipping

Inspected orders are processed and shipped the same day, so whether you're across the street or across the country, your tools will reach you quickly.



No minimum order requirements.

We appreciate your business and treat every order - large and small - with the same top level integrity.





PVD Coatings

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

Why coated tools?

A PVD coating is the best way to customize a cutting tool to the material it's machining. The right coating will let the tool run faster and extend its life. This combination of longer life and greater production will typically more than offset the cost of the coated tool and can contribute significant cost savings on the project at hand.



Physical Vapor Deposition - PVD

There are several methods of PVD, all the coated tools in this offering will achieve their coating by cathodic arc deposition or Arc-PVD. In this process, an electric arc is used to vaporize material from a solid cathode target. The vaporized material then condenses on the tools, forming the even, uniform coatings that you see in the following pages.



The microscopically precise control of the coating thickness on our cutting tools ensures the tools gain the properties of the coating material, without negatively impacting the cutting edge. PVD coatings are harder and more corrosion resistant than other coating and plating processes and also have higher heat tolerances and abrasion resistance.



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 54 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 we offer and outperforms all generic coatings available on the market.



Post Polish Treatment

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.



Applicable Materials

- Stainless Steels
- Hardened Tool Steels
- Alloyed Steels
- Superalloys
- High Temp Alloys
- Nickel Base Alloys
- Titanium Alloys
- Cast Iron
- Inconel



PVD Coatings

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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.



Applicable Materials

- Stainless Steels
- Alloyed Steels
- Superalloys
- High Temp Alloys
- Nickel Base Alloys
- Titanium Alloys
- Cast Iron
- Inconel



Applicable Materials

- Steels
- Alloyed Steels
- Superalloys
- Cast Iron
- Aluminium
- Copper
- Bronze
- Brass
- Plastics



ZRN

ZRN is a high performance coating for milling tapping and drilling 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.



Applicable Materials

- Aluminium
- Copper
- Bronze
- Brass
- Plastics



Applicable Materials











- Steels
- Cast Iron
- Copper
- Bronze
- Brass
- Plastics



HIGH PERFORMANCE CARBIDE END MILLS

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PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE.



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VI-PRO

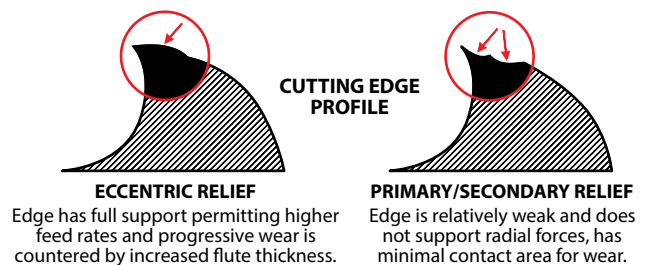
VARIABLE INDEX GEOMETRY

The **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

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 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	4	5557338	13.51	-	-
3/16	3/16	3/8	2	4	5557349	17.38	-	-
1/4	1/4	3/8	2	4	5545942	19.66	-	-
5/16	5/16	7/16	2	4	5545953	28.60	-	-
3/8	3/8	1/2	2	4	5545964	31.71	-	-
7/16	7/16	5/8	2-1/2	4	5557360	41.30	-	-
1/2	1/2	5/8	2-1/2	4	5545975	47.41	5546008	50.11
5/8	5/8	3/4	3	4	5545986	93.33	5546019	96.03
3/4	3/4	1	3	4	5545997	123.09	5546030	125.79

4 FLUTE - REGULAR LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/2	2	4	5557426	16.14	-	-
3/16	3/16	9/16	2	4	5557437	18.45	-	-
1/4	1/4	3/4	2-1/2	4	5546426	23.41	-	-
5/16	5/16	13/16	2-1/2	4	5546437	31.00	-	-
3/8	3/8	1	2-1/2	4	5546448	36.32	-	-
7/16	7/16	1	2-3/4	4	5557448	45.04	-	-
1/2	1/2	1	3	4	5546459	54.48	5546514	57.18
1/2	1/2	1-1/4	3	4	5546470	54.48	5546525	57.18
5/8	5/8	1-5/8	3-1/2	4	5546481	98.62	5546536	101.32
3/4	3/4	1-5/8	4	4	5546492	136.26	5546547	138.96
1	1	2	4	4	5546503	254.35	5546558	257.05

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 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	4	5547944	26.66	-	-
5/16	5/16	1-1/8	3	4	5547955	36.89	-	-
3/8	3/8	1-1/4	3	4	5547966	49.54	-	-
7/16	7/16	2	4	4	5557602	62.84	-	-
1/2	1/2	1-1/2	4	4	5547977	68.40	5548032	71.10
1/2	1/2	2	4	4	5547988	75.85	5548043	78.54
5/8	5/8	2-1/4	5	4	5547999	141.06	5548054	143.76
3/4	3/4	2-1/4	5	4	5548010	170.69	5548065	173.38
1	1	2-1/4	5	4	5548021	281.31	5548076	284.01

4 FLUTE - EXTRA LONG LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/2	4	4	5548813	31.85	-	-
3/8	3/8	2	4	4	5548824	55.83	-	-
7/16	7/16	3	6	4	5557668	91.54	-	-
1/2	1/2	3	6	4	5548835	106.96	5548901	109.65
5/8	5/8	3	6	4	5548846	152.12	5548912	154.82
3/4	3/4	3	6	4	5548857	200.80	5548923	203.50
3/4	3/4	4	7	4	5548868	329.74	5548934	332.44
1	1	3	6	4	5548879	327.37	5548945	330.06
1	1	4-1/4	7	4	5548890	483.26	5548956	486.15

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 5. 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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO VARIABLE INDEX GEOMETRY

4 FLUTE - STUB LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	4	0.008	5557382	15.57	-	-
3/16	3/16	3/8	2	4	0.008	5557393	19.43	-	-
1/4	1/4	3/8	2	4	0.015	5546162	22.91	-	-
5/16	5/16	7/16	2	4	0.015	5546173	30.84	-	-
3/8	3/8	1/2	2	4	0.015	5546184	33.94	-	-
7/16	7/16	5/8	2-1/2	4	0.030	5557404	43.50	-	-
1/2	1/2	5/8	2-1/2	4	0.030	5546195	51.89	5546228	54.59
5/8	5/8	3/4	3	4	0.030	5546206	97.81	5546239	100.51
3/4	3/4	1	3	4	0.030	5546217	127.57	5546250	130.26



All our tools are 100% Made in the USA

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

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For coating information see page 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



4 FLUTE - REGULAR LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/2	2	4	0.010	5557492	18.20	-	-
1/8	1/8	1/2	2	4	0.020	5557503	18.20	-	-
1/8	1/8	1/2	2	4	0.030	5557514	18.20	-	-
3/16	3/16	9/16	2	4	0.010	5557525	20.51	-	-
3/16	3/16	9/16	2	4	0.020	5557536	20.51	-	-
3/16	3/16	9/16	2	4	0.030	5557547	20.51	-	-
1/4	1/4	3/4	2-1/2	4	0.015	5547218	25.47	-	-
1/4	1/4	3/4	2-1/2	4	0.030	5547229	25.47	-	-
1/4	1/4	3/4	2-1/2	4	0.060	5547240	25.47	-	-
5/16	5/16	13/16	2-1/2	4	0.015	5547251	32.81	-	-
5/16	5/16	13/16	2-1/2	4	0.030	5547262	32.81	-	-
5/16	5/16	13/16	2-1/2	4	0.060	5547273	32.81	-	-
3/8	3/8	1	2-1/2	4	0.015	5547284	38.32	-	-
3/8	3/8	1	2-1/2	4	0.030	5547295	38.32	-	-
3/8	3/8	1	2-1/2	4	0.060	5547306	38.32	-	-
7/16	7/16	1	2-3/4	4	0.015	5557558	50.00	-	-
7/16	7/16	1	2-3/4	4	0.030	5557569	50.00	-	-
7/16	7/16	1	2-3/4	4	0.060	5557580	50.00	-	-
1/2	1/2	1	3	4	0.015	5547317	61.21	5547559	64.27
1/2	1/2	1	3	4	0.030	5547328	61.21	5547570	64.27
1/2	1/2	1	3	4	0.060	5547339	61.21	5547581	64.27
1/2	1/2	1	3	4	0.090	5547350	61.21	5547592	64.27
1/2	1/2	1	3	4	0.120	5547361	61.21	5547603	64.27
1/2	1/2	1-1/4	3	4	0.015	5547372	61.21	5547614	64.27
1/2	1/2	1-1/4	3	4	0.030	5547383	61.21	5547625	64.27
1/2	1/2	1-1/4	3	4	0.060	5547394	61.21	5547636	64.27
1/2	1/2	1-1/4	3	4	0.090	5547405	61.21	5547647	64.27
1/2	1/2	1-1/4	3	4	0.120	5547416	61.21	5547658	64.27
5/8	5/8	1-5/8	3-1/2	4	0.030	5547427	103.12	5547669	105.82
5/8	5/8	1-5/8	3-1/2	4	0.060	5547438	103.12	5547680	105.82
5/8	5/8	1-5/8	3-1/2	4	0.090	5547449	103.12	5547691	105.82
5/8	5/8	1-5/8	3-1/2	4	0.120	5547460	103.12	5547702	105.82
3/4	3/4	1-5/8	4	4	0.030	5547471	143.00	5547713	145.70
3/4	3/4	1-5/8	4	4	0.060	5547482	143.00	5547724	145.70
3/4	3/4	1-5/8	4	4	0.090	5547493	143.00	5547735	145.70
3/4	3/4	1-5/8	4	4	0.120	5547504	143.00	5547746	145.70
3/4	3/4	1-5/8	4	4	0.190	5562070	143.00	5562114	145.70
3/4	3/4	1-5/8	4	4	0.250	5562081	143.00	5562125	145.70
1	1	2	4	4	0.030	5547515	261.10	5547757	263.80
1	1	2	4	4	0.060	5547526	261.10	5547768	263.80
1	1	2	4	4	0.090	5547537	261.10	5547779	263.80
1	1	2	4	4	0.120	5547548	261.10	5547790	263.80
1	1	2	4	4	0.190	5562092	261.10	5562136	263.80
1	1	2	4	4	0.250	5562103	261.10	5562147	263.80

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

For coating information see page 5. For VI-PRO technical information, please see pages 215-217.

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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	4	0.015	5548373	28.72	-	-
1/4	1/4	1-1/8	3	4	0.030	5548384	28.72	-	-
5/16	5/16	1-1/8	3	4	0.015	5548395	39.13	-	-
5/16	5/16	1-1/8	3	4	0.030	5548406	39.13	-	-
3/8	3/8	1-1/4	3	4	0.030	5548417	51.78	-	-
3/8	3/8	1-1/4	3	4	0.060	5548428	51.78	-	-
7/16	7/16	2	4	4	0.030	5557635	66.50	-	-
7/16	7/16	2	4	4	0.060	5557646	66.50	-	-
1/2	1/2	1-1/2	4	4	0.030	5548439	72.88	5548549	75.58
1/2	1/2	1-1/2	4	4	0.060	5548450	72.88	5548560	75.58
1/2	1/2	2	4	4	0.030	5548461	80.33	5548571	83.02
1/2	1/2	2	4	4	0.060	5548472	80.33	5548582	83.02
5/8	5/8	2-1/4	5	4	0.030	5548483	145.54	5548593	148.24
5/8	5/8	2-1/4	5	4	0.060	5548494	145.54	5548604	148.24
3/4	3/4	2-1/4	5	4	0.030	5548505	183.27	5548615	186.78
3/4	3/4	2-1/4	5	4	0.060	5548516	183.27	5548626	186.78
1	1	2-1/4	5	4	0.030	5548527	285.79	5548637	288.49
1	1	2-1/4	5	4	0.060	5548538	285.79	5548648	288.49



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 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO

VARIABLE INDEX GEOMETRY

4 FLUTE - EXTRA LONG LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	PRICE	ITEM #	PRICE
1/4	1/4	1-1/2	4	4	0.015	5549275	34.95	-	-
1/4	1/4	1-1/2	4	4	0.030	5549286	34.95	-	-
3/8	3/8	2	4	4	0.030	5549297	59.20	-	-
3/8	3/8	2	4	4	0.060	5549308	59.20	-	-
7/16	7/16	3	6	4	0.030	5557701	93.76	-	-
7/16	7/16	3	6	4	0.060	5557712	93.76	-	-
1/2	1/2	3	6	4	0.030	5549319	110.33	5549451	113.03
1/2	1/2	3	6	4	0.060	5549330	110.33	5549462	113.03
5/8	5/8	3	6	4	0.030	5549341	155.47	5549473	158.17
5/8	5/8	3	6	4	0.060	5549352	155.47	5549484	158.17
3/4	3/4	3	6	4	0.030	5549363	205.28	5549495	207.97
3/4	3/4	3	6	4	0.060	5549374	205.28	5549506	207.97
3/4	3/4	4	7	4	0.030	5549385	334.22	5549517	336.92
3/4	3/4	4	7	4	0.060	5549396	334.22	5549528	336.92
1	1	3	6	4	0.030	5549407	336.00	5549539	338.70
1	1	3	6	4	0.060	5549418	336.00	5549550	338.70
1	1	4-1/4	7	4	0.030	5549429	487.89	5549561	490.78
1	1	4-1/4	7	4	0.060	5549440	487.89	5549572	490.78



Premium packaging for all our High Performance tools

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 5. 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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



4 FLUTE - STUB LENGTH - BALL NOSE



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	4	5557734	15.58	-	-
3/16	3/16	3/8	2	4	5557745	22.26	-	-
1/4	1/4	3/8	2	4	5554918	25.30	-	-
5/16	5/16	7/16	2	4	5554929	33.00	-	-
3/8	3/8	1/2	2	4	5554940	36.58	-	-
7/16	7/16	5/8	2-1/2	4	5557756	49.25	-	-
1/2	1/2	5/8	2-1/2	4	5554951	54.70	5554984	57.81
5/8	5/8	3/4	3	4	5554962	107.69	5554995	110.80
3/4	3/4	1	3	4	5554973	142.03	5555006	145.14

4 FLUTE - REGULAR LENGTH - BALL NOSE



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/2	2	4	5557778	22.16	-	-
3/16	3/16	9/16	2	4	5557789	24.50	-	-
1/4	1/4	3/4	2-1/2	4	5555182	29.56	-	-
5/16	5/16	13/16	2-1/2	4	5555193	35.78	-	-
3/8	3/8	1	2-1/2	4	5555204	41.91	-	-
7/16	7/16	1	2-3/4	4	5557800	57.32	-	-
1/2	1/2	1	3	4	5555215	62.86	5555270	65.97
1/2	1/2	1-1/4	3	4	5555226	62.86	5555281	65.97
5/8	5/8	1-5/8	3-1/2	4	5555237	113.79	5555292	116.91
3/4	3/4	1-5/8	4	4	5555248	157.22	5555303	160.33
1	1	2	4	4	5555259	293.49	5555314	296.60

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 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO VARIABLE INDEX GEOMETRY

4 FLUTE - LONG LENGTH - BALL NOSE



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	4	5555468	30.76	-	-
5/16	5/16	1-1/8	3	4	5555479	42.56	-	-
3/8	3/8	1-1/4	3	4	5555490	57.16	-	-
7/16	7/16	2	4	4	5557822	71.23	-	-
1/2	1/2	1-1/2	4	4	5555501	78.92	5555556	82.03
1/2	1/2	2	4	4	5555512	87.52	5555567	90.63
5/8	5/8	2-1/4	5	4	5555523	162.76	5555578	165.87
3/4	3/4	2-1/4	5	4	5555534	196.95	5555589	200.06
1	1	2-1/4	5	4	5555545	324.58	5555600	327.70

4 FLUTE - EXTRA LONG LENGTH - BALL NOSE



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/2	4	4	5555765	44.45	-	-
3/8	3/8	2	4	4	5555776	64.42	-	-
7/16	7/16	3	6	4	5557844	105.63	-	-
1/2	1/2	3	6	4	5555787	123.41	5555853	126.52
5/8	5/8	3	6	4	5555798	175.52	5555864	178.64
3/4	3/4	3	6	4	5555809	231.69	5555875	234.80
3/4	3/4	4	7	4	5555820	380.47	5555886	383.59
1	1	3	6	4	5555831	377.73	5555897	380.84
1	1	4-1/4	7	4	5555842	557.60	5555908	560.94

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

For coating information see page 5. 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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO VARIABLE INDEX GEOMETRY

5 FLUTE - STUB LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	5	5557855	14.85	-	-
3/16	3/16	3/8	2	5	5557866	19.11	-	-
1/4	1/4	3/8	2	5	5556040	21.63	-	-
5/16	5/16	7/16	2	5	5556051	31.46	-	-
3/8	3/8	1/2	2	5	5556062	34.88	-	-
1/2	1/2	5/8	2-1/2	5	5556073	52.15	5556106	55.11
5/8	5/8	3/4	3	5	5556084	102.66	5556117	105.63
3/4	3/4	1	3	5	5556095	135.40	5556128	138.37

5 FLUTE - REGULAR LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/8	1/8	1/2	2	5	5557877	17.75	-	-
3/16	3/16	9/16	2	5	5557888	20.29	-	-
1/4	1/4	3/4	2-1/2	5	5556304	25.76	-	-
5/16	5/16	13/16	2-1/2	5	5556315	34.10	-	-
3/8	3/8	1	2-1/2	5	5556326	39.95	-	-
1/2	1/2	1	3	5	5556337	59.93	5556392	62.90
1/2	1/2	1-1/4	3	5	5556348	59.93	5556403	62.90
5/8	5/8	1-5/8	3-1/2	5	5556359	108.48	5556414	111.45
3/4	3/4	1-5/8	4	5	5556370	149.88	5556425	152.85
1	1	2	4	5	5556381	279.79	5556436	282.76

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 5. For VI-PRO technical information, please see pages 215, 218-219.

TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.000, -0.002	-0.0001, -.0004 ISO H6
5/8" - 1"	+0.000, -.003	-0.0001, -.0004 ISO H6

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO VARIABLE INDEX GEOMETRY

5 FLUTE - LONG LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	5	5556590	29.33	-	-
5/16	5/16	1-1/8	3	5	5556601	40.57	-	-
3/8	3/8	1-1/4	3	5	5556612	54.49	-	-
1/2	1/2	1-1/2	4	5	5556623	75.24	5556678	78.20
1/2	1/2	2	4	5	5556634	83.43	5556689	86.40
5/8	5/8	2-1/4	5	5	5556645	155.16	5556700	158.13
3/4	3/4	2-1/4	5	5	5556656	187.75	5556711	190.72
1	1	2-1/4	5	5	5556667	309.44	5556722	312.40

5 FLUTE - EXTRA LONG LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★				ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/2	4	5	5556887	35.03	-	-
3/8	3/8	2	4	5	5556898	61.41	-	-
1/2	1/2	3	6	5	5556909	117.65	5556975	120.62
5/8	5/8	3	6	5	5556920	167.33	5556986	170.30
3/4	3/4	3	6	5	5556931	220.88	5556997	223.84
3/4	3/4	4	7	5	5556942	362.71	5557008	365.68
1	1	3	6	5	5556953	360.10	5557019	363.07
1	1	4-1/4	7	5	5556964	531.58	5557030	534.77

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

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

For coating information see page 5. For VI-PRO technical information, please see pages 215, 218-219.

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

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - STUB LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	PRICE	ITEM #	PRICE
1/8	1/8	1/4	1-1/2	5	0.008	5557899	17.12	-	-
3/16	3/16	3/8	2	5	0.008	5557910	21.38	-	-
1/4	1/4	3/8	2	5	0.015	5557162	25.21	-	-
5/16	5/16	7/16	2	5	0.015	5557173	33.92	-	-
3/8	3/8	1/2	2	5	0.015	5557184	37.34	-	-
1/2	1/2	5/8	2-1/2	5	0.030	5557195	57.08	5557228	60.04
5/8	5/8	3/4	3	5	0.030	5557206	107.59	5557239	110.56
3/4	3/4	1	3	5	0.030	5557217	140.32	5557250	143.29



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:

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

For coating information see page 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - REGULAR LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	PRICE	ITEM #	PRICE
1/4	1/4	3/4	2-1/2	5	0.015	5550166	28.02	-	-
1/4	1/4	3/4	2-1/2	5	0.030	5550177	28.02	-	-
1/4	1/4	3/4	2-1/2	5	0.060	5550188	28.02	-	-
5/16	5/16	13/16	2-1/2	5	0.015	5550199	36.09	-	-
5/16	5/16	13/16	2-1/2	5	0.030	5550210	36.09	-	-
5/16	5/16	13/16	2-1/2	5	0.060	5550221	36.09	-	-
3/8	3/8	1	2-1/2	5	0.015	5550232	42.15	-	-
3/8	3/8	1	2-1/2	5	0.030	5550243	42.15	-	-
3/8	3/8	1	2-1/2	5	0.060	5550254	42.15	-	-
1/2	1/2	1	3	5	0.015	5550265	67.33	5550507	70.69
1/2	1/2	1	3	5	0.030	5550276	67.33	5550518	70.69
1/2	1/2	1	3	5	0.060	5550287	67.33	5550529	70.69
1/2	1/2	1	3	5	0.090	5550298	67.33	5550540	70.69
1/2	1/2	1	3	5	0.120	5550309	67.33	5550551	70.69
1/2	1/2	1-1/4	3	5	0.015	5550320	67.33	5550562	70.69
1/2	1/2	1-1/4	3	5	0.030	5550331	67.33	5550573	70.69
1/2	1/2	1-1/4	3	5	0.060	5550342	67.33	5550584	70.69
1/2	1/2	1-1/4	3	5	0.090	5550353	67.33	5550595	70.69
1/2	1/2	1-1/4	3	5	0.120	5550364	67.33	5550606	70.69
5/8	5/8	1-5/8	3-1/2	5	0.030	5550375	113.44	5550617	116.41
5/8	5/8	1-5/8	3-1/2	5	0.060	5550386	113.44	5550628	116.41
5/8	5/8	1-5/8	3-1/2	5	0.090	5550397	113.44	5550639	116.41
5/8	5/8	1-5/8	3-1/2	5	0.120	5550408	113.44	5550650	116.41
3/4	3/4	1-5/8	4	5	0.030	5550419	157.30	5550661	160.27
3/4	3/4	1-5/8	4	5	0.060	5550430	157.30	5550672	160.27
3/4	3/4	1-5/8	4	5	0.090	5550441	157.30	5550683	160.27
3/4	3/4	1-5/8	4	5	0.120	5550452	157.30	5550694	160.27
3/4	3/4	1-5/8	4	5	0.190	5564512	157.30	5564556	160.27
3/4	3/4	1-5/8	4	5	0.250	5564523	157.30	5564567	160.27
1	1	2	4	5	0.030	5550463	287.21	5550705	290.18
1	1	2	4	5	0.060	5550474	287.21	5550716	290.18
1	1	2	4	5	0.090	5550485	287.21	5550727	290.18
1	1	2	4	5	0.120	5550496	287.21	5550738	290.18
1	1	2	4	5	0.190	5564534	287.21	5564578	290.18
1	1	2	4	5	0.250	5564545	287.21	5564589	290.18

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 5. For VI-PRO technical information, please see pages 215, 218-219.

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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO VARIABLE INDEX GEOMETRY

5 FLUTE - LONG LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	PRICE	ITEM #	PRICE
1/4	1/4	1-1/8	3	5	0.015	5550991	31.59	-	-
1/4	1/4	1-1/8	3	5	0.030	5551002	31.59	-	-
5/16	5/16	1-1/8	3	5	0.015	5551013	43.04	-	-
5/16	5/16	1-1/8	3	5	0.030	5551024	43.04	-	-
3/8	3/8	1-1/4	3	5	0.030	5551035	56.96	-	-
3/8	3/8	1-1/4	3	5	0.060	5551046	56.96	-	-
1/2	1/2	2	4	5	0.030	5551057	88.36	5551145	91.33
1/2	1/2	2	4	5	0.060	5551068	88.36	5551156	91.33
5/8	5/8	2-1/4	5	5	0.030	5551079	160.09	5551167	163.06
5/8	5/8	2-1/4	5	5	0.060	5551090	160.09	5551178	163.06
3/4	3/4	2-1/4	5	5	0.030	5551101	201.60	5551189	205.46
3/4	3/4	2-1/4	5	5	0.060	5551112	201.60	5551200	205.46
1	1	2-1/4	5	5	0.030	5551123	314.37	5551211	317.33
1	1	2-1/4	5	5	0.060	5551134	314.37	5551222	317.33



Prepared tools in the state-of-the-art PVD Coating Center

For coating information see page 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO

VARIABLE INDEX GEOMETRY

5 FLUTE - EXTRA LONG LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★ ★ ★ TOOL ATTRIBUTES ★ ★ ★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM #	PRICE	ITEM #	PRICE
1/4	1/4	1-1/2	4	5	0.015	5551541	38.45	-	-
1/4	1/4	1-1/2	4	5	0.030	5551552	38.45	-	-
3/8	3/8	2	4	5	0.030	5551563	65.11	-	-
3/8	3/8	2	4	5	0.060	5551574	65.11	-	-
1/2	1/2	3	6	5	0.030	5551585	121.36	5551717	124.33
1/2	1/2	3	6	5	0.060	5551596	121.36	5551728	124.33
5/8	5/8	3	6	5	0.030	5551607	171.02	5551739	173.98
5/8	5/8	3	6	5	0.060	5551618	171.02	5551750	173.98
3/4	3/4	3	6	5	0.030	5551629	225.80	5551761	228.77
3/4	3/4	3	6	5	0.060	5551640	225.80	5551772	228.77
3/4	3/4	4	7	5	0.030	5551651	367.64	5551783	370.61
3/4	3/4	4	7	5	0.060	5551662	367.64	5551794	370.61
1	1	3	6	5	0.030	5551673	369.60	5551805	372.57
1	1	3	6	5	0.060	5551684	369.60	5551816	372.57
1	1	4-1/4	7	5	0.030	5551695	536.67	5551827	539.86
1	1	4-1/4	7	5	0.060	5551706	536.67	5551838	539.86

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS



Over 13,000 items in stock and ready to ship

For coating information see page 5. 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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO VARIABLE INDEX GEOMETRY

6 FLUTE - REGULAR LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE	ITEM#	PRICE	
1/4	1/4	3/4	2-1/2	6	5552267	45.77	-	-	
5/16	5/16	13/16	2-1/2	6	5552278	54.36	-	-	
3/8	3/8	1	2-1/2	6	5552289	58.58	-	-	
1/2	1/2	1-1/4	3	6	5552300	78.32	5552344	82.24	
5/8	5/8	1-5/8	3-1/2	6	5552311	130.52	5552355	134.43	
3/4	3/4	1-5/8	4	6	5552322	163.84	5552366	168.74	
1	1	2	4	6	5552333	250.93	5552377	255.95	

6 FLUTE - REGULAR LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★						ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD	ITEM#	PRICE	ITEM#	PRICE	
1/4	1/4	3/4	2-1/2	6	0.015	5552388	51.09	-	-	
5/16	5/16	13/16	2-1/2	6	0.015	5552399	60.70	-	-	
3/8	3/8	1	2-1/2	6	0.015	5552410	65.42	-	-	
1/2	1/2	1-1/4	3	6	0.030	5552421	87.45	5552465	91.82	
5/8	5/8	1-5/8	3-1/2	6	0.030	5552432	139.39	5552476	143.57	
3/4	3/4	1-5/8	4	6	0.060	5552443	174.97	5552487	180.22	
1	1	2	4	6	0.060	5552454	267.98	5552498	276.02	

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 5. 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO VARIABLE INDEX GEOMETRY

6 FLUTE - LONG LENGTH - SQUARE END



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★					ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES		ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	6		5552146	50.46	-	-
5/16	5/16	1-1/8	3	6		5552157	58.88	-	-
3/8	3/8	1-1/4	3	6		5552168	66.91	-	-
1/2	1/2	2	4	6		5552179	104.07	5552223	109.27
5/8	5/8	2-1/4	5	6		5552190	161.66	5552234	166.52
3/4	3/4	2-1/4	5	6		5552201	201.89	5552245	207.95
1	1	3	6	6		5552212	409.19	5552256	417.37

6 FLUTE - LONG LENGTH -  CORNER RADIUS



ALCRO-MAX COATED

VI-PRO DIAMETER	★★★ TOOL ATTRIBUTES ★★★						ROUND SHANK		WELDON FLAT	
	SHANK	LOC	OAL	# OF FLUTES	RAD		ITEM#	PRICE	ITEM#	PRICE
1/4	1/4	1-1/8	3	6	0.015		5552025	56.35	-	-
5/16	5/16	1-1/8	3	6	0.015		5552036	65.74	-	-
3/8	3/8	1-1/4	3	6	0.015		5552047	74.72	-	-
1/2	1/2	2	4	6	0.030		5552058	116.19	5552102	121.99
5/8	5/8	2-1/4	5	6	0.030		5552069	172.65	5552113	177.84
3/4	3/4	2-1/4	5	6	0.060		5552080	215.61	5552124	222.09
1	1	3	6	6	0.060		5552091	436.98	5552135	445.73

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 5. 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

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

Carbide Thread Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



INTERNAL/EXTERNAL - UN THREADS



ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	PRICE
2-56	1/8	0.065	0.125	2	3	5573343	83.12
4-40	1/8	0.085	0.180	2	3	5573354	83.12
6 - 32	1/8	0.100	0.218	2	3	5456253	89.08
8 - 32	1/8	0.115	0.250	2	3	5456264	89.08
8 - 36	1/8	0.115	0.250	2	3	5456275	89.08
10 - 24	3/16	0.120	0.312	2	3	5456286	89.08
10 - 32	3/16	0.120	0.312	2	3	5456297	89.08
1/4 - 20	3/16	0.180	0.500	2-1/2	3	5456308	100.75
1/4 - 28	3/16	0.180	0.500	2-1/2	3	5456319	100.75
5/16 - 18	1/4	0.240	0.625	2-1/2	3	5456330	118.57
5/16 - 24	1/4	0.240	0.625	2-1/2	3	5456341	118.57
3/8 - 16	5/16	0.290	0.750	3	4	5456352	141.28
3/8 - 24	5/16	0.290	0.750	3	4	5456363	141.28
7/16 - 14	3/8	0.340	0.875	3	4	5456374	152.35
7/16 - 20	3/8	0.340	0.875	3	4	5456385	152.35
1/2 - 13	3/8	0.350	0.875	3-1/2	4	5456396	152.35
1/2 - 20	3/8	0.350	0.875	3-1/2	4	5456407	152.35
9/16 - 12	1/2	0.370	0.875	3-1/2	4	5456418	152.35
9/16 - 18	1/2	0.370	0.875	3-1/2	4	5456429	152.35
5/8 - 11	1/2	0.470	1.250	3-1/2	5	5456440	190.43
5/8 - 18	1/2	0.470	1.250	3-1/2	5	5456451	190.43
3/4 - 10	1/2	0.495	1.250	3-1/2	5	5456462	190.43
3/4 - 16	1/2	0.495	1.250	3-1/2	5	5456473	190.43
7/8 - 9	5/8	0.620	1.250	3-1/2	5	5456484	238.35
7/8 - 14	5/8	0.620	1.250	3-1/2	5	5456495	238.35
1 - 8	3/4	0.620	1.375	4	5	5456506	238.35
1 - 12	3/4	0.620	1.375	4	5	5456517	238.35



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



INTERNAL/EXTERNAL - UN THREADS
COOLANT END FED



END VIEW

ALTiN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	PRICE
10 - 32	3/16	0.120	0.312	2	3	5562521	103.38
1/4 - 20	3/16	0.180	0.500	2-1/2	3	5562532	109.10
1/4 - 28	3/16	0.180	0.500	2-1/2	3	5562543	109.10
5/16 - 18	1/4	0.240	0.625	2-1/2	3	5562554	135.07
5/16 - 24	1/4	0.240	0.625	2-1/2	3	5562565	135.07
3/8 - 16	5/16	0.290	0.750	3	4	5562576	167.28
3/8 - 24	5/16	0.290	0.750	3	4	5562587	167.28
7/16 - 14	3/8	0.340	0.875	3	4	5562598	194.82
7/16 - 20	3/8	0.340	0.875	3	4	5562609	194.82
1/2 - 13	3/8	0.350	0.875	3-1/2	4	5562620	202.09
1/2 - 20	3/8	0.350	0.875	3-1/2	4	5562631	202.09
3/4 - 10	1/2	0.495	1.250	3-1/2	4	5562642	259.23
3/4 - 16	1/2	0.495	1.250	3-1/2	4	5562653	259.23

VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE



VI-PRO - 6 FLUTE

THREAD MILLS

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

THREAD MILL CUTTING DIAMETER TOLERANCE

+ .000, -.002

Carbide Thread Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO - 4 FLUTE

INTERNAL/EXTERNAL - NPT PIPE THREADS



ALTIN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	5456528	118.57
1/8 - 27	5/16	0.310	0.437	2-1/2	4	5456539	118.57
1/4 - 18	3/8	0.370	0.625	3	4	5456550	135.14
3/8 - 18	3/8	0.370	0.625	3	4	5456561	135.14
1/2 - 14	1/2	0.495	0.875	3-1/2	4	5456572	190.43
3/4 - 14	1/2	0.495	0.875	3-1/2	4	5456583	190.43
1 - 11-1/2	3/4	0.620	1.125	4	5	5456594	238.35

VI-PRO - 5 FLUTE

INTERNAL/EXTERNAL - NPTF PIPE THREADS



ALTIN COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	PRICE
1/16 - 27	1/4	0.245	0.437	2-1/2	3	5456605	118.57
1/8 - 27	5/16	0.310	0.437	2-1/2	4	5456616	118.57
1/4 - 18	3/8	0.370	0.625	3	4	5456627	135.14
3/8 - 18	3/8	0.370	0.625	3	4	5456638	135.14
1/2 - 14	1/2	0.495	0.875	3-1/2	4	5456649	190.43
3/4 - 14	1/2	0.495	0.875	3-1/2	4	5456660	190.43
1 - 11-1/2	3/4	0.620	1.125	4	5	5456671	238.35

VI-PRO - 6 FLUTE

THREAD MILLS

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

THREAD MILL CUTTING DIAMETER TOLERANCE

+ .000, -.002

Carbide Thread Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

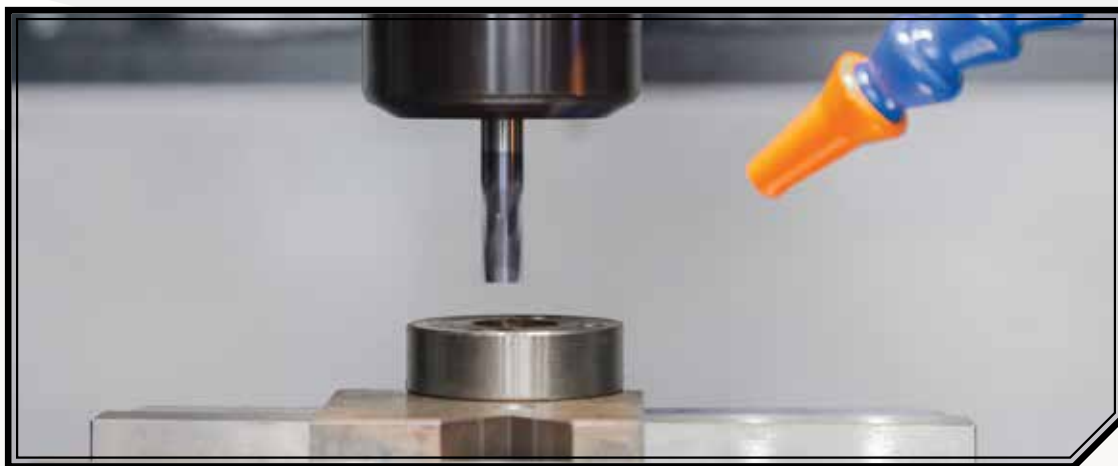


INTERNAL/EXTERNAL METRIC THREADS



ALTIM COATED

DIAMETER	SHANK	CUTTING DIA	THREAD LENGTH	OAL	# OF FLUTES	ITEM#	PRICE
M4 x 0.70	1/8	0.115	0.250	2	3	5456682	90.92
M4.5 x 0.75	1/8	0.120	0.250	2	3	5456693	90.92
M5 x 0.80	3/16	0.120	0.312	2	3	5456704	90.92
M6 x 1.00	3/16	0.170	0.500	2-1/2	3	5456715	100.13
M8 x 0.75	1/4	0.235	0.625	2-1/2	3	5456726	118.57
M8 x 1.00	1/4	0.235	0.625	2-1/2	3	5456737	118.57
M8 x 1.25	1/4	0.235	0.625	2-1/2	3	5456748	118.57
M10 x 1.25	5/16	0.300	0.750	3	4	5456759	141.28
M10 x 1.50	5/16	0.300	0.750	3	4	5456770	141.28
M12 x 1.00	3/8	0.360	0.875	3-1/2	4	5456781	152.95
M12 x 1.25	3/8	0.360	0.875	3-1/2	4	5456792	152.95
M12 x 1.75	3/8	0.360	0.875	3-1/2	4	5456803	152.95
M14 x 1.50	3/8	0.360	0.875	3-1/2	4	5456814	152.95
M16 x 2.00	1/2	0.470	1.250	3-1/2	5	5456825	190.43
M18 x 2.50	1/2	0.470	1.250	3-1/2	5	5456836	190.43
M20 x 3.00	5/8	0.470	1.250	3-1/2	5	5456847	190.43



VI-PRO - 4 FLUTE

VI-PRO - 5 FLUTE

VI-PRO - 6 FLUTE

THREAD MILLS

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

THREAD MILL CUTTING DIAMETER TOLERANCE +.000, -.002



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5449560	10.84
3/16	3/16	5/8	2	5448562	15.11
1/4	1/4	3/4	2-1/2	5449565	21.80
5/16	5/16	13/16	2-1/2	5449576	25.75
3/8	3/8	1	2-1/2	5449587	27.27
1/2	1/2	1-1/4	3	5449598	45.13
5/8	5/8	1-5/8	3-1/2	5449609	86.31
3/4	3/4	1-3/4	4	5449620	123.70
1	1	1-3/4	4	5449631	203.96

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5449638	13.56
3/16	3/16	5/8	2	5449640	18.90
1/4	1/4	3/4	2-1/2	5449642	26.37
5/16	5/16	13/16	2-1/2	5449653	31.14
3/8	3/8	1	2-1/2	5449664	32.95
1/2	1/2	1-1/4	3	5449675	52.34
5/8	5/8	1-5/8	3-1/2	5449686	104.60
3/4	3/4	1-3/4	4	5449697	150.22
1	1	1-3/4	4	5449708	247.28

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



ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.010	5450430	16.20
3/16	3/16	5/8	2	0.010	5450432	22.22
1/4	1/4	3/4	2-1/2	0.020	5450434	29.43
5/16	5/16	13/16	2-1/2	0.020	5450445	34.77
3/8	3/8	1	2-1/2	0.020	5450456	36.79
1/2	1/2	1-1/4	3	0.040	5450467	58.42
5/8	5/8	1-5/8	3-1/2	0.040	5450478	111.71
3/4	3/4	1-3/4	4	0.040	5450489	160.44
1	1	1-3/4	4	0.040	5450500	264.08

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	+.001, -.001
5/8" - 1"	+0.000, -.003	-.0001, -.0004 ISO H6	+.001, -.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	5449869	18.42
3/16	3/16	3/4	2-1/2	5449871	21.23
1/4	1/4	1-1/4	3	5449873	29.93
5/16	5/16	1-3/8	3	5449884	38.74
3/8	3/8	1-1/2	4	5449895	48.53
1/2	1/2	2	4	5449906	68.00
5/8	5/8	2-3/8	5	5449917	140.99
3/4	3/4	2-1/2	5	5449928	154.93
1	1	2-1/4	5	5449939	254.67



ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	5449946	23.01
3/16	3/16	3/4	2-1/2	5449948	26.54
1/4	1/4	1-1/4	3	5449950	36.17
5/16	5/16	1-3/8	3	5449961	49.21
3/8	3/8	1-1/2	4	5449972	58.70
1/2	1/2	2	4	5449983	82.45
5/8	5/8	2-3/8	5	5449994	179.44
3/4	3/4	2-1/2	5	5450005	193.93
1	1	2-1/4	5	5450016	305.37

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

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



ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	0.010	5450584	27.61
3/16	3/16	3/4	2-1/2	0.010	5450586	31.85
1/4	1/4	1-1/4	3	0.020	5450588	40.39
5/16	5/16	1-3/8	3	0.020	5450599	54.93
3/8	3/8	1-1/2	4	0.020	5450610	65.54
1/2	1/2	2	4	0.040	5450621	92.07
5/8	5/8	2-3/8	5	0.040	5450632	191.63
3/4	3/4	2-1/2	5	0.040	5450643	207.10
1	1	2-1/4	5	0.040	5450654	326.14

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5449715	10.84
3/16	3/16	5/8	2	5449717	15.11
1/4	1/4	3/4	2-1/2	5449719	21.80
5/16	5/16	13/16	2-1/2	5449730	25.75
3/8	3/8	1	2-1/2	5449741	27.27
1/2	1/2	1-1/4	3	5449752	45.13
5/8	5/8	1-5/8	3-1/2	5449763	86.31
3/4	3/4	1-3/4	4	5449774	123.70
1	1	1-3/4	4	5449785	203.96

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5449792	13.56
3/16	3/16	5/8	2	5449794	18.90
1/4	1/4	3/4	2-1/2	5449796	26.37
5/16	5/16	13/16	2-1/2	5449807	31.14
3/8	3/8	1	2-1/2	5449818	32.95
1/2	1/2	1-1/4	3	5449829	52.34
5/8	5/8	1-5/8	3-1/2	5449840	104.60
3/4	3/4	1-3/4	4	5449851	150.22
1	1	1-3/4	4	5449862	247.28

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



ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.010	5450738	16.20
3/16	3/16	5/8	2	0.010	5450740	22.22
1/4	1/4	3/4	2-1/2	0.020	5450742	29.43
5/16	5/16	13/16	2-1/2	0.020	5450753	34.77
3/8	3/8	1	2-1/2	0.020	5450764	36.79
1/2	1/2	1-1/4	3	0.040	5450775	58.42
5/8	5/8	1-5/8	3-1/2	0.040	5450786	111.71
3/4	3/4	1-3/4	4	0.040	5450797	160.44
1	1	1-3/4	4	0.040	5450808	264.08

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"	+ .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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	5450023	18.42
3/16	3/16	3/4	2-1/2	5450025	21.23
1/4	1/4	1-1/4	3	5450027	29.93
5/16	5/16	1-3/8	3	5450038	38.74
3/8	3/8	1-1/2	4	5450049	48.53
1/2	1/2	2	4	5450060	68.00
5/8	5/8	2-3/8	5	5450071	140.99
3/4	3/4	2-1/2	5	5450082	154.93
1	1	2-1/4	5	5450093	254.67



ZRN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	5450100	22.96
3/16	3/16	3/4	2-1/2	5450102	26.54
1/4	1/4	1-1/4	3	5450104	36.17
5/16	5/16	1-3/8	3	5450115	49.21
3/8	3/8	1-1/2	4	5450126	58.70
1/2	1/2	2	4	5450137	82.45
5/8	5/8	2-3/8	5	5450148	179.44
3/4	3/4	2-1/2	5	5450159	193.93
1	1	2-1/4	5	5450170	305.37

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



 CORNER RADIUS

ZRN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	0.010	5450892	27.61
3/16	3/16	3/4	2-1/2	0.010	5450894	31.85
1/4	1/4	1-1/4	3	0.020	5450896	40.39
5/16	5/16	1-3/8	3	0.020	5450907	54.93
3/8	3/8	1-1/2	4	0.020	5450918	65.54
1/2	1/2	2	4	0.040	5450929	92.07
5/8	5/8	2-3/8	5	0.040	5450940	191.63
3/4	3/4	2-1/2	5	0.040	5450951	207.10
1	1	2-1/4	5	0.040	5450962	326.14

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, -.002	-.0001, -.0004 ISO H6	+0.01, -.001
5/8" - 1"	+0.00, -.003	-.0001, -.0004 ISO H6	+0.01, -.001



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/8	2	5557261	23.22
5/16	5/16	1/2	2	5557272	31.98
3/8	3/8	9/16	2	5557283	37.30
1/2	1/2	5/8	2-1/2	5557294	47.52
5/8	5/8	3/4	3	5557305	100.72
3/4	3/4	1	3	5557316	123.18

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/8	2	5557921	28.47
5/16	5/16	1/2	2	5557932	39.98
3/8	3/8	9/16	2	5557943	46.63
1/2	1/2	5/8	2-1/2	5557954	58.27
5/8	5/8	3/4	3	5557965	125.89
3/4	3/4	1	3	5557976	151.09



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

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	5442756	25.80
5/16	5/16	13/16	2-1/2	5442767	35.53
3/8	3/8	7/8	2-1/2	5442778	41.44
1/2	1/2	1-1/4	3	5442789	52.80
5/8	5/8	1-5/8	3-1/2	5442800	111.91
3/4	3/4	1-5/8	4	5442811	136.87
1	1	2	4	5442822	254.17

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	5442833	31.93
5/16	5/16	13/16	2-1/2	5442844	44.42
3/8	3/8	7/8	2-1/2	5442855	51.81
1/2	1/2	1-1/4	3	5442866	65.36
5/8	5/8	1-5/8	3-1/2	5442877	139.87
3/4	3/4	1-5/8	4	5442888	169.47
1	1	2	4	5442899	311.71

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



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	1-1/2	4	5517281	36.57
5/16	5/16	1-1/2	4	5517292	46.90
3/8	3/8	1-3/4	4	5517303	58.63
1/2	1/2	2	4	5517314	67.71
5/8	5/8	2-1/2	5	5517325	158.67
3/4	3/4	2-1/2	5	5517336	190.94
1	1	2-1/2	5	5517347	326.18

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	1-1/2	4	5518645	45.72
5/16	5/16	1-1/2	4	5518656	58.63
3/8	3/8	1-3/4	4	5518667	73.29
1/2	1/2	2	4	5518678	84.70
5/8	5/8	2-1/2	5	5518689	199.27
3/4	3/4	2-1/2	5	5518700	239.35
1	1	2-1/2	5	5518711	408.41

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"	+0.000, -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 End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	5561905	33.43
5/16	5/16	7/8	2-1/2	5561916	42.86
3/8	3/8	1	2-1/2	5561927	54.86
1/2	1/2	1-1/4	3	5561938	75.43
5/8	5/8	1-5/8	3-1/2	5561949	131.44
3/4	3/4	1-5/8	4	5561960	183.44
1	1	2	4	5561971	300.01



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	5562158	40.00
5/16	5/16	7/8	2-1/2	5562169	51.43
3/8	3/8	1	2-1/2	5562180	65.72
1/2	1/2	1-1/4	3	5562191	90.29
5/8	5/8	1-5/8	3-1/2	5562202	157.72
3/4	3/4	1-5/8	4	5562213	220.01
1	1	2	4	5562224	357.16

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

HARDENED STEELS • TITANIUM • INCONEL • SPACE AGE MATERIALS

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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



ROUGHER/FINISHER

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



UNCOATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	0.020	5442910	44.25
5/16	5/16	13/16	2-1/2	0.020	5442921	47.92
3/8	3/8	7/8	2-1/2	0.020	5442932	52.07
1/2	1/2	1-1/4	3	0.040	5442943	60.18
* 5/8	5/8	1-5/8	3-1/2	0.040	5442954	119.85
* 3/4	3/4	1-5/8	4	0.040	5442965	160.10
* 1	1	1-5/8	4	0.040	5442976	261.29

* WELDON FLATS



ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/4	1/4	3/4	2-1/2	0.020	5442987	55.31
5/16	5/16	13/16	2-1/2	0.020	5442998	59.90
3/8	3/8	7/8	2-1/2	0.020	5443009	65.08
1/2	1/2	1-1/4	3	0.040	5443020	75.24
* 5/8	5/8	1-5/8	3-1/2	0.040	5443031	149.80
* 3/4	3/4	1-5/8	4	0.040	5443042	200.15
* 1	1	1-5/8	4	0.040	5443053	326.62

* 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	-0.0001, -0.0004 ISO H6	+0.001, -0.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



ALTIN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5443592	14.84
3/16	3/16	5/8	2	5443603	17.77
1/4	1/4	3/4	2-1/2	5443614	19.06
5/16	5/16	13/16	2-1/2	5443625	23.05
3/8	3/8	1	2-1/2	5443636	30.86
1/2	1/2	1-1/4	3	5443647	52.65
5/8	5/8	1-5/8	3-1/2	5443658	104.78
3/4	3/4	1-5/8	4	5443669	147.03

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



ALTIN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.010	5443680	16.57
3/16	3/16	5/8	2	0.010	5443691	19.84
1/4	1/4	3/4	2-1/2	0.020	5443702	21.27
5/16	5/16	13/16	2-1/2	0.020	5443713	25.73
3/8	3/8	1	2-1/2	0.020	5443724	34.47
1/2	1/2	1-1/4	3	0.040	5443735	58.77
5/8	5/8	1-5/8	3-1/2	0.040	5443746	111.90
3/4	3/4	1-5/8	4	0.040	5443757	157.03

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"	+0.000, -.002	-.0001, -.0004 ISO H6	+.001, -.001
5/8" - 3/4"	+0.000, -.003	-.0001, -.0004 ISO H6	+.001, -.001

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5443240	14.84
3/16	3/16	5/8	2	5443251	17.77
1/4	1/4	3/4	2-1/2	5443262	19.06
5/16	5/16	13/16	2-1/2	5443273	23.05
3/8	3/8	1	2-1/2	5443284	30.86
1/2	1/2	1-1/4	3	5443295	52.65
5/8	5/8	1-5/8	3-1/2	5443306	104.78
3/4	3/4	1-5/8	4	5443317	147.03

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



ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.010	5443328	16.57
3/16	3/16	5/8	2	0.010	5443339	19.84
1/4	1/4	3/4	2-1/2	0.020	5443350	21.27
5/16	5/16	13/16	2-1/2	0.020	5443361	25.73
3/8	3/8	1	2-1/2	0.020	5443372	34.47
1/2	1/2	1-1/4	3	0.040	5443383	58.77
5/8	5/8	1-5/8	3-1/2	0.040	5443394	111.90
3/4	3/4	1-5/8	4	0.040	5443405	157.03

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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



ALTIM COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	5449092	8.12
3/16	3/16	3/8	2	5449103	12.20
1/4	1/4	1/2	2	5449114	14.60
5/16	5/16	1/2	2	5449125	18.44
3/8	3/8	5/8	2	5449136	28.89
7/16	7/16	5/8	2-1/2	5449147	33.03
1/2	1/2	5/8	2-1/2	5449158	38.19
5/8	5/8	3/4	3	5449169	68.92
3/4	3/4	1	3	5449180	94.68

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



ALTIM COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/4	1-1/2	0.010	5449290	9.01
3/16	3/16	3/8	2	0.010	5449301	13.63
1/4	1/4	1/2	2	0.020	5449312	16.31
5/16	5/16	1/2	2	0.020	5449323	20.58
3/8	3/8	5/8	2	0.020	5449334	32.26
7/16	7/16	5/8	2-1/2	0.020	5449345	36.90
1/2	1/2	5/8	2-1/2	0.040	5449356	42.63
5/8	5/8	3/4	3	0.040	5449367	73.58
3/4	3/4	1	3	0.040	5449378	101.11

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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTIM COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	5449477	15.49
3/16	3/16	3/4	2	5449488	18.57
1/4	1/4	3/4	2-1/2	5449499	19.99
5/16	5/16	7/8	2-1/2	5449510	24.06
3/8	3/8	1	2-1/2	5449521	32.27
1/2	1/2	1-1/4	3	5449532	62.91
5/8	5/8	1-5/8	3-1/2	5449543	121.64
3/4	3/4	1-5/8	4	5449554	165.38

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



ALTIM COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.010	5450269	17.29
3/16	3/16	3/4	2	0.010	5450280	20.73
1/4	1/4	3/4	2-1/2	0.020	5450291	22.29
5/16	5/16	7/8	2-1/2	0.020	5450302	26.87
3/8	3/8	1	2-1/2	0.020	5450313	36.03
1/2	1/2	1-1/4	3	0.040	5450324	70.24
5/8	5/8	1-5/8	3-1/2	0.040	5450335	129.91
3/4	3/4	1-5/8	4	0.040	5450346	176.61

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516577	12.17
1/32	1/8	1/16	1-1/2	5430381	7.50
3/64	1/8	3/32	1-1/2	5430392	7.50
1/16	1/8	1/8	1-1/2	5430403	5.61
5/64	1/8	1/8	1-1/2	5516588	9.49
3/32	1/8	3/16	1-1/2	5430414	5.61
1/8	1/8	1/4	1-1/2	5430425	5.36
5/32	3/16	5/16	2	5430436	8.92
3/16	3/16	3/8	2	5430447	8.38
7/32	1/4	7/16	2	5430458	11.26
1/4	1/4	1/2	2	5430469	9.88
5/16	5/16	1/2	2	5430480	13.34
3/8	3/8	5/8	2	5430491	17.22
7/16	7/16	5/8	2-1/2	5430502	21.48
1/2	1/2	5/8	2-1/2	5430513	27.13
5/8	5/8	3/4	3	5430524	57.43
3/4	3/4	1	3	5430535	80.39

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516687	15.21
1/32	1/8	1/16	1-1/2	5432449	9.72
3/64	1/8	3/32	1-1/2	5432460	9.72
1/16	1/8	1/8	1-1/2	5432471	7.32
5/64	1/8	1/8	1-1/2	5516698	11.86
3/32	1/8	3/16	1-1/2	5432482	7.32
1/8	1/8	1/4	1-1/2	5432493	6.99
5/32	3/16	5/16	2	5432504	11.02
3/16	3/16	3/8	2	5432515	10.38
7/32	1/4	7/16	2	5432526	13.97
1/4	1/4	1/2	2	5432537	12.27
5/16	5/16	1/2	2	5432548	17.35
3/8	3/8	5/8	2	5432559	21.33
7/16	7/16	5/8	2-1/2	5432570	26.66
1/2	1/2	5/8	2-1/2	5432581	33.69
5/8	5/8	3/4	3	5432592	67.85
3/4	3/4	1	3	5432603	99.47

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516599	15.19
1/32	1/8	1/16	1-1/2	5430546	9.76
3/64	1/8	3/32	1-1/2	5430557	9.76
1/16	1/8	1/8	1-1/2	5430568	7.34
5/64	1/8	1/8	1-1/2	5516610	11.88
3/32	1/8	3/16	1-1/2	5430579	7.34
1/8	1/8	1/4	1-1/2	5430590	6.95
5/32	3/16	5/16	2	5430601	11.59
3/16	3/16	3/8	2	5430612	10.87
7/32	1/4	7/16	2	5430623	14.61
1/4	1/4	1/2	2	5430634	12.80
5/16	5/16	1/2	2	5430645	17.31
3/8	3/8	5/8	2	5430656	22.36
7/16	7/16	5/8	2-1/2	5430667	27.97
1/2	1/2	5/8	2-1/2	5430678	35.23
5/8	5/8	3/4	3	5430689	67.28
3/4	3/4	1	3	5430700	102.30

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516709	18.99
1/32	1/8	1/16	1-1/2	5432614	12.49
3/64	1/8	3/32	1-1/2	5432625	12.49
1/16	1/8	1/8	1-1/2	5432636	9.39
5/64	1/8	1/8	1-1/2	5516720	14.84
3/32	1/8	3/16	1-1/2	5432647	9.39
1/8	1/8	1/4	1-1/2	5432658	8.92
5/32	3/16	5/16	2	5432669	14.84
3/16	3/16	3/8	2	5432680	13.91
7/32	1/4	7/16	2	5432691	18.70
1/4	1/4	1/2	2	5432702	16.38
5/16	5/16	1/2	2	5432713	22.16
3/8	3/8	5/8	2	5432724	27.27
7/16	7/16	5/8	2-1/2	5432735	34.10
1/2	1/2	5/8	2-1/2	5432746	45.08
5/8	5/8	3/4	3	5432757	82.38
3/4	3/4	1	3	5432768	130.94

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	-0.0001, -0.0004 ISO H6	+0.01, -0.01
5/8" - 1"	+0.00, -0.03	-0.0001, -0.0004 ISO H6	+0.01, -0.01

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516621	12.17
1/32	1/8	1/16	1-1/2	5431140	7.50
3/64	1/8	3/32	1-1/2	5431151	7.50
1/16	1/8	1/8	1-1/2	5431162	5.61
5/64	1/8	1/8	1-1/2	5516632	9.49
3/32	1/8	3/16	1-1/2	5431173	5.61
1/8	1/8	1/4	1-1/2	5431184	5.36
5/32	3/16	5/16	2	5431195	8.92
3/16	3/16	3/8	2	5431206	8.38
7/32	1/4	7/16	2	5431217	11.26
1/4	1/4	1/2	2	5431228	9.88
5/16	5/16	1/2	2	5431239	13.34
3/8	3/8	5/8	2	5431250	17.22
7/16	7/16	5/8	2-1/2	5431261	21.48
1/2	1/2	5/8	2-1/2	5431272	27.13
5/8	5/8	3/4	3	5431283	57.43
3/4	3/4	1	3	5431294	80.39
1	1	1-1/4	3-1/2	5559505	132.48

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516665	15.21
1/32	1/8	1/16	1-1/2	5431470	9.72
3/64	1/8	3/32	1-1/2	5431481	9.72
1/16	1/8	1/8	1-1/2	5431492	7.32
5/64	1/8	1/8	1-1/2	5516676	11.86
3/32	1/8	3/16	1-1/2	5431503	7.32
1/8	1/8	1/4	1-1/2	5431514	6.99
5/32	3/16	5/16	2	5431525	11.02
3/16	3/16	3/8	2	5431536	10.38
7/32	1/4	7/16	2	5431547	13.97
1/4	1/4	1/2	2	5431558	12.27
5/16	5/16	1/2	2	5431569	17.35
3/8	3/8	5/8	2	5431580	21.33
7/16	7/16	5/8	2-1/2	5431591	26.66
1/2	1/2	5/8	2-1/2	5431602	33.78
5/8	5/8	3/4	3	5431613	67.86
3/4	3/4	1	3	5431624	99.47
1	1	1-1/4	3-1/2	5559527	165.20

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516643	15.19
1/32	1/8	1/16	1-1/2	5431305	9.76
3/64	1/8	3/32	1-1/2	5431316	9.76
1/16	1/8	1/8	1-1/2	5431327	7.34
5/64	1/8	1/8	1-1/2	5516654	11.88
3/32	1/8	3/16	1-1/2	5431338	7.34
1/8	1/8	1/4	1-1/2	5431349	6.95
5/32	3/16	5/16	2	5431360	11.59
3/16	3/16	3/8	2	5431371	10.87
7/32	1/4	7/16	2	5431382	14.61
1/4	1/4	1/2	2	5431393	13.89
5/16	5/16	1/2	2	5431404	17.31
3/8	3/8	5/8	2	5431415	22.36
7/16	7/16	5/8	2-1/2	5431426	27.97
1/2	1/2	5/8	2-1/2	5431437	35.23
5/8	5/8	3/4	3	5431448	67.28
3/4	3/4	1	3	5431459	102.30
1	1	1-1/4	3-1/2	5559516	158.45

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/64	1/8	0.023	1-1/2	5516731	18.99
1/32	1/8	1/16	1-1/2	5433593	12.49
3/64	1/8	3/32	1-1/2	5433604	12.49
1/16	1/8	1/8	1-1/2	5433615	9.39
5/64	1/8	1/8	1-1/2	5516742	14.84
3/32	1/8	3/16	1-1/2	5433626	9.39
1/8	1/8	1/4	1-1/2	5433637	8.92
5/32	3/16	5/16	2	5433648	14.84
3/16	3/16	3/8	2	5433659	13.91
7/32	1/4	7/16	2	5433670	18.70
1/4	1/4	1/2	2	5433681	18.02
5/16	5/16	1/2	2	5433692	22.16
3/8	3/8	5/8	2	5433703	27.27
7/16	7/16	5/8	2-1/2	5433714	34.10
1/2	1/2	5/8	2-1/2	5433725	45.08
5/8	5/8	3/4	3	5433736	82.38
3/4	3/4	1	3	5433747	130.94
1	1	1-1/4	3-1/2	5559538	194.82

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, -0.002	-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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

UNCOATED



ALTIN COATED



TICN COATED



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/64	1/8	1/32	1-1/2	5429567	13.06	5429974	17.49	5463447	17.49
1/32	1/8	1/8	1-1/2	5429578	8.74	5429985	11.82	5463458	11.82
3/64	1/8	1/8	1-1/2	5429589	7.48	5429996	10.07	5463469	10.07
1/16	1/8	1/4	1-1/2	5429600	7.46	5430007	8.56	5463480	8.56
5/64	1/8	1/4	1-1/2	5429611	7.70	5430018	10.39	5463491	10.39
3/32	1/8	3/8	1-1/2	5429622	6.78	5430029	8.56	5463502	8.56
7/64	1/8	3/8	1-1/2	5429633	7.07	5430040	9.54	5463513	9.54
1/8	1/8	1/2	1-1/2	5429644	6.50	5430051	7.96	5463524	7.96
9/64	3/16	9/16	2	5429655	9.52	5430062	12.85	5463535	12.85
5/32	3/16	9/16	2	5429666	9.57	5430073	11.10	5463546	11.10
11/64	3/16	5/8	2	5429677	9.10	5430084	12.30	5463557	12.30
3/16	3/16	5/8	2	5429688	8.86	5430095	11.10	5463568	11.10
13/64	1/4	5/8	2-1/2	5429699	12.93	5430106	16.94	5463579	16.94
7/32	1/4	5/8	2-1/2	5429710	13.20	5430117	15.34	5463590	15.34
15/64	1/4	3/4	2-1/2	5429721	14.92	5430128	19.22	5463601	19.22
1/4	1/4	3/4	2-1/2	5429732	10.94	5430139	15.34	5463612	15.34
17/64	5/16	3/4	2-1/2	5429743	19.72	5430150	25.34	5463623	25.34
9/32	5/16	3/4	2-1/2	5429754	19.72	5430161	25.34	5463634	25.34
19/64	5/16	13/16	2-1/2	5429765	19.72	5430172	25.34	5463645	25.34
5/16	5/16	13/16	2-1/2	5429776	14.23	5430183	18.36	5463656	18.36
21/64	3/8	1	2-1/2	5429787	22.11	5430194	28.43	5463667	28.43
11/32	3/8	1	2-1/2	5429798	22.11	5430205	28.43	5463678	28.43
23/64	3/8	1	2-1/2	5429809	22.11	5430216	28.43	5463689	28.43
3/8	3/8	1	2-1/2	5429820	16.98	5430227	20.99	5463700	20.99
25/64	7/16	1	2-3/4	5429831	28.95	5430238	37.35	5463711	37.35
13/32	7/16	1	2-3/4	5429842	28.95	5430249	37.35	5463722	37.35
27/64	7/16	1	2-3/4	5429853	29.88	5430260	38.59	5463733	38.59
7/16	7/16	1	2-3/4	5429864	26.05	5430271	32.08	5463744	32.08
29/64	1/2	1	3	5429875	43.01	5430282	55.05	5463755	55.05
15/32	1/2	1	3	5429886	43.01	5430293	55.05	5463766	55.05
31/64	1/2	1	3	5429897	43.01	5430304	55.05	5463777	55.05
1/2	1/2	1	3	5429908	31.28	5430315	39.03	5463788	39.03
9/16	9/16	1-1/4	3-1/2	5429919	59.12	5430326	78.07	5463799	78.07
5/8	5/8	1-1/4	3-1/2	5429930	59.80	5430337	76.24	5463810	76.24
3/4	3/4	1-1/2	4	5429941	84.00	5430348	108.19	5463821	108.19
7/8	7/8	1-1/2	4	5429952	153.63	5430359	194.44	5463832	194.44
1	1	1-1/2	4	5429963	137.41	5430370	175.76	5463843	175.76

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

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED



ALTiN COATED



TiCN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTiN	PRICE	TiCN	PRICE
1/8	1/8	3/4	2-1/4	5436134	10.50	5436288	13.50	5465097	13.50
3/16	3/16	3/4	2-1/2	5436145	12.32	5436299	15.84	5465108	15.84
1/4	1/4	1-1/8	3	5436156	17.64	5436310	22.74	5465119	22.74
1/4	1/4	1	4	5436167	18.58	5436321	23.96	5465130	23.96
5/16	5/16	1-1/8	3	5436178	19.91	5436332	26.86	5465141	26.86
3/8	3/8	1-1/8	3	5436189	22.83	5436343	30.82	5465152	30.82
3/8	3/8	1	4	5436200	26.66	5436354	34.30	5465163	34.30
7/16	7/16	2	4	5436211	35.98	5436365	46.79	5465174	46.79
1/2	1/2	1	4	5436222	38.96	5436376	50.17	5465185	50.17
1/2	1/2	2	4	5436233	41.26	5436387	52.95	5465196	52.95
5/8	5/8	2-1/4	5	5436244	92.22	5436398	114.13	5465207	114.13
3/4	3/4	2-1/4	5	5436255	127.37	5436409	164.34	5465218	164.34
7/8	7/8	2-1/4	5	5436266	241.41	5436420	285.30	5465229	285.30
1	1	2-1/4	5	5436277	174.38	5436431	225.06	5465240	225.06

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



UNCOATED



ALTiN COATED



TiCN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTiN	PRICE	TiCN	PRICE
1/8	1/8	1	3	5437366	11.73	5437520	15.84	5465713	15.84
3/16	3/16	1-1/8	3	5437377	12.76	5437531	16.39	5465724	16.39
1/4	1/4	1-1/2	4	5437388	19.11	5437542	24.61	5465735	24.61
1/4	1/4	1-1/2	6	5437399	24.38	5437553	31.36	5465746	31.36
5/16	5/16	1-5/8	4	5437410	24.60	5437564	31.74	5465757	31.74
3/8	3/8	1-3/4	4	5437421	27.93	5437575	35.78	5465768	35.78
3/8	3/8	1-1/2	6	5437432	42.29	5437586	54.52	5465779	54.52
7/16	7/16	3	6	5437443	56.97	5437597	73.04	5465790	73.04
1/2	1/2	1-1/2	6	5437454	64.36	5437608	79.89	5465801	79.89
1/2	1/2	3	6	5437465	67.57	5437619	83.09	5465812	83.09
5/8	5/8	3	6	5437476	99.52	5437630	122.35	5465823	122.35
3/4	3/4	3	6	5437487	147.90	5437641	181.69	5465834	181.69
7/8	7/8	3	6	5437498	263.36	5437652	329.22	5465845	329.22
1	1	3	6	5437509	251.08	5437663	308.54	5465856	308.54

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

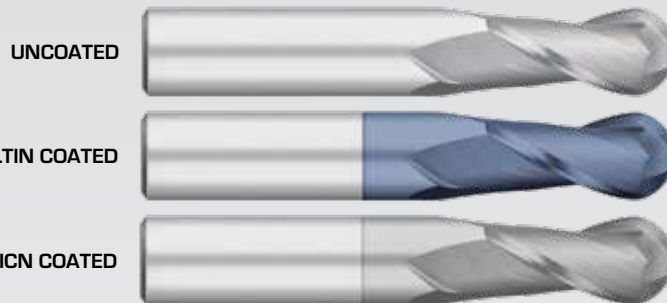
TOLERANCES	DIAMETER	SHANK
1/8" - 1/2"	+0.00, -0.02	-0.001, -.0004 ISO H6
5/8" - 1"	+0.00, -0.03	-0.001, -.0004 ISO H6



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIM	PRICE	TiCN	PRICE
1/64	1/8	1/32	1-1/2	5431635	14.62	5432042	19.59	5464283	19.59
1/32	1/8	1/8	1-1/2	5431646	9.36	5432053	12.15	5464294	12.15
3/64	1/8	1/8	1-1/2	5431657	9.36	5432064	12.15	5464305	12.15
1/16	1/8	1/4	1-1/2	5431668	8.67	5432075	11.71	5464316	11.71
5/64	1/8	1/4	1-1/2	5431679	8.67	5432086	11.71	5464327	11.71
3/32	1/8	3/8	1-1/2	5431690	9.10	5432097	12.30	5464338	12.30
7/64	1/8	3/8	1-1/2	5431701	9.10	5432108	12.30	5464349	12.30
1/8	1/8	1/2	1-1/2	5431712	8.34	5432119	11.27	5464360	11.27
9/64	3/16	9/16	2	5431723	12.23	5432130	16.52	5464371	16.52
5/32	3/16	9/16	2	5431734	12.23	5432141	16.52	5464382	16.52
11/64	3/16	5/8	2	5431745	12.23	5432152	16.52	5464393	16.52
3/16	3/16	5/8	2	5431756	10.99	5432163	14.84	5464404	14.84
13/64	1/4	5/8	2-1/2	5431767	16.00	5432174	20.20	5464415	20.20
7/32	1/4	5/8	2-1/2	5431778	16.00	5432185	20.20	5464426	20.20
15/64	1/4	3/4	2-1/2	5431789	16.00	5432196	20.20	5464437	20.20
1/4	1/4	3/4	2-1/2	5431800	15.46	5432207	19.24	5464448	19.24
17/64	5/16	3/4	2-1/2	5431811	20.20	5432218	25.98	5464459	25.98
9/32	5/16	3/4	2-1/2	5431822	20.24	5432229	26.02	5464470	26.02
19/64	5/16	13/16	2-1/2	5431833	21.99	5432240	28.85	5464481	28.85
5/16	5/16	13/16	2-1/2	5431844	18.61	5432251	23.94	5464492	23.94
21/64	3/8	1	2-1/2	5431855	25.58	5432262	34.52	5464503	34.52
11/32	3/8	1	2-1/2	5431866	26.85	5432273	34.52	5464514	34.52
23/64	3/8	1	2-1/2	5431877	25.58	5432284	34.52	5464525	34.52
3/8	3/8	1	2-1/2	5431888	19.92	5432295	28.15	5464536	28.15
25/64	7/16	1	2-3/4	5431899	34.63	5432306	44.63	5464547	44.63
13/32	7/16	1	2-3/4	5431910	34.63	5432317	44.63	5464558	44.63
27/64	7/16	1	2-3/4	5431921	34.63	5432328	44.63	5464569	44.63
7/16	7/16	1	2-3/4	5431932	29.48	5432339	38.00	5464580	38.00
29/64	1/2	1	3	5431943	45.66	5432350	58.88	5464591	58.88
15/32	1/2	1	3	5431954	45.66	5432361	58.88	5464602	58.88
31/64	1/2	1	3	5431965	45.66	5432372	58.88	5464613	58.88
1/2	1/2	1	3	5431976	40.43	5432383	52.11	5464624	52.11
9/16	9/16	1-1/4	3-1/2	5431987	61.63	5432394	75.83	5464635	75.83
5/8	5/8	1-1/4	3-1/2	5431998	65.38	5432405	84.27	5464646	84.27
3/4	3/4	1-1/2	4	5432009	96.33	5432416	125.53	5464657	125.53
7/8	7/8	1-1/2	4	5432020	186.55	5432427	237.03	5464668	237.03
1	1	1-1/2	4	5432031	172.06	5432438	221.71	5464679	221.71

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

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

ALUMIN COATED

TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALUMIN	PRICE	TICN	PRICE
1/8	1/8	3/4	2-1/4	5436750	12.49	5436904	16.06	5465405	16.06
3/16	3/16	3/4	2-1/2	5436761	14.36	5436915	18.45	5465416	18.45
1/4	1/4	1-1/8	3	5436772	20.20	5436926	26.00	5465427	26.00
1/4	1/4	1	4	5436783	22.30	5436937	28.74	5465438	28.74
5/16	5/16	1-1/8	3	5436794	23.75	5436948	32.06	5465449	32.06
3/8	3/8	1-1/8	3	5436805	27.42	5436959	37.03	5465460	37.03
3/8	3/8	1	4	5436816	33.58	5436970	43.64	5465471	43.64
7/16	7/16	2	4	5436827	45.92	5436981	59.71	5465482	59.71
1/2	1/2	1	4	5436838	47.03	5436992	59.80	5465493	59.80
1/2	1/2	2	4	5436849	47.49	5437003	60.26	5465504	60.26
5/8	5/8	2-1/4	5	5436860	108.19	5437014	137.41	5465515	137.41
3/4	3/4	2-1/4	5	5436871	150.64	5437025	190.82	5465526	190.82
7/8	7/8	2-1/4	5	5436882	258.98	5437036	318.24	5465537	318.24
1	1	2-1/4	5	5436893	298.08	5437047	366.57	5465548	366.57

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



UNCOATED

ALUMIN COATED

TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALUMIN	PRICE	TICN	PRICE
1/8	1/8	1	3	5438026	13.98	5438180	18.86	5466021	18.86
3/16	3/16	1-1/8	3	5438037	16.75	5438191	19.68	5466032	19.68
1/4	1/4	1-1/2	4	5438048	24.56	5438202	27.32	5466043	27.32
1/4	1/4	1-1/2	6	5438059	28.22	5438213	32.09	5466054	32.09
5/16	5/16	1-5/8	4	5438070	29.68	5438224	38.32	5466065	38.32
3/8	3/8	1-3/4	4	5438081	31.95	5438235	40.84	5466076	40.84
3/8	3/8	1-1/2	6	5438092	45.02	5438246	55.25	5466087	55.25
7/16	7/16	3	6	5438103	67.57	5438257	86.74	5466098	86.74
1/2	1/2	1-1/2	6	5438114	71.68	5438268	91.76	5466109	91.76
1/2	1/2	3	6	5438125	72.11	5438279	92.22	5466120	92.22
5/8	5/8	3	6	5438136	113.67	5438290	139.69	5466131	139.69
3/4	3/4	3	6	5438147	161.19	5438301	217.61	5466142	217.61
7/8	7/8	3	6	5438158	285.30	5438312	355.54	5466153	355.54
1	1	3	6	5438169	287.58	5438323	370.25	5466164	370.25

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, -0.002	-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

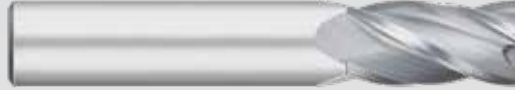


Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

UNCOATED



ALTIN COATED



TICN COATED



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/64	1/8	1/32	1-1/2	5430711	13.06	5466329	17.49	5463854	17.49
1/32	1/8	1/8	1-1/2	5430722	8.74	5466340	11.82	5463865	11.82
3/64	1/8	1/8	1-1/2	5430733	7.48	5466351	10.07	5463876	10.07
1/16	1/8	1/4	1-1/2	5430744	7.46	5466362	8.56	5463887	8.56
5/64	1/8	1/4	1-1/2	5430755	7.70	5466373	10.39	5463898	10.39
3/32	1/8	3/8	1-1/2	5430766	6.78	5466384	8.56	5463909	8.56
7/64	1/8	3/8	1-1/2	5430777	7.07	5466395	9.54	5463920	9.54
1/8	1/8	1/2	1-1/2	5430788	6.50	5466406	7.96	5463931	7.96
9/64	3/16	9/16	2	5430799	9.52	5466417	12.85	5463942	12.85
5/32	3/16	9/16	2	5430810	9.57	5466428	11.10	5463953	11.10
11/64	3/16	5/8	2	5430821	9.10	5466439	12.30	5463964	12.30
3/16	3/16	5/8	2	5430832	8.86	5466450	11.10	5463975	11.10
13/64	1/4	5/8	2-1/2	5430843	12.93	5466461	16.94	5463986	16.94
7/32	1/4	5/8	2-1/2	5430854	13.20	5466472	15.34	5463997	15.34
15/64	1/4	3/4	2-1/2	5430865	14.92	5466483	19.22	5464008	19.22
1/4	1/4	3/4	2-1/2	5430876	10.94	5466494	15.34	5464019	15.34
17/64	5/16	3/4	2-1/2	5430887	19.72	5466505	25.34	5464030	25.34
9/32	5/16	3/4	2-1/2	5430898	19.72	5466516	25.34	5464041	25.34
19/64	5/16	13/16	2-1/2	5430909	19.72	5466527	25.34	5464052	25.34
5/16	5/16	13/16	2-1/2	5430920	14.23	5466538	18.36	5464063	18.36
21/64	3/8	1	2-1/2	5430931	22.11	5466549	28.43	5464074	28.43
11/32	3/8	1	2-1/2	5430942	22.11	5466560	28.43	5464085	28.43
23/64	3/8	1	2-1/2	5430953	22.11	5466571	28.43	5464096	28.43
3/8	3/8	1	2-1/2	5430964	16.98	5466582	20.99	5464107	20.99
25/64	7/16	1	2-3/4	5430975	28.95	5466593	37.35	5464118	37.35
13/32	7/16	1	2-3/4	5430986	28.95	5466604	37.35	5464129	37.35
27/64	7/16	1	2-3/4	5430997	29.88	5466615	38.59	5464140	38.59
7/16	7/16	1	2-3/4	5431008	26.05	5466626	32.08	5464151	32.08
29/64	1/2	1	3	5431019	43.01	5466637	55.05	5464162	55.05
15/32	1/2	1	3	5431030	43.01	5466648	55.05	5464173	55.05
31/64	1/2	1	3	5431041	43.01	5466659	55.05	5464184	55.05
1/2	1/2	1	3	5431052	31.28	5466670	39.03	5464195	39.03
1/2	1/2	1-1/4	3	5431063	31.28	5466681	39.03	5464206	39.03
9/16	9/16	1-1/4	3-1/2	5431074	59.12	5466692	78.07	5464217	78.07
5/8	5/8	1-1/4	3-1/2	5431085	59.80	5466703	76.24	5464228	76.24
3/4	3/4	1-1/2	4	5431096	84.00	5466714	108.19	5464239	108.19
7/8	7/8	1-1/2	4	5431107	153.63	5466725	194.44	5464250	194.44
1	1	1-1/2	4	5431118	141.41	5466736	180.88	5464261	180.88
1-1/4	1-1/4	2	4-1/2	5431129	482.84	5466747	548.67	5464272	548.67

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

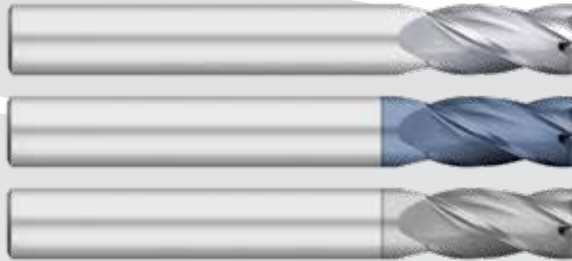
TOLERANCES	DIAMETER	SHANK
1/64" - 7/64"	+0.00, -0.01	-.0001, -.0004 ISO H6
1/8" - 1/2"	+0.00, -0.02	-.0001, -.0004 ISO H6
9/16" - 1-1/4"	+0.00, -0.03	-.0001, -.0004 ISO H6

Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

ALTIN COATED

TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/8	1/8	3/4	2-1/4	5436442	10.50	5436596	13.50	5465251	13.50
3/16	3/16	3/4	2-1/2	5436453	13.17	5436607	15.84	5465262	15.84
1/4	1/4	1-1/8	3	5436464	17.64	5436618	22.74	5465273	22.74
1/4	1/4	1	4	5436475	18.58	5436629	23.96	5465284	23.96
5/16	5/16	1-1/8	3	5436486	19.91	5436640	26.86	5465295	26.86
3/8	3/8	1-1/8	3	5436497	22.83	5436651	30.82	5465306	30.82
3/8	3/8	1	4	5436508	26.66	5436662	34.30	5465317	34.30
7/16	7/16	2	4	5436519	35.98	5436673	46.79	5465328	46.79
1/2	1/2	1	4	5436530	40.10	5436684	51.63	5465339	51.63
1/2	1/2	2	4	5436541	42.46	5436695	54.50	5465350	54.50
5/8	5/8	2-1/4	5	5436552	92.22	5436706	114.13	5465361	114.13
3/4	3/4	2-1/4	5	5436563	127.37	5436717	154.19	5465372	154.19
7/8	7/8	2-1/4	5	5436574	241.41	5436728	285.30	5465383	285.30
1	1	2-1/4	5	5436585	174.38	5436739	225.06	5465394	225.06

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



UNCOATED

ALTIN COATED

TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/8	1/8	1	3	5437674	11.73	5437850	15.84	5465867	15.84
3/16	3/16	1-1/8	3	5437685	12.76	5437861	16.39	5465878	16.39
1/4	1/4	1-1/2	4	5437696	18.02	5437872	23.22	5465889	23.22
1/4	1/4	1-1/2	6	5437707	24.38	5437883	31.36	5465900	31.36
5/16	5/16	1-5/8	4	5437718	24.60	5437894	31.74	5465911	31.74
3/8	3/8	1-3/4	4	5437729	27.93	5437905	35.78	5465922	35.78
3/8	3/8	1-1/2	6	5437740	42.29	5437916	54.52	5465933	54.52
7/16	7/16	3	6	5437751	56.97	5437927	73.04	5465944	73.04
1/2	1/2	1-1/2	6	5437762	64.36	5437938	79.89	5465955	79.89
1/2	1/2	3	6	5437773	67.57	5437949	83.09	5465966	83.09
5/8	5/8	3	6	5437784	99.52	5437960	122.35	5465977	122.35
3/4	3/4	3	6	5437795	147.90	5437971	173.68	5465988	173.68
3/4	3/4	4	7	5437806	253.82	5437982	287.74	5465993	287.74
7/8	7/8	3	6	5437817	263.36	5437993	329.22	5465999	329.22
1	1	3	6	5437828	251.08	5438004	280.29	5466010	280.29
1	1	4	7	5437839	329.14	5438015	404.00	5466013	404.00

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

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

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

UNCOATED



ALTIN COATED



TICN COATED



DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/64	1/8	1/32	1-1/2	5432779	14.62	5433186	19.59	5464690	19.59
1/32	1/8	1/8	1-1/2	5432790	9.36	5433197	12.15	5464701	12.15
3/64	1/8	1/8	1-1/2	5432801	9.36	5433208	12.15	5464712	12.15
1/16	1/8	1/4	1-1/2	5432812	8.67	5433219	11.71	5464723	11.71
5/64	1/8	1/4	1-1/2	5432823	8.67	5433230	11.71	5464734	11.71
3/32	1/8	3/8	1-1/2	5432834	9.10	5433241	12.30	5464745	12.30
7/64	1/8	3/8	1-1/2	5432845	9.10	5433252	12.30	5464756	12.30
1/8	1/8	1/2	1-1/2	5432856	8.34	5433263	11.27	5464767	11.27
9/64	3/16	9/16	2	5432867	12.23	5433274	16.52	5464778	16.52
5/32	3/16	9/16	2	5432878	12.23	5433285	16.52	5464789	16.52
11/64	3/16	5/8	2	5432889	12.23	5433296	16.52	5464800	16.52
3/16	3/16	5/8	2	5432900	10.99	5433307	14.84	5464811	14.84
13/64	1/4	5/8	2-1/2	5432911	15.86	5433318	20.20	5464822	20.20
7/32	1/4	5/8	2-1/2	5432922	15.86	5433329	20.20	5464833	20.20
15/64	1/4	3/4	2-1/2	5432933	15.86	5433340	20.20	5464844	20.20
1/4	1/4	3/4	2-1/2	5432944	14.93	5433351	19.24	5464855	19.24
17/64	5/16	3/4	2-1/2	5432955	20.20	5433362	25.98	5464866	25.98
9/32	5/16	3/4	2-1/2	5432966	20.24	5433373	26.02	5464877	26.02
19/64	5/16	13/16	2-1/2	5432977	21.99	5433384	28.85	5464888	28.85
5/16	5/16	13/16	2-1/2	5432988	18.61	5433395	23.94	5464899	23.94
21/64	3/8	1	2-1/2	5432999	25.58	5433406	34.52	5464910	34.52
11/32	3/8	1	2-1/2	5433010	26.85	5433417	34.52	5464921	34.52
23/64	3/8	1	2-1/2	5433021	25.58	5433428	34.52	5464932	34.52
3/8	3/8	1	2-1/2	5433032	19.92	5433439	28.15	5464943	28.15
25/64	7/16	1	2-3/4	5433043	34.63	5433450	44.63	5464954	44.63
13/32	7/16	1	2-3/4	5433054	34.63	5433461	44.63	5464965	44.63
27/64	7/16	1	2-3/4	5433065	34.63	5433472	44.63	5464976	44.63
7/16	7/16	1	2-3/4	5433076	29.48	5433483	38.00	5464987	38.00
29/64	1/2	1	3	5433087	45.66	5433494	58.88	5464998	58.88
15/32	1/2	1	3	5433098	45.66	5433505	58.88	5465009	58.88
31/64	1/2	1	3	5433109	45.66	5433516	58.88	5465020	58.88
1/2	1/2	1	3	5433120	40.43	5433527	52.11	5465031	52.11
9/16	9/16	1-1/4	3-1/2	5433131	61.63	5433538	75.83	5465042	75.83
5/8	5/8	1-1/4	3-1/2	5433142	65.38	5433549	84.27	5465053	84.27
3/4	3/4	1-1/2	4	5433153	96.33	5433560	125.53	5465064	125.53
7/8	7/8	1-1/2	4	5433164	186.55	5433571	237.03	5465075	237.03
1	1	1-1/2	4	5433175	172.06	5433582	221.71	5465086	221.71

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED



ALTIN COATED



TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/8	1/8	3/4	2-1/4	5437058	12.49	5437212	16.06	5465559	16.06
3/16	3/16	3/4	2-1/2	5437069	14.36	5437223	18.45	5465570	18.45
1/4	1/4	1-1/8	3	5437080	20.20	5437234	26.00	5465581	26.00
1/4	1/4	1	4	5437091	22.30	5437245	28.74	5465592	28.74
5/16	5/16	1-1/8	3	5437102	23.75	5437256	32.06	5465603	32.06
3/8	3/8	1-1/8	3	5437113	27.42	5437267	37.03	5465614	37.03
3/8	3/8	1	4	5437124	33.58	5437278	43.64	5465625	43.64
7/16	7/16	2	4	5437135	45.92	5437289	59.71	5465636	59.71
1/2	1/2	1	4	5437146	47.03	5437300	59.80	5465647	59.80
1/2	1/2	2	4	5437157	47.49	5437311	60.26	5465658	60.26
5/8	5/8	2-1/4	5	5437168	108.19	5437322	137.41	5465669	137.41
3/4	3/4	2-1/4	5	5437179	150.64	5437333	190.82	5465680	190.82
7/8	7/8	2-1/4	5	5437190	258.98	5437344	318.24	5465691	318.24
1	1	2-1/4	5	5437201	298.08	5437355	366.57	5465702	366.57

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



UNCOATED



ALTIN COATED



TICN COATED

DIA	SHANK	LOC	OAL	UNCOATED	PRICE	ALTIN	PRICE	TICN	PRICE
1/8	1/8	1	3	5438334	13.98	5438510	18.86	5466175	18.86
3/16	3/16	1-1/8	3	5438345	16.83	5438521	19.68	5466186	19.68
1/4	1/4	1-1/2	4	5438356	24.55	5438532	27.32	5466197	27.32
1/4	1/4	1-1/2	6	5438367	28.87	5438543	33.98	5466208	33.98
5/16	5/16	1-5/8	4	5438378	29.68	5438554	38.32	5466219	38.32
3/8	3/8	1-3/4	4	5438389	31.95	5438565	40.84	5466230	40.84
3/8	3/8	1-1/2	6	5438400	45.02	5438576	56.16	5466241	56.16
7/16	7/16	3	6	5438411	67.57	5438587	86.74	5466252	86.74
1/2	1/2	1-1/2	6	5438422	71.68	5438598	91.76	5466263	91.76
1/2	1/2	3	6	5438433	72.11	5438609	93.13	5466274	93.13
5/8	5/8	3	6	5438444	113.67	5438620	139.69	5466285	139.69
3/4	3/4	3	6	5438455	161.19	5438631	217.61	5466296	217.61
3/4	3/4	4	7	5438466	265.42	5438642	335.68	5466307	335.68
7/8	7/8	3	6	5438477	285.30	5438653	355.54	5466318	355.54
1	1	3	6	5438488	287.58	5438664	370.25	5466329	370.25
1	1	4	7	5438499	347.85	5438675	414.28	5466340	414.28

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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1.0	3	3	38	5516753	10.78
1.5	3	4.5	38	5433758	10.78
2.0	3	6.3	38	5433769	10.78
2.5	3	9.5	38	5433780	10.78
3.0	3	12	38	5433791	10.78
3.5	4	12	50	5433802	13.28
4.0	4	14	50	5433813	13.28
4.5	6	16	50	5433824	16.23
5.0	6	16	50	5433835	16.23
5.5	6	16	50	5559549	16.23
6.0	6	19	50	5433846	16.97
6.5	8	19	63	5559560	18.45
7.0	8	19	63	5433857	18.45
7.5	8	19	63	5559571	19.18
8.0	8	20	63	5433868	19.18
9.0	10	22	75	5433879	28.04
10.0	10	22	75	5433890	35.42
11.0	12	25	75	5433901	39.10
12.0	12	25	75	5433912	40.58
14.0	14	32	89	5433923	68.63
16.0	16	32	89	5433934	78.22
18.0	18	38	100	5433945	107.00
20.0	20	38	100	5433956	169.72
25.0	25	38	100	5433967	221.37

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1.0	3	3	38	5516764	13.45
1.5	3	4.5	38	5433978	13.45
2.0	3	6.3	38	5433989	13.45
2.5	3	9.5	38	5434000	13.45
3.0	3	12	38	5434011	13.45
3.5	4	12	50	5434022	16.61
4.0	4	14	50	5434033	16.61
4.5	6	16	50	5434044	20.30
5.0	6	16	50	5434055	20.30
5.5	6	16	50	5559582	20.30
6.0	6	19	50	5434066	21.21
6.5	8	19	63	5559593	23.06
7.0	8	19	63	5434077	23.06
7.5	8	19	63	5559604	23.99
8.0	8	20	63	5434088	23.99
9.0	10	22	75	5434099	35.04
10.0	10	22	75	5434110	44.27
11.0	12	25	75	5434121	48.89
12.0	12	25	75	5434132	50.74
14.0	14	32	89	5434143	85.79
16.0	16	32	89	5434154	97.78
18.0	18	38	100	5434165	133.75
20.0	20	38	100	5434176	212.14
25.0	25	38	100	5434187	276.72

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



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1.0	3	3	38	5559879	15.88
1.5	3	4.5	38	5559890	15.88
2.0	3	6.3	38	5559901	15.88
2.5	3	9.5	38	5559912	15.88
3.0	3	12	38	5559923	15.88
3.5	4	12	50	5559934	19.60
4.0	4	14	50	5559945	19.60
4.5	6	16	50	5559956	23.95
5.0	6	16	50	5559967	23.95
5.5	6	16	50	5559978	23.95
6.0	6	19	50	5559989	25.03
6.5	8	19	63	5560000	27.21

DIA	SHANK	LOC	OAL	ITEM#	PRICE
7.0	8	19	63	5560011	27.21
7.5	8	19	63	5560022	28.31
8.0	8	20	63	5560033	28.31
9.0	10	22	75	5560044	41.35
10.0	10	22	75	5560055	52.24
11.0	12	25	75	5560066	57.69
12.0	12	25	75	5560077	59.87
14.0	14	32	89	5560088	101.24
16.0	16	32	89	5560099	115.38
18.0	18	38	100	5560110	157.82
20.0	20	38	100	5560121	250.33
25.0	25	38	100	5560132	326.53

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1/2	1-1/2	0.015	5452557	14.76
1/8	1/8	1/2	1-1/2	0.020	5452568	14.76
1/8	1/8	1/2	1-1/2	0.030	5452579	14.76
3/16	3/16	5/8	2	0.015	5452590	14.76
3/16	3/16	5/8	2	0.020	5452601	14.76
3/16	3/16	5/8	2	0.030	5452612	14.76
1/4	1/4	3/4	2-1/2	0.015	5452623	20.28
1/4	1/4	3/4	2-1/2	0.020	5452634	20.28
1/4	1/4	3/4	2-1/2	0.030	5452645	20.28
1/4	1/4	3/4	2-1/2	0.045	5452656	20.28
1/4	1/4	3/4	2-1/2	0.060	5452667	20.28
5/16	5/16	13/16	2-1/2	0.015	5452678	27.20
5/16	5/16	13/16	2-1/2	0.020	5452689	27.20
5/16	5/16	13/16	2-1/2	0.030	5452700	27.20
5/16	5/16	13/16	2-1/2	0.045	5452711	27.20
5/16	5/16	13/16	2-1/2	0.060	5452722	27.20
3/8	3/8	1	2-1/2	0.015	5452733	34.15
3/8	3/8	1	2-1/2	0.020	5452744	34.15
3/8	3/8	1	2-1/2	0.030	5452755	34.15
3/8	3/8	1	2-1/2	0.045	5452766	34.15
3/8	3/8	1	2-1/2	0.060	5452777	34.15
1/2	1/2	1	3	0.015	5452788	51.51
1/2	1/2	1	3	0.020	5452799	51.51
1/2	1/2	1	3	0.030	5452810	51.51

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/2	1/2	1	3	0.045	5452821	51.51
1/2	1/2	1	3	0.060	5452832	51.51
1/2	1/2	1	3	0.090	5452843	51.51
1/2	1/2	1	3	0.125	5452854	51.51
5/8	5/8	1-1/4	3-1/2	0.015	5452865	83.92
5/8	5/8	1-1/4	3-1/2	0.020	5452876	83.92
5/8	5/8	1-1/4	3-1/2	0.030	5452887	83.92
5/8	5/8	1-1/4	3-1/2	0.045	5452898	83.92
5/8	5/8	1-1/4	3-1/2	0.060	5452909	83.92
5/8	5/8	1-1/4	3-1/2	0.090	5452920	83.92
3/4	3/4	1-1/2	4	0.015	5452931	115.17
3/4	3/4	1-1/2	4	0.020	5452942	115.17
3/4	3/4	1-1/2	4	0.030	5452953	115.17
3/4	3/4	1-1/2	4	0.045	5452964	115.17
3/4	3/4	1-1/2	4	0.060	5452975	115.17
3/4	3/4	1-1/2	4	0.090	5452986	115.17
3/4	3/4	1-1/2	4	0.125	5452997	115.17
1	1	1-1/2	4	0.015	5453008	223.21
1	1	1-1/2	4	0.020	5453019	223.21
1	1	1-1/2	4	0.030	5453030	223.21
1	1	1-1/2	4	0.045	5453041	223.21
1	1	1-1/2	4	0.060	5453052	223.21
1	1	1-1/2	4	0.090	5453063	223.21
1	1	1-1/2	4	0.125	5453074	223.21



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	3/4	2-1/4	0.015	5453800	16.23
1/8	1/8	3/4	2-1/4	0.020	5453811	16.23
1/8	1/8	3/4	2-1/4	0.030	5453822	16.23
3/16	3/16	3/4	2-1/2	0.015	5453833	18.86
3/16	3/16	3/4	2-1/2	0.020	5453844	18.86
3/16	3/16	3/4	2-1/2	0.030	5453855	18.86
1/4	1/4	1-1/8	3	0.015	5453866	26.31
1/4	1/4	1-1/8	3	0.020	5453877	26.31
1/4	1/4	1-1/8	3	0.030	5453888	26.31
1/4	1/4	1-1/8	3	0.045	5453899	26.31
1/4	1/4	1-1/8	3	0.060	5453910	26.31
1/4	1/4	1	4	0.015	5453921	27.62
1/4	1/4	1	4	0.020	5453932	27.62
1/4	1/4	1	4	0.030	5453943	27.62
1/4	1/4	1	4	0.045	5453954	27.62
1/4	1/4	1	4	0.060	5453965	27.62
5/16	5/16	1-1/8	3	0.015	5453976	29.82
5/16	5/16	1-1/8	3	0.020	5453987	29.82
5/16	5/16	1-1/8	3	0.030	5453998	29.82
5/16	5/16	1-1/8	3	0.045	5454009	29.82
5/16	5/16	1-1/8	3	0.060	5454020	29.82
3/8	3/8	1-1/8	3	0.015	5454031	37.62
3/8	3/8	1-1/8	3	0.020	5454042	37.62
3/8	3/8	1-1/8	3	0.030	5454053	37.62
3/8	3/8	1-1/8	3	0.045	5454064	37.62
3/8	3/8	1-1/8	3	0.060	5454075	37.62
3/8	3/8	1	4	0.015	5454086	46.88
3/8	3/8	1	4	0.020	5454097	46.88
3/8	3/8	1	4	0.030	5454108	46.88
3/8	3/8	1	4	0.045	5454119	46.88
3/8	3/8	1	4	0.060	5454130	46.88
1/2	1/2	1	4	0.015	5454141	64.82
1/2	1/2	1	4	0.020	5454152	64.82

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/2	1/2	1	4	0.030	5454163	64.82
1/2	1/2	1	4	0.045	5454174	64.82
1/2	1/2	1	4	0.060	5454185	64.82
1/2	1/2	1	4	0.090	5454196	64.82
1/2	1/2	1	4	0.125	5454207	64.82
1/2	1/2	2	4	0.015	5454218	68.87
1/2	1/2	2	4	0.020	5454229	68.87
1/2	1/2	2	4	0.030	5454240	68.87
1/2	1/2	2	4	0.045	5454251	68.87
1/2	1/2	2	4	0.060	5454262	68.87
1/2	1/2	2	4	0.090	5454273	68.87
1/2	1/2	2	4	0.125	5454284	68.87
5/8	5/8	2-1/4	5	0.015	5454295	124.52
5/8	5/8	2-1/4	5	0.020	5454306	124.52
5/8	5/8	2-1/4	5	0.030	5454317	124.52
5/8	5/8	2-1/4	5	0.045	5454328	124.52
5/8	5/8	2-1/4	5	0.060	5454339	124.52
5/8	5/8	2-1/4	5	0.090	5454350	124.52
3/4	3/4	2-1/4	5	0.015	5454361	162.05
3/4	3/4	2-1/4	5	0.020	5454372	162.05
3/4	3/4	2-1/4	5	0.030	5454383	162.05
3/4	3/4	2-1/4	5	0.045	5454394	162.05
3/4	3/4	2-1/4	5	0.060	5454405	162.05
3/4	3/4	2-1/4	5	0.090	5454416	162.05
3/4	3/4	2-1/4	5	0.125	5454427	162.05
1	1	2-1/4	5	0.015	5454438	254.65
1	1	2-1/4	5	0.020	5454449	254.65
1	1	2-1/4	5	0.030	5454460	254.65
1	1	2-1/4	5	0.045	5454471	254.65
1	1	2-1/4	5	0.060	5454482	254.65
1	1	2-1/4	5	0.090	5454493	254.65
1	1	2-1/4	5	0.125	5454504	254.65

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/8	1/8	1	3	0.015	5455384	18.42
1/8	1/8	1	3	0.020	5455395	18.42
1/8	1/8	1	3	0.030	5455406	18.42
3/16	3/16	1-1/8	3	0.015	5455417	20.17
3/16	3/16	1-1/8	3	0.020	5455428	20.17
3/16	3/16	1-1/8	3	0.030	5455439	20.17
1/4	1/4	1-1/2	4	0.015	5455450	28.06
1/4	1/4	1-1/2	4	0.020	5455461	28.06
1/4	1/4	1-1/2	4	0.030	5455472	28.06
1/4	1/4	1-1/2	4	0.045	5455483	28.06
1/4	1/4	1-1/2	4	0.060	5455494	28.06
1/4	1/4	1-1/2	6	0.015	5455505	37.71
1/4	1/4	1-1/2	6	0.020	5455516	37.71
1/4	1/4	1-1/2	6	0.030	5455527	37.71
1/4	1/4	1-1/2	6	0.045	5455538	37.71
1/4	1/4	1-1/2	6	0.060	5455549	37.71
5/16	5/16	1-5/8	4	0.015	5455560	38.59
5/16	5/16	1-5/8	4	0.020	5455571	38.59
5/16	5/16	1-5/8	4	0.030	5455582	38.59
5/16	5/16	1-5/8	4	0.045	5455593	38.59
5/16	5/16	1-5/8	4	0.060	5455604	38.59
3/8	3/8	1-3/4	4	0.015	5455615	42.09
3/8	3/8	1-3/4	4	0.020	5455626	42.09
3/8	3/8	1-3/4	4	0.030	5455637	42.09
3/8	3/8	1-3/4	4	0.045	5455648	42.09
3/8	3/8	1-3/4	4	0.060	5455659	42.09
3/8	3/8	1-1/2	6	0.015	5455670	59.63
3/8	3/8	1-1/2	6	0.020	5455681	59.63
3/8	3/8	1-1/2	6	0.030	5455692	59.63
3/8	3/8	1-1/2	6	0.045	5455703	59.63
3/8	3/8	1-1/2	6	0.060	5455714	59.63
1/2	1/2	1-1/2	6	0.015	5455725	90.32
1/2	1/2	1-1/2	6	0.020	5455736	90.32
1/2	1/2	1-1/2	6	0.030	5455747	90.32
1/2	1/2	1-1/2	6	0.045	5455758	90.32
1/2	1/2	1-1/2	6	0.060	5455769	90.32
1/2	1/2	1-1/2	6	0.090	5455780	90.32
1/2	1/2	1-1/2	6	0.125	5455791	90.32
1/2	1/2	3	6	0.015	5455802	94.71
1/2	1/2	3	6	0.020	5455813	94.71

DIA	SHANK	LOC	OAL	RAD	ITEM#	PRICE
1/2	1/2	3	6	0.030	5455824	94.71
1/2	1/2	3	6	0.045	5455835	94.71
1/2	1/2	3	6	0.060	5455846	94.71
1/2	1/2	3	6	0.090	5455857	94.71
1/2	1/2	3	6	0.125	5455868	94.71
5/8	5/8	3	6	0.015	5455879	133.29
5/8	5/8	3	6	0.020	5455890	133.29
5/8	5/8	3	6	0.030	5455901	133.29
5/8	5/8	3	6	0.045	5455912	133.29
5/8	5/8	3	6	0.060	5455923	133.29
5/8	5/8	3	6	0.090	5455934	133.29
3/4	3/4	3	6	0.015	5455945	182.89
3/4	3/4	3	6	0.020	5455956	182.89
3/4	3/4	3	6	0.030	5455967	182.89
3/4	3/4	3	6	0.045	5455978	182.89
3/4	3/4	3	6	0.060	5455989	182.89
3/4	3/4	3	6	0.090	5456000	182.89
3/4	3/4	3	6	0.125	5456011	182.89
3/4	3/4	4	7	0.015	5456022	300.37
3/4	3/4	4	7	0.020	5456033	300.37
3/4	3/4	4	7	0.030	5456044	300.37
3/4	3/4	4	7	0.045	5456055	300.37
3/4	3/4	4	7	0.060	5456066	300.37
3/4	3/4	4	7	0.090	5456077	300.37
3/4	3/4	4	7	0.125	5456088	300.37
1	1	3	6	0.015	5456099	298.06
1	1	3	6	0.020	5456110	298.06
1	1	3	6	0.030	5456121	298.06
1	1	3	6	0.045	5456132	298.06
1	1	3	6	0.060	5456143	298.06
1	1	3	6	0.090	5456154	298.06
1	1	3	6	0.125	5456165	298.06
1	1	4	7	0.015	5456176	429.68
1	1	4	7	0.020	5456187	429.68
1	1	4	7	0.030	5456198	429.68
1	1	4	7	0.045	5456209	429.68
1	1	4	7	0.060	5456220	429.68
1	1	4	7	0.090	5456231	429.68
1	1	4	7	0.125	5456242	429.68

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

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



Carbide End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/16	1/8	1/8	1-1/2	5435529	11.45
3/32	1/8	3/16	1-1/2	5435540	11.79
1/8	1/8	1/4	1-1/2	5435551	9.52
5/32	3/16	5/16	2	5435562	13.38
3/16	3/16	3/8	2	5435573	13.38
7/32	1/4	1/2	2-1/2	5435584	18.36
1/4	1/4	1/2	2-1/2	5435595	18.36
5/16	5/16	1/2	2-1/2	5435606	23.74
3/8	3/8	9/16	2-1/2	5435617	26.20
7/16	7/16	9/16	2-3/4	5435628	37.01
1/2	1/2	5/8	3	5435639	45.30

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/16	1/8	1/8	1-1/2	5436013	15.46
3/32	1/8	3/16	1-1/2	5436024	15.93
1/8	1/8	1/4	1-1/2	5436035	12.84
5/32	3/16	5/16	2	5436046	17.28
3/16	3/16	3/8	2	5436057	17.28
7/32	1/4	1/2	2-1/2	5436068	23.71
1/4	1/4	1/2	2-1/2	5436079	23.71
5/16	5/16	1/2	2-1/2	5436090	29.14
3/8	3/8	9/16	2-1/2	5436101	32.14
7/16	7/16	9/16	2-3/4	5436112	45.43
1/2	1/2	5/8	3	5436123	61.15

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/16	1/8	1/8	1-1/2	5435650	14.32
3/32	1/8	3/16	1-1/2	5435661	14.73
1/8	1/8	1/4	1-1/2	5435672	11.90
5/32	3/16	5/16	2	5435683	16.72
3/16	3/16	3/8	2	5435694	16.72
7/32	1/4	1/2	2-1/2	5435705	21.96
1/4	1/4	1/2	2-1/2	5435716	21.96
5/16	5/16	1/2	2-1/2	5435727	29.68
3/8	3/8	9/16	2-1/2	5435738	32.74
7/16	7/16	9/16	2-3/4	5435749	46.27
1/2	1/2	5/8	3	5435760	56.62

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/16	1/8	1/8	1-1/2	5435771	19.34
3/32	1/8	3/16	1-1/2	5435782	19.90
1/8	1/8	1/4	1-1/2	5435793	16.06
5/32	3/16	5/16	2	5435804	21.59
3/16	3/16	3/8	2	5435815	21.59
7/32	1/4	1/2	2-1/2	5435826	29.63
1/4	1/4	1/2	2-1/2	5435837	29.63
5/16	5/16	1/2	2-1/2	5435848	36.41
3/8	3/8	9/16	2-1/2	5435859	40.18
7/16	7/16	9/16	2-3/4	5435870	56.80
1/2	1/2	5/8	3	5435881	76.46

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	3/8	3/8	3-1/8	5434440	42.68
5/32	3/8	7/16	3-1/4	5434451	42.68
3/16	3/8	1/2	3-1/4	5434462	42.68
7/32	3/8	9/16	3-1/2	5434473	43.36
1/4	3/8	5/8	3-1/2	5434484	43.36
9/32	3/8	11/16	3-1/2	5434495	44.46
5/16	3/8	3/4	3-1/2	5434506	44.46
11/32	3/8	3/4	3-1/2	5434517	44.46
3/8	3/8	3/4	3-1/2	5434528	44.46
7/16	1/2	7/8	4	5434539	64.44
1/2	1/2	1	4	5434550	72.40

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	3/8	3/8	3-1/8	5434561	53.28
5/32	3/8	7/16	3-1/4	5434572	53.28
3/16	3/8	1/2	3-1/4	5434583	53.28
7/32	3/8	9/16	3-1/2	5434594	54.50
1/4	3/8	5/8	3-1/2	5434605	54.50
9/32	3/8	11/16	3-1/2	5434616	58.49
5/16	3/8	3/4	3-1/2	5434627	58.49
11/32	3/8	3/4	3-1/2	5434638	58.49
3/8	3/8	3/4	3-1/2	5434649	58.49
7/16	1/2	7/8	4	5434660	87.02
1/2	1/2	1	4	5434671	97.76

NOTE: ALL TOOLS WITH WELDON FLATS

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

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



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	3/8	3/8	3-1/8	5434924	48.53
5/32	3/8	7/16	3-1/4	5434935	48.53
3/16	3/8	1/2	3-1/4	5434946	48.53
7/32	3/8	9/16	3-1/2	5434957	49.19
1/4	3/8	5/8	3-1/2	5434968	49.19
9/32	3/8	11/16	3-1/2	5434979	53.89
5/16	3/8	3/4	3-1/2	5434990	53.89
11/32	3/8	3/4	3-1/2	5435001	53.89
3/8	3/8	3/4	3-1/2	5435012	53.89
7/16	1/2	7/8	4	5435023	78.00
1/2	1/2	1	4	5435034	79.75

NOTE: ALL TOOLS WITH WELDON FLATS

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/8	3/8	3/8	3-1/8	5435045	63.36
5/32	3/8	7/16	3-1/4	5435056	63.36
3/16	3/8	1/2	3-1/4	5435067	63.36
7/32	3/8	9/16	3-1/2	5435078	65.46
1/4	3/8	5/8	3-1/2	5435089	65.46
9/32	3/8	11/16	3-1/2	5435100	72.77
5/16	3/8	3/4	3-1/2	5435111	72.77
11/32	3/8	3/4	3-1/2	5435122	72.77
3/8	3/8	3/4	3-1/2	5435133	72.77
7/16	1/2	7/8	4	5435144	99.03
1/2	1/2	1	4	5435155	107.64

NOTE: ALL TOOLS WITH WELDON FLATS

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



Carbide Drill Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

2 FLUTE - 60° POINT - 30° HELIX



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5542034	12.11
1/16	1/8	3/16	1-1/2	5542045	12.11
3/32	1/8	3/8	1-1/2	5542056	12.11
1/8	1/8	1/2	1-1/2	5542067	11.62
3/16	3/16	5/8	2	5542078	16.35
1/4	1/4	3/4	2-1/2	5542089	20.47
5/16	5/16	13/16	2-1/2	5542100	25.41
3/8	3/8	1	2-1/2	5542111	31.93
7/16	7/16	1	2-3/4	5542122	43.17
1/2	1/2	1	3	5542133	52.92
5/8	5/8	1-1/4	3-1/2	5542144	101.05
3/4	3/4	1-1/2	4	5542155	148.84

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5542166	15.14
1/16	1/8	3/16	1-1/2	5542177	15.14
3/32	1/8	3/8	1-1/2	5542188	15.14
1/8	1/8	1/2	1-1/2	5542199	14.54
3/16	3/16	5/8	2	5542210	20.45
1/4	1/4	3/4	2-1/2	5542221	25.58
5/16	5/16	13/16	2-1/2	5542232	31.76
3/8	3/8	1	2-1/2	5542243	39.92
7/16	7/16	1	2-3/4	5542254	53.97
1/2	1/2	1	3	5542265	66.17
5/8	5/8	1-1/4	3-1/2	5542276	126.33
3/4	3/4	1-1/2	4	5542287	186.05

END MILLS

DRILL MILLS

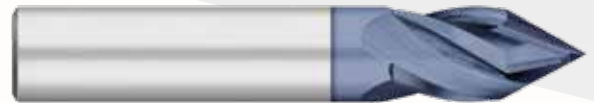
CHAMFER MILLS

DRILLS

REAMERS

BURS

4 FLUTE - 60° POINT - 30° HELIX



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5542628	12.11
1/16	1/8	3/16	1-1/2	5542639	12.11
3/32	1/8	3/8	1-1/2	5542650	12.11
1/8	1/8	1/2	1-1/2	5542661	11.62
3/16	3/16	5/8	2	5542672	16.35
1/4	1/4	3/4	2-1/2	5542683	20.47
5/16	5/16	13/16	2-1/2	5542694	25.41
3/8	3/8	1	2-1/2	5542705	31.93
7/16	7/16	1	2-3/4	5542716	43.17
1/2	1/2	1	3	5542727	52.92
5/8	5/8	1-1/4	3-1/2	5542738	101.05
3/4	3/4	1-1/2	4	5542749	148.84

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5542760	15.14
1/16	1/8	3/16	1-1/2	5542771	15.14
3/32	1/8	3/8	1-1/2	5542782	15.14
1/8	1/8	1/2	1-1/2	5542793	14.54
3/16	3/16	5/8	2	5542804	20.45
1/4	1/4	3/4	2-1/2	5542815	25.58
5/16	5/16	13/16	2-1/2	5542826	31.76
3/8	3/8	1	2-1/2	5542837	39.92
7/16	7/16	1	2-3/4	5542848	53.97
1/2	1/2	1	3	5542859	66.17
5/8	5/8	1-1/4	3-1/2	5542870	126.33
3/4	3/4	1-1/2	4	5542881	186.05

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



2 FLUTE - 90° POINT - 30° HELIX



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5541545	12.11
1/16	1/8	3/16	1-1/2	5541550	12.11
3/32	1/8	3/8	1-1/2	5541561	12.11
1/8	1/8	1/2	1-1/2	5541572	11.62
3/16	3/16	5/8	2	5541583	16.35
1/4	1/4	3/4	2-1/2	5541594	20.47
5/16	5/16	13/16	2-1/2	5541605	25.41
3/8	3/8	1	2-1/2	5541616	31.93
7/16	7/16	1	2-3/4	5541627	43.17
1/2	1/2	1	3	5541638	52.92
5/8	5/8	1-1/4	3-1/2	5541649	101.05
3/4	3/4	1-1/2	4	5541660	148.84

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5541668	15.14
1/16	1/8	3/16	1-1/2	5541671	15.14
3/32	1/8	3/8	1-1/2	5541682	15.14
1/8	1/8	1/2	1-1/2	5541693	14.54
3/16	3/16	5/8	2	5541704	20.45
1/4	1/4	3/4	2-1/2	5541715	25.58
5/16	5/16	13/16	2-1/2	5541726	31.76
3/8	3/8	1	2-1/2	5541737	39.92
7/16	7/16	1	2-3/4	5541748	53.97
1/2	1/2	1	3	5541759	66.17
5/8	5/8	1-1/4	3-1/2	5541770	126.33
3/4	3/4	1-1/2	4	5541781	186.05

4 FLUTE - 90° POINT - 30° HELIX



UNCOATED



ALTiN COATED

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5541785	12.11
1/16	1/8	3/16	1-1/2	5541792	12.11
3/32	1/8	3/8	1-1/2	5541803	12.11
1/8	1/8	1/2	1-1/2	5541814	11.62
3/16	3/16	5/8	2	5541825	16.35
1/4	1/4	3/4	2-1/2	5541836	20.47
5/16	5/16	13/16	2-1/2	5541847	25.41
3/8	3/8	1	2-1/2	5541858	31.93
7/16	7/16	1	2-3/4	5541869	43.17
1/2	1/2	1	3	5541880	52.92
5/8	5/8	1-1/4	3-1/2	5541891	101.05
3/4	3/4	1-1/2	4	5541902	148.84

DIA	SHANK	LOC	OAL	ITEM#	PRICE
1/32	1/8	1/8	1-1/2	5541908	15.14
1/16	1/8	3/16	1-1/2	5541913	15.14
3/32	1/8	3/8	1-1/2	5541924	15.14
1/8	1/8	1/2	1-1/2	5541935	14.54
3/16	3/16	5/8	2	5541946	20.45
1/4	1/4	3/4	2-1/2	5541957	25.58
5/16	5/16	13/16	2-1/2	5541968	31.76
3/8	3/8	1	2-1/2	5541979	39.92
7/16	7/16	1	2-3/4	5541990	53.97
1/2	1/2	1	3	5542001	66.17
5/8	5/8	1-1/4	3-1/2	5542012	126.33
3/4	3/4	1-1/2	4	5542023	186.05

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 Chamfer Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

END MILLS



2 FLUTE - SINGLE END

60° • 82° • 90° • 100° • 120°

UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	1-1/2	1	5552509	5552553	5552597	5552641	5552685	10.37
1/4	1/4	2-1/2	1	5552520	5552564	5552608	5552652	5552696	18.26
3/8	3/8	2-1/2	1	5552531	5552575	5552619	5552663	5552707	28.48
1/2	1/2	3	1	5552542	5552586	5552630	5552674	5552718	47.15

DRILL MILLS



2 FLUTE - SINGLE END

60° • 82° • 90° • 100° • 120°

ALTIN COATED

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	1-1/2	1	5552729	5552773	5552817	5552861	5552905	12.97
1/4	1/4	2-1/2	1	5552740	5552784	5552828	5552872	5552916	22.79
3/8	3/8	2-1/2	1	5552751	5552795	5552839	5552883	5552927	35.60
1/2	1/2	3	1	5552762	5552806	5552850	5552894	5552938	58.98

CHAMFER MILLS



4 FLUTE - SINGLE END

60° • 82° • 90° • 100° • 120°

UNCOATED

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	1-1/2	1	5552949	5552993	5553037	5553081	5553125	10.37
1/4	1/4	2-1/2	1	5552960	5553004	5553048	5553092	5553136	18.26
3/8	3/8	2-1/2	1	5552971	5553015	5553059	5553103	5553147	28.48
1/2	1/2	3	1	5552982	5553026	5553070	5553114	5553158	47.15

DRILLS



4 FLUTE - SINGLE END

60° • 82° • 90° • 100° • 120°

ALTIN COATED

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	1-1/2	1	5553169	5553213	5553257	5553301	5553345	12.97
1/4	1/4	2-1/2	1	5553180	5553224	5553268	5553312	5553356	22.79
3/8	3/8	2-1/2	1	5553191	5553235	5553279	5553323	5553367	35.60
1/2	1/2	3	1	5553202	5553246	5553290	5553334	5553378	58.98

REAMERS

BURS

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

Carbide Chamfer Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	2	1	5553389	5553455	5553521	5553587	5553653	18.67
3/16	3/16	2-1/2	1	5553400	5553466	5553532	5553598	5553664	25.71
1/4	1/4	2-1/2	1	5553411	5553477	5553543	5553609	5553675	32.86
5/16	5/16	2-1/2	1	5553422	5553488	5553554	5553620	5553686	42.07
3/8	3/8	2-1/2	1	5553433	5553499	5553565	5553631	5553697	51.27
1/2	1/2	3	1	5553444	5553510	5553576	5553642	5553708	84.86



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

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	2	1	5553719	5553785	5553851	5553917	5553983	23.35
3/16	3/16	2-1/2	1	5553730	5553796	5553862	5553928	5553994	32.13
1/4	1/4	2-1/2	1	5553741	5553807	5553873	5553939	5554005	41.01
5/16	5/16	2-1/2	1	5553752	5553818	5553884	5553950	5554016	52.55
3/8	3/8	2-1/2	1	5553763	5553829	5553895	5553961	5554027	64.15
1/2	1/2	3	1	5553774	5553840	5553906	5553972	5554038	106.18



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

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	2	1	5554049	5554115	5554181	5554247	5554313	18.67
3/16	3/16	2-1/2	1	5554060	5554126	5554192	5554258	5554324	25.71
1/4	1/4	2-1/2	1	5554071	5554137	5554203	5554269	5554335	32.86
5/16	5/16	2-1/2	1	5554082	5554148	5554214	5554280	5554346	42.07
3/8	3/8	2-1/2	1	5554093	5554159	5554225	5554291	5554357	51.27
1/2	1/2	3	1	5554104	5554170	5554236	5554302	5554368	84.86



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

DIA	SHANK	OAL	PKG. QTY.	60°- ITEM#	82°- ITEM#	90°- ITEM#	100°- ITEM#	120°- ITEM#	PRICE
1/8	1/8	2	1	5554379	5554445	5554511	5554577	5554643	23.35
3/16	3/16	2-1/2	1	5554390	5554456	5554522	5554588	5554654	32.13
1/4	1/4	2-1/2	1	5554401	5554467	5554533	5554599	5554665	41.01
5/16	5/16	2-1/2	1	5554412	5554478	5554544	5554610	5554676	52.55
3/8	3/8	2-1/2	1	5554423	5554489	5554555	5554621	5554687	64.15
1/2	1/2	3	1	5554434	5554500	5554566	5554632	5554698	106.18

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



Carbide Spot Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



**90° POINT
UNCOATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438686	14.53
3/16	3/16	3/8	2	5438697	17.29
1/4	1/4	3/8	3	5438708	20.99
3/8	3/8	1/2	4	5438719	34.35
1/2	1/2	3/4	4	5438730	55.78
5/8	5/8	1	4	5438741	99.29
3/4	3/4	1	4	5438752	133.31



**120° POINT
UNCOATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438763	14.53
3/16	3/16	3/8	2	5438774	17.29
1/4	1/4	3/8	3	5438785	20.99
3/8	3/8	1/2	4	5438796	34.35
1/2	1/2	3/4	4	5438807	55.78
5/8	5/8	1	4	5438818	99.29
3/4	3/4	1	4	5438829	133.31



**140° POINT
UNCOATED**

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438840	14.53
3/16	3/16	3/8	2	5438851	17.29
1/4	1/4	3/8	3	5438862	20.99
3/8	3/8	1/2	4	5438873	34.35
1/2	1/2	3/4	4	5438884	55.78
5/8	5/8	1	4	5438895	99.29
3/4	3/4	1	4	5438906	133.31

For technical information, please see page 231.

Carbide Spot Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



90° POINT
ALTiN COATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438753	18.16
3/16	3/16	3/8	2	5438754	21.61
1/4	1/4	3/8	3	5438755	26.36
3/8	3/8	1/2	4	5438756	41.72
1/2	1/2	3/4	4	5438757	72.61
5/8	5/8	1	4	5438758	126.94
3/4	3/4	1	4	5438759	166.65



120° POINT
ALTiN COATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438830	18.16
3/16	3/16	3/8	2	5438831	21.61
1/4	1/4	3/8	3	5438832	26.36
3/8	3/8	1/2	4	5438833	41.72
1/2	1/2	3/4	4	5438834	72.61
5/8	5/8	1	4	5438835	126.94
3/4	3/4	1	4	5438836	166.65



140° POINT
ALTiN COATED

DIA	SHANK	FL LENGTH	OAL	ITEM#	PRICE
1/8	1/8	1/4	2	5438907	18.16
3/16	3/16	3/8	2	5438908	21.61
1/4	1/4	3/8	3	5438909	26.36
3/8	3/8	1/2	4	5438910	41.72
1/2	1/2	3/4	4	5438911	72.61
5/8	5/8	1	4	5438912	126.94
3/4	3/4	1	4	5438913	166.65

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

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



Carbide Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

STUB LENGTH - 135° SPLIT POINT - 15° HELIX

UNCOATED



ALTIN COATED



FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE
1/32	3/8	1-1/2	5441469	8.70	5517358	10.88
3/64	3/8	1-1/2	5441480	8.70	5517369	10.88
1/16	13/32	1-1/2	5441491	8.22	5517380	10.27
5/64	7/16	1-1/2	5441502	8.70	5517391	10.88
3/32	1/2	1-1/2	5441513	9.59	5517402	11.98
7/64	5/8	2	5441524	10.88	5517413	13.60
1/8	3/4	2	5441535	11.62	5517424	14.51
9/64	3/4	2	5441546	12.87	5517435	16.07
5/32	7/8	2	5441557	14.41	5517446	18.00
11/64	7/8	2	5441568	17.02	5517457	21.28
3/16	7/8	2	5441579	17.50	5517468	21.88
13/64	1-1/8	2-1/2	5441590	20.22	5517479	25.27
7/32	1-1/8	2-1/2	5441601	22.44	5517490	28.05
15/64	1-1/4	2-1/2	5441612	25.39	5517501	31.74
1/4	1-1/4	2-1/2	5441623	26.68	5517512	33.35
17/64	1-1/4	2-1/2	5441634	30.08	5517523	37.58

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE
9/32	1-1/4	2-1/2	5441645	31.33	5517534	39.16
19/64	1-1/4	2-1/2	5441656	35.19	5517545	44.01
5/16	1-1/4	2-1/2	5441667	37.06	5517556	46.30
21/64	1-3/8	3	5441678	40.42	5517567	50.53
11/32	1-3/8	3	5441689	44.20	5517578	55.23
23/64	1-3/8	3	5441700	49.41	5517589	61.75
3/8	1-3/8	3	5441711	52.40	5517600	65.50
25/64	1-3/8	3	5441722	61.37	5517611	76.71
13/32	1-3/8	3	5441733	67.21	5517622	84.02
27/64	1-3/8	3	5441744	73.11	5517633	91.39
7/16	1-3/8	3	5441755	76.47	5517644	95.59
29/64	1-3/8	3	5441766	88.72	5517655	110.91
15/32	1-3/8	3	5441777	92.45	5517666	115.56
31/64	1-3/8	3	5441788	95.05	5517677	118.82
1/2	1-3/8	3	5441799	95.26	5517688	119.07

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

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE
A	1-1/4	2-1/2	5441810	25.62	5517699	32.03
B	1-1/4	2-1/2	5441821	26.68	5517710	33.35
C	1-1/4	2-1/2	5441832	26.88	5517721	33.60
D	1-1/4	2-1/2	5441843	27.22	5517732	34.01
E	1-1/4	2-1/2	5441854	26.68	5517743	33.35
F	1-1/4	2-1/2	5441865	29.69	5517754	37.10
G	1-1/4	2-1/2	5441876	31.47	5517765	39.34
H	1-1/4	2-1/2	5441887	32.14	5517776	40.19
I	1-1/4	2-1/2	5441898	32.68	5517787	40.86
J	1-1/4	2-1/2	5441909	33.55	5517798	41.94
K	1-1/4	2-1/2	5441920	33.85	5517809	42.31
L	1-1/4	2-1/2	5441931	35.78	5517820	44.72
M	1-1/4	2-1/2	5441942	36.50	5517831	45.65

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE
N	1-1/4	2-1/2	5441953	38.80	5517842	48.48
O	1-3/8	3	5441964	40.90	5517853	51.13
P	1-3/8	3	5441975	42.46	5517864	53.07
Q	1-3/8	3	5441986	44.01	5517875	55.00
R	1-3/8	3	5441997	45.94	5517886	57.41
S	1-3/8	3	5442008	48.93	5517897	61.18
T	1-3/8	3	5442019	50.68	5517908	63.36
U	1-3/8	3	5442030	53.19	5517919	66.48
V	1-3/8	3	5442041	58.90	5517930	73.61
W	1-3/8	3	5442052	63.43	5517941	79.29
X	1-3/8	3	5442063	69.24	5517952	86.54
Y	1-3/8	3	5442074	71.56	5517963	89.44
Z	1-3/8	3	5442085	77.55	5517974	96.92

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

DIAMETER TOLERANCE +.0000, -.0005

Carbide Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



STUB LENGTH - 135° SPLIT POINT - 15° HELIX

UNCOATED



ALTIM COATED



WIRE SIZES						WIRE SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIM	PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIM	PRICE
1	1-1/4	2-1/2	5442096	23.21	5517985	29.02	31	3/4	2	5442426	11.33	5518315	14.14
2	1-1/4	2-1/2	5442107	23.21	5517996	29.02	32	3/4	2	5442437	11.33	5518326	14.14
3	1-1/8	2-1/2	5442118	23.21	5518007	29.02	33	3/4	2	5442448	11.21	5518337	14.03
4	1-1/8	2-1/2	5442129	22.96	5518018	28.71	34	3/4	2	5442459	11.11	5518348	13.89
5	1-1/8	2-1/2	5442140	20.51	5518029	25.62	35	3/4	2	5442470	11.11	5518359	13.89
6	1-1/8	2-1/2	5442151	20.51	5518040	25.62	36	5/8	2	5442481	11.11	5518370	13.89
7	1-1/8	2-1/2	5442162	19.91	5518051	24.89	37	5/8	2	5442492	10.54	5518381	13.18
8	1-1/8	2-1/2	5442173	19.83	5518062	24.79	38	5/8	2	5442503	10.34	5518392	12.93
9	1-1/8	2-1/2	5442184	19.83	5518073	24.79	39	5/8	2	5442514	10.34	5518403	12.93
10	1-1/8	2-1/2	5442195	19.83	5518084	24.79	40	5/8	2	5442525	9.96	5518414	12.46
11	1-1/8	2-1/2	5442206	19.33	5518095	24.17	41	5/8	2	5442536	9.96	5518425	12.46
12	1-1/8	2-1/2	5442217	19.33	5518106	24.17	42	1/2	1-1/2	5442547	9.69	5518436	12.10
13	7/8	2	5442228	18.66	5518117	23.33	43	1/2	1-1/2	5442558	9.69	5518447	12.10
14	7/8	2	5442239	18.19	5518128	22.75	44	1/2	1-1/2	5442569	9.19	5518458	11.48
15	7/8	2	5442250	17.91	5518139	22.36	45	1/2	1-1/2	5442580	8.90	5518469	11.11
16	7/8	2	5442261	17.91	5518150	22.36	46	1/2	1-1/2	5442591	8.90	5518480	11.11
17	7/8	2	5442272	17.02	5518161	21.28	47	1/2	1-1/2	5442602	8.90	5518491	11.11
18	7/8	2	5442283	16.00	5518172	20.01	48	7/16	1-1/2	5442613	8.90	5518502	11.11
19	7/8	2	5442294	15.67	5518183	19.58	49	7/16	1-1/2	5442624	8.51	5518513	10.63
20	7/8	2	5442305	14.99	5518194	18.75	50	7/16	1-1/2	5442635	8.51	5518524	10.63
21	7/8	2	5442316	14.99	5518205	18.75	51	7/16	1-1/2	5442646	8.22	5518535	10.27
22	7/8	2	5442327	14.41	5518216	18.00	52	7/16	1-1/2	5442657	8.22	5518546	10.27
23	7/8	2	5442338	14.41	5518227	18.00	53	13/32	1-1/2	5442668	8.70	5518557	10.88
24	7/8	2	5442349	14.32	5518238	17.91	54	13/32	1-1/2	5442679	8.70	5518568	10.88
25	7/8	2	5442360	13.55	5518249	16.92	55	13/32	1-1/2	5442690	8.70	5518579	10.88
26	7/8	2	5442371	13.55	5518260	16.92	56	3/8	1-1/2	5442701	8.70	5518590	10.88
27	7/8	2	5442382	13.55	5518271	16.92	57	3/8	1-1/2	5442712	8.70	5518601	10.88
28	3/4	2	5442393	12.87	5518282	16.07	58	3/8	1-1/2	5442723	8.70	5518612	10.88
29	3/4	2	5442404	12.87	5518293	16.07	59	3/8	1-1/2	5442734	8.70	5518623	10.88
30	3/4	2	5442415	12.18	5518304	15.22	60	3/8	1-1/2	5442745	8.70	5518634	10.88

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX

UNCOATED



ALTiN COATED



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

FRACTIONAL SIZES						FRACTIONAL SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE		SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE			
1/32	5/16	1-1/4	5438917	8.18	5527324	10.23	9/32	2-1/8	3-1/2	5439093	29.50	5527500	36.89
3/64	3/4	1-1/2	5438928	8.18	5527335	10.23	19/64	2-3/8	3-3/4	5439104	33.15	5527511	41.42
1/16	3/4	1-1/2	5438939	7.74	5527346	9.66	5/16	2-3/8	3-3/4	5439115	34.86	5527522	43.56
5/64	7/8	1-3/4	5438950	8.18	5527357	10.23	21/64	2-1/2	4	5439126	38.05	5527533	47.56
3/32	1	2	5438961	9.01	5527368	11.27	11/32	2-1/2	4	5439137	41.60	5527544	51.99
7/64	1-1/4	2-1/4	5438972	10.25	5527379	12.81	23/64	2-3/4	4-1/4	5439148	46.51	5527555	58.15
1/8	1-1/4	2-1/4	5438983	10.92	5527390	13.66	3/8	2-3/4	4-1/4	5439159	49.33	5527566	61.66
9/64	1-3/8	2-1/2	5438994	12.10	5527401	15.13	25/64	2-7/8	4-1/2	5439170	57.76	5527577	72.19
5/32	1-3/8	2-1/2	5439005	13.56	5527412	16.95	13/32	2-7/8	4-1/2	5439181	63.26	5527588	79.08
11/64	1-5/8	2-3/4	5439016	16.01	5527423	20.02	27/64	2-7/8	4-1/2	5439192	68.80	5527599	85.99
3/16	1-5/8	2-3/4	5439027	16.48	5527434	20.59	7/16	2-7/8	4-1/2	5439203	71.97	5527610	90.00
13/64	1-3/4	3	5439038	19.02	5527445	23.79	29/64	3	4-3/4	5439214	83.52	5527621	104.39
7/32	1-3/4	3	5439049	21.11	5527456	26.39	15/32	3	4-3/4	5439225	87.01	5527632	108.75
15/64	2	3-1/4	5439060	23.90	5527467	29.87	31/64	3	4-3/4	5439236	89.46	5527643	111.84
1/4	2	3-1/4	5439071	25.12	5527478	31.39	1/2	3	4-3/4	5439247	89.65	5527654	112.07
17/64	2-1/8	3-1/2	5439082	28.28	5527489	35.36							

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

METRIC SIZES						METRIC SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE		SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE			
0.7	12	31	5516775	10.16	5528611	12.72	3.0	32	57	5517028	14.01	5528864	17.50
0.8	12	31	5516786	10.16	5528622	12.72	3.1	32	57	5517039	14.01	5528875	17.50
0.9	16	38	5516797	10.16	5528633	12.72	3.2	32	57	5517050	14.01	5528886	17.50
1.0	16	38	5516808	10.16	5528644	12.72	3.3	32	57	5517061	14.01	5528897	17.50
1.1	19	38	5516819	10.16	5528655	12.72	3.4	35	63	5517072	15.20	5528908	19.02
1.2	19	38	5516830	10.16	5528666	12.72	3.5	35	63	5517083	15.20	5528919	19.02
1.3	19	38	5516841	10.16	5528677	12.72	4.0	35	63	5517094	18.72	5528930	23.38
1.4	19	38	5516852	10.16	5528688	12.72	4.5	41	70	5517105	20.05	5528941	25.06
1.5	19	38	5516863	10.25	5528699	12.81	5.0	44	75	5517116	22.17	5528952	27.72
1.6	19	38	5516874	10.25	5528710	12.81	5.5	44	75	5517127	26.26	5528963	32.82
1.7	19	38	5516885	10.25	5528721	12.81	6.0	50	82	5517138	27.76	5528974	34.69
1.8	22	38	5516896	10.25	5528732	12.81	6.5	50	82	5517149	44.22	5528985	55.27
1.9	22	38	5516907	10.25	5528743	12.81	7.0	54	89	5517160	48.42	5528996	60.54
2.0	22	44	5516918	10.88	5528754	13.60	7.5	60	95	5517171	50.01	5529007	62.51
2.1	22	44	5516929	10.88	5528765	13.60	8.0	60	95	5517182	52.90	5529018	66.11
2.2	25	50	5516940	10.88	5528776	13.60	8.5	63	100	5517193	65.30	5529029	81.63
2.3	25	50	5516951	10.88	5528787	13.60	9.0	70	100	5517204	74.14	5529040	92.68
2.4	25	50	5516962	10.88	5528798	13.60	9.5	70	108	5517215	84.60	5529051	105.76
2.5	25	50	5516973	12.50	5528809	15.63	10.0	73	114	5517226	97.15	5529062	121.44
2.6	32	57	5516984	12.50	5528820	15.63	10.5	73	114	5517237	108.65	5529073	135.82
2.7	32	57	5516995	12.50	5528831	15.63	11.0	73	114	5517248	129.28	5529084	161.60
2.8	32	57	5517006	12.50	5528842	15.63	11.5	76	120	5517259	133.15	5529095	166.45
2.9	32	57	5517017	12.50	5528853	15.63	12.0	76	120	5517270	147.78	5529106	184.74

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

Carbide Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



JOBBER LENGTH - 118° SPLIT POINT - 25° HELIX

UNCOATED



ALTiN COATED



LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE	
A	2	3-1/4	5439258	24.12	5527665 30.14
B	2	3-1/4	5439269	25.12	5527676 31.39
C	2	3-1/4	5439280	25.31	5527687 31.64
D	2	3-1/4	5439291	25.62	5527698 32.03
E	2	3-1/4	5439302	25.12	5527709 31.39
F	2	3-1/4	5439313	29.82	5527720 34.92
G	2-1/8	3-1/2	5439324	32.25	5527731 37.02
H	2-1/8	3-1/2	5439335	33.10	5527742 37.83
I	2-1/8	3-1/2	5439346	33.74	5527753 38.45
J	2-1/8	3-1/2	5439357	35.87	5527764 39.49
K	2-1/8	3-1/2	5439368	35.95	5527775 39.82
L	2-1/8	3-1/2	5439379	36.10	5527786 42.10
M	2-3/8	3-3/4	5439390	36.32	5527797 42.95

LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE	
N	2-3/8	3-3/4	5439401	39.85	5527808 45.65
O	2-3/8	3-3/4	5439412	42.15	5527819 48.12
P	2-3/8	3-3/4	5439423	43.56	5527830 49.95
Q	2-1/2	4	5439434	46.26	5527841 51.76
R	2-1/2	4	5439445	47.68	5527852 54.04
S	2-1/2	4	5439456	50.90	5527863 57.57
T	2-3/4	4-1/4	5439467	52.68	5527874 59.61
U	2-3/4	4-1/4	5439478	55.23	5527885 62.57
V	2-3/4	4-1/4	5439489	59.85	5527896 69.30
W	2-7/8	4-1/2	5439500	62.86	5527907 74.64
X	2-7/8	4-1/2	5439511	68.68	5527918 81.45
Y	2-7/8	4-1/2	5439522	70.91	5527929 84.19
Z	2-7/8	4-1/2	5439533	88.01	5527940 91.23

WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE	
1	1-3/4	3	5439544	21.86	5527951 27.32
2	1-3/4	3	5439555	21.86	5527962 27.32
3	1-3/4	3	5439566	21.86	5527973 27.32
4	1-3/4	3	5439577	21.63	5527984 27.03
5	1-3/4	3	5439588	19.29	5527995 24.14
6	1-3/4	3	5439599	19.29	5528006 24.14
7	1-3/4	3	5439610	18.75	5528017 23.44
8	1-3/4	3	5439621	18.66	5528028 23.33
9	1-3/4	3	5439632	18.66	5528039 23.33
10	1-5/8	2-3/4	5439643	18.66	5528050 23.33
11	1-5/8	2-3/4	5439654	18.21	5528061 22.75
12	1-5/8	2-3/4	5439665	18.21	5528072 22.75
13	1-5/8	2-3/4	5439676	17.56	5528083 21.96
14	1-5/8	2-3/4	5439687	17.11	5528094 21.40
15	1-5/8	2-3/4	5439698	16.84	5528105 21.05
16	1-5/8	2-3/4	5439709	16.84	5528116 21.05
17	1-5/8	2-3/4	5439720	16.01	5528127 20.02
18	1-5/8	2-3/4	5439731	15.07	5528138 18.83
19	1-5/8	2-3/4	5439742	14.74	5528149 18.43
20	1-3/8	2-1/2	5439753	14.10	5528160 17.64
21	1-3/8	2-1/2	5439764	14.10	5528171 17.64
22	1-3/8	2-1/2	5439775	13.56	5528182 16.95
23	1-3/8	2-1/2	5439786	13.56	5528193 16.95
24	1-3/8	2-1/2	5439797	13.47	5528204 16.84
25	1-3/8	2-1/2	5439808	12.74	5528215 15.94
26	1-3/8	2-1/2	5439819	12.74	5528226 15.94
27	1-3/8	2-1/2	5439830	12.74	5528237 15.94
28	1-3/8	2-1/2	5439841	12.10	5528248 15.13
29	1-3/8	2-1/2	5439852	12.10	5528259 15.13
30	1-1/4	2-1/4	5439863	11.46	5528270 14.34

WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTiN PRICE	
31	1-1/4	2-1/4	5439874	10.65	5528281 13.31
32	1-1/4	2-1/4	5439885	10.65	5528292 13.31
33	1-1/4	2-1/4	5439896	10.56	5528303 13.20
34	1-1/4	2-1/4	5439907	10.48	5528314 13.08
35	1-1/4	2-1/4	5439918	10.48	5528325 13.08
36	1-1/4	2-1/4	5439929	10.48	5528336 13.08
37	1-1/4	2-1/4	5439940	9.91	5528347 12.41
38	1-1/4	2-1/4	5439951	9.74	5528358 12.18
39	1-1/4	2-1/4	5439962	9.74	5528369 12.18
40	1	2	5439973	9.38	5528380 11.71
41	1	2	5439984	9.38	5528391 11.71
42	1	2	5439995	9.11	5528402 11.38
43	1	2	5440006	9.11	5528413 11.38
44	1	2	5440017	8.65	5528424 10.81
45	7/8	1-3/4	5440028	8.39	5528435 10.48
46	7/8	1-3/4	5440039	8.39	5528446 10.48
47	7/8	1-3/4	5440050	8.39	5528457 10.48
48	7/8	1-3/4	5440061	8.39	5528468 10.48
49	7/8	1-3/4	5440072	8.01	5528479 10.01
50	7/8	1-3/4	5440083	8.01	5528490 10.01
51	3/4	1-1/2	5440094	7.74	5528501 9.66
52	3/4	1-1/2	5440105	7.74	5528512 9.66
53	3/4	1-1/2	5440116	8.18	5528523 10.23
54	3/4	1-1/2	5440127	8.18	5528534 10.23
55	3/4	1-1/2	5440138	8.18	5528545 10.23
56	3/4	1-1/2	5440149	8.18	5528556 10.23
57	3/4	1-1/2	5440160	8.18	5528567 10.23
58	3/4	1-1/2	5440171	8.18	5528578 10.23
59	3/4	1-1/2	5440182	8.18	5528589 10.23
60	3/4	1-1/2	5440193	8.18	5528600 10.23

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

STRAIGHT FLUTE - 140° SPLIT POINT

UNCOATED



ALTIM COATED



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTIM PRICE		SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTIM PRICE	
1/8	3/4	2	5440270 12.74	5529183 15.92		5/16	1-1/4	2-1/2	5440402 38.60	5529315 48.25	
9/64	3/4	2	5440281 14.57	5529194 18.19		21/64	1-3/8	3	5440413 41.50	5529326 51.86	
5/32	7/8	2	5440292 16.30	5529205 20.39		11/32	1-3/8	3	5440424 46.03	5529337 57.53	
11/64	7/8	2	5440303 18.10	5529216 22.61		23/64	1-3/8	3	5440435 50.35	5529348 62.95	
3/16	7/8	2	5440314 16.70	5529227 20.88		3/8	1-3/8	3	5440446 49.93	5529359 62.41	
13/64	1-1/8	2-1/2	5440325 21.72	5529238 27.18		25/64	1-3/8	3	5440457 61.75	5529370 77.19	
7/32	1-1/8	2-1/2	5440336 24.41	5529249 30.52		13/32	1-3/8	3	5440468 59.09	5529381 73.87	
15/64	1-1/4	2-1/2	5440347 25.76	5529260 32.20		27/64	1-3/8	3	5440479 74.93	5529392 93.64	
1/4	1-1/4	2-1/2	5440358 24.37	5529271 30.46		7/16	1-3/8	3	5440490 73.08	5529403 91.35	
17/64	1-1/4	2-1/2	5440369 33.88	5529282 42.33		15/32	1-3/8	3	5440501 81.32	5529414 101.65	
9/32	1-1/4	2-1/2	5440380 35.21	5529293 44.03		1/2	1-3/8	3	5440512 88.11	5529425 110.14	
19/64	1-1/4	2-1/2	5440391 37.27	5529304 46.59							

LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTIM PRICE		SIZE	FLUTE LENGTH	OAL	UNCOATED PRICE	ALTIM PRICE	
A	1-1/4	2-1/2	5440523 25.76	5529436 32.20		N	1-1/4	2-1/2	5440666 38.60	5529579 48.25	
B	1-1/4	2-1/2	5440534 25.76	5529447 32.20		O	1-3/8	3	5440677 38.60	5529590 48.25	
C	1-1/4	2-1/2	5440545 25.76	5529458 32.20		P	1-3/8	3	5440688 41.50	5529601 51.88	
D	1-1/4	2-1/2	5440556 25.76	5529469 32.20		Q	1-3/8	3	5440699 46.03	5529612 57.53	
E	1-1/4	2-1/2	5440567 24.37	5529480 30.46		R	1-3/8	3	5440710 46.03	5529623 57.53	
F	1-1/4	2-1/2	5440578 33.88	5529491 42.33		S	1-3/8	3	5440721 50.35	5529634 62.95	
G	1-1/4	2-1/2	5440589 33.88	5529502 42.33		T	1-3/8	3	5440732 50.35	5529645 62.95	
H	1-1/4	2-1/2	5440600 33.88	5529513 42.33		U	1-3/8	3	5440743 55.85	5529656 69.80	
I	1-1/4	2-1/2	5440611 35.21	5529524 44.03		V	1-3/8	3	5440754 55.85	5529667 69.80	
J	1-1/4	2-1/2	5440622 35.21	5529535 44.03		W	1-3/8	3	5440765 61.75	5529678 77.19	
K	1-1/4	2-1/2	5440633 35.21	5529546 44.03		X	1-3/8	3	5440776 68.33	5529689 85.43	
L	1-1/4	2-1/2	5440644 37.27	5529557 46.59		Y	1-3/8	3	5440787 71.63	5529700 89.53	
M	1-1/4	2-1/2	5440655 37.27	5529568 46.59		Z	1-3/8	3	5440798 74.93	5529711 93.64	

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

DIAMETER TOLERANCE +.0000, -.0005

Carbide Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



STRAIGHT FLUTE - 140° SPLIT POINT

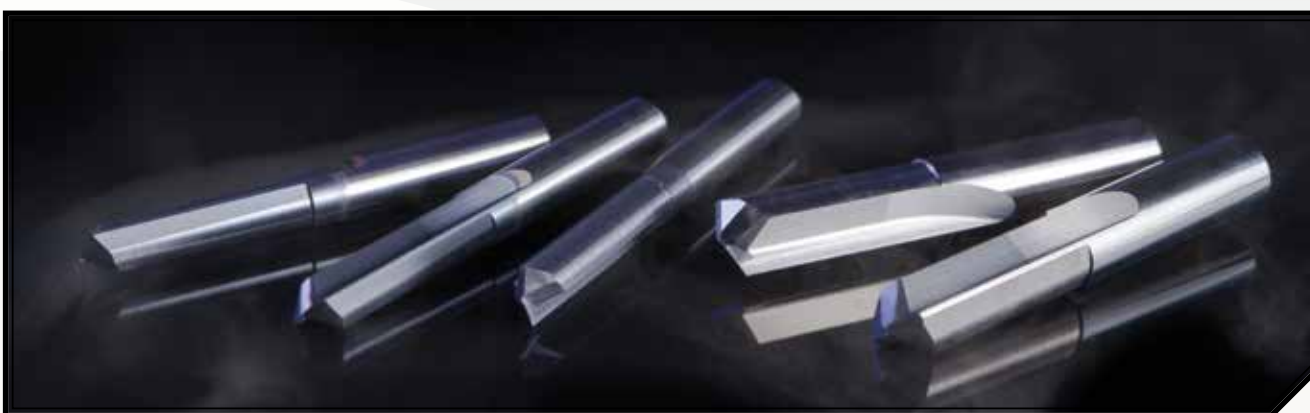
UNCOATED



ALTIN COATED



WIRE SIZES						WIRE SIZES							
SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE	SIZE	FLUTE LENGTH	OAL	UNCOATED	PRICE	ALTIN	PRICE
1	1-1/4	2-1/2	5440809	25.06	5529722	31.33	16	7/8	2	5440974	18.73	5529887	23.42
2	1-1/4	2-1/2	5440820	24.62	5529733	30.77	17	7/8	2	5440985	18.29	5529898	22.86
3	1-1/8	2-1/2	5440831	23.63	5529744	29.54	18	7/8	2	5440996	17.77	5529909	22.21
4	1-1/8	2-1/2	5440842	22.32	5529755	27.90	19	7/8	2	5441007	17.65	5529920	22.07
5	1-1/8	2-1/2	5440853	22.57	5529766	28.21	20	7/8	2	5441018	17.06	5529931	21.32
6	1-1/8	2-1/2	5440864	22.25	5529777	27.80	21	7/8	2	5441029	16.94	5529942	21.18
7	1-1/8	2-1/2	5440875	21.42	5529788	26.78	22	7/8	2	5441040	16.61	5529953	20.78
8	1-1/8	2-1/2	5440886	21.11	5529799	26.37	23	7/8	2	5441051	15.92	5529964	19.89
9	1-1/8	2-1/2	5440897	20.47	5529810	25.58	24	7/8	2	5441062	15.47	5529975	19.35
10	1-1/8	2-1/2	5440908	20.16	5529821	25.22	25	7/8	2	5441073	15.01	5529986	18.77
11	1-1/8	2-1/2	5440919	19.82	5529832	24.75	26	7/8	2	5441084	14.84	5529997	18.54
12	1-1/8	2-1/2	5440930	19.45	5529843	24.31	27	7/8	2	5441095	14.55	5530008	18.19
13	7/8	2	5440941	19.12	5529854	23.89	28	3/4	2	5441106	14.07	5530019	17.56
14	7/8	2	5440952	18.99	5529865	23.75	29	3/4	2	5441117	13.76	5530030	17.19
15	7/8	2	5440963	18.81	5529876	23.50	30	3/4	2	5441128	13.55	5530041	16.94



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.0400	N60	.0400	1-1/2	1/4	4	5457353	21.30
.0410	N59	.0410	1-1/2	3/8	4	5457364	21.30
.0420	N58	.0420	1-1/2	3/8	4	5457375	21.30
.0430	N57	.0430	1-1/2	3/8	4	5457386	21.30
.0440	-	.0440	1-1/2	3/8	4	5457397	22.51
.0450	-	.0450	1-1/2	3/8	4	5457408	22.51
.0460	-	.0460	1-1/2	3/8	4	5457419	22.51
.0465	N56	.0465	1-1/2	3/8	4	5457430	21.30
.0469	3/64	.0469	1-1/2	3/8	4	5457441	20.24
.0470	-	.0470	1-1/2	3/8	4	5457452	22.51
.0480	-	.0480	1-1/2	3/8	4	5457463	22.51
.0490	-	.0490	1-1/2	3/8	4	5457474	22.51
.0500	-	.0500	1-1/2	3/8	4	5457485	22.51
.0510	-	.0510	1-1/2	3/8	4	5457496	22.51
.0520	N55	.0520	1-1/2	3/8	4	5457507	21.30
.0530	-	.0530	1-1/2	3/8	4	5457518	22.51
.0540	-	.0540	1-1/2	3/8	4	5457529	22.51
.0550	N54	.0550	1-1/2	3/8	4	5457540	21.30
.0560	-	.0560	1-1/2	3/8	4	5457551	22.51
.0570	-	.0570	1-1/2	3/8	4	5457562	22.51
.0580	-	.0580	1-1/2	3/8	4	5457573	22.51
.0590	-	.0590	1-1/2	3/8	4	5457584	22.51
.0591	1.5MM	.0591	1-1/2	3/8	4	5457595	22.51
.0595	N53	.0595	1-1/2	3/8	4	5457606	21.30
.0600	-	.0600	1-1/2	3/8	4	5457617	22.51
.0605	-	.0605	1-1/2	3/8	4	5457628	29.93
.0610	-	.0610	1-1/2	3/8	4	5457639	22.51
.0615	-	.0615	1-1/2	3/8	4	5457650	24.89
.0620	-	.0620	1-1/2	3/8	4	5457661	22.51
.0625	1/16	.0625	1-1/2	3/8	4	5457672	20.24
.0630	-	.0630	1-1/2	3/8	4	5457683	22.51
.0635	N52	.0635	1-1/2	3/8	4	5457694	21.30
.0640	-	.0640	1-1/2	3/8	4	5457705	22.51
.0645	-	.0645	1-1/2	3/8	4	5457716	29.93
.0650	-	.0650	1-1/2	3/8	4	5457727	22.51
.0660	-	.0660	1-3/4	1/2	4	5457738	22.51
.0670	N51	.0670	1-3/4	1/2	4	5457749	21.30
.0680	-	.0680	1-3/4	1/2	4	5457760	22.51
.0690	-	.0690	1-3/4	1/2	4	5457771	22.51
.0700	N50	.0700	1-3/4	1/2	4	5457782	21.30

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.0710	-	.0710	1-3/4	1/2	4	5457793	22.51
.0720	-	.0720	1-3/4	1/2	4	5457804	22.51
.0730	N49	.0730	1-3/4	1/2	4	5457815	21.30
.0740	-	.0740	1-3/4	1/2	4	5457826	22.51
.0750	-	.0750	1-3/4	1/2	4	5457837	22.51
.0760	N48	.0760	1-3/4	1/2	4	5457848	21.30
.0770	-	.0770	1-3/4	1/2	4	5457859	22.51
.0780	-	.0780	1-3/4	1/2	4	5457870	22.51
.0781	5/64	.0781	1-3/4	1/2	4	5457881	20.24
.0785	N47	.0785	1-3/4	1/2	4	5457892	21.30
.0787	2MM	.0787	1-3/4	1/2	4	5457903	22.51
.0790	-	.0790	1-3/4	1/2	4	5457914	22.51
.0800	-	.0800	1-3/4	1/2	4	5457925	22.51
.0810	N46	.0810	2	1/2	4	5457936	21.30
.0820	N45	.0820	2	1/2	4	5457947	21.30
.0830	-	.0830	2	1/2	4	5457958	22.51
.0840	-	.0840	2	1/2	4	5457969	22.51
.0850	-	.0850	2	1/2	4	5457980	22.51
.0860	N44	.0860	2	1/2	4	5457991	21.30
.0870	-	.0870	2	1/2	4	5458002	22.51
.0880	-	.0880	2	1/2	4	5458013	22.51
.0890	N43	.0890	2	1/2	4	5458024	21.30
.0900	-	.0900	2	1/2	4	5458035	22.51
.0910	-	.0910	2	1/2	4	5458046	22.51
.0915	-	.0915	2	1/2	4	5458057	29.69
.0920	-	.0920	2	1/2	4	5458068	22.51
.0925	-	.0925	2	1/2	4	5458079	24.89
.0930	-	.0930	2	1/2	4	5458090	22.51
.0935	N42	.0935	2	1/2	4	5458101	21.30
.0938	3/32	.0938	2	1/2	4	5458112	20.24
.0940	-	.0940	2	1/2	4	5458123	22.51
.0945	-	.0945	2	1/2	4	5458134	24.89
.0950	-	.0950	2	1/2	4	5458145	22.51
.0960	N41	.0960	2	5/8	4	5458156	21.30
.0970	-	.0970	2	5/8	4	5458167	22.51
.0980	N40	.0980	2	5/8	4	5458178	21.30
.0984	2.5MM	.0984	2	5/8	4	5458189	22.51
.0990	-	.0990	2-1/4	5/8	4	5458200	22.51
.0995	N39	.0995	2-1/4	5/8	4	5458211	21.30
.1000	-	.1000	2-1/4	5/8	4	5458222	22.51

For technical information, please see page 240.

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Carbide Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.1010	-	.1010	2-1/4	5/8	4	5458233	22.51
.1015	N38	.1015	2-1/4	5/8	4	5458244	21.30
.1020	-	.1020	2-1/4	5/8	4	5458255	22.51
.1030	-	.1030	2-1/4	5/8	4	5458266	22.51
.1040	N37	.1040	2-1/4	5/8	4	5458277	21.30
.1050	-	.1050	2-1/4	5/8	4	5458288	22.51
.1060	-	.1060	2-1/4	5/8	4	5458299	22.51
.1065	N36	.1065	2-1/4	5/8	4	5458310	21.30
.1070	-	.1070	2-1/4	5/8	4	5458321	22.51
.1080	-	.1080	2-1/4	5/8	4	5458332	22.51
.1090	-	.1090	2-1/4	5/8	4	5458343	23.45
.1094	7/64	.1094	2-1/4	5/8	4	5458354	20.24
.1100	N35	.1100	2-1/4	5/8	4	5458365	21.30
.1110	N34	.1110	2-1/4	5/8	4	5458376	21.30
.1120	-	.1120	2-1/4	5/8	4	5458387	22.51
.1130	N33	.1130	2-1/4	5/8	4	5458398	21.30
.1140	-	.1140	2-1/4	5/8	4	5458409	22.51
.1150	-	.1150	2-1/4	5/8	4	5458420	22.51
.1160	N32	.1160	2-1/4	5/8	4	5458431	22.41
.1170	-	.1170	2-1/4	5/8	4	5458442	23.83
.1180	-	.1180	2-1/4	5/8	4	5458453	23.83
.1181	3MM	.1181	2-1/4	5/8	4	5458464	21.91
.1190	-	.1190	2-1/4	5/8	4	5458475	23.83
.1200	N31	.1200	2-1/4	5/8	4	5458486	22.41
.1210	-	.1210	2-1/4	5/8	4	5458497	23.83
.1220	-	.1220	2-1/4	5/8	4	5458508	23.83
.1230	-	.1230	2-1/4	5/8	4	5458519	23.83
.1235	-	.1235	2-1/4	5/8	4	5458530	31.73
.1240	-	.1240	2-1/4	5/8	4	5458541	23.83
.1245	-	.1245	2-1/4	5/8	4	5458552	26.34
.1250	1/8	.1250	2-1/4	5/8	4	5458563	21.55
.1255	-	.1255	2-1/4	5/8	4	5458574	26.34
.1260	-	.1260	2-1/4	5/8	4	5458585	23.83
.1265	-	.1265	2-1/4	5/8	4	5458596	31.73
.1270	-	.1270	2-1/4	5/8	4	5458607	23.83
.1275	-	.1275	2-1/4	5/8	4	5458618	31.73
.1280	-	.1280	2-1/4	5/8	4	5458629	23.83
.1285	N30	.1285	2-1/4	5/8	4	5458640	23.83
.1290	-	.1290	2-1/4	5/8	4	5458651	23.83
.1300	-	.1300	2-1/2	5/8	4	5458662	23.83

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.1310	-	.1310	2-1/2	3/4	4	5458673	27.28
.1320	-	.1320	2-1/2	3/4	4	5458684	27.28
.1330	-	.1330	2-1/2	3/4	4	5458695	27.28
.1340	-	.1340	2-1/2	3/4	4	5458706	27.28
.1350	-	.1350	2-1/2	3/4	4	5458717	27.28
.1360	N29	.1360	2-1/2	3/4	4	5458728	25.52
.1370	-	.1370	2-1/2	3/4	4	5458739	27.28
.1378	3.5MM	.1378	2-1/2	3/4	4	5458750	27.28
.1380	-	.1380	2-1/2	3/4	4	5458761	27.28
.1390	-	.1390	2-1/2	3/4	4	5458772	27.28
.1400	-	.1400	2-1/2	3/4	4	5458783	27.28
.1405	N28	.1405	2-1/2	3/4	4	5458794	25.52
.1406	9/64	.1406	2-1/2	3/4	4	5458805	24.55
.1410	-	.1410	2-1/2	3/4	4	5458816	27.28
.1420	-	.1420	2-1/2	3/4	4	5458827	27.28
.1430	-	.1430	2-1/2	3/4	4	5458838	27.28
.1440	N27	.1440	2-1/2	3/4	4	5458849	25.52
.1450	-	.1450	2-1/2	3/4	4	5458860	27.28
.1460	-	.1460	2-1/2	3/4	4	5458871	28.49
.1470	N26	.1470	2-1/2	3/4	4	5458882	26.58
.1480	-	.1480	2-1/2	3/4	4	5458893	28.49
.1490	-	.1490	2-1/2	3/4	4	5458904	28.49
.1495	N25	.1495	2-1/2	3/4	4	5458915	26.58
.1500	-	.1500	2-1/2	3/4	4	5458926	28.49
.1510	-	.1510	2-1/2	3/4	4	5458937	28.49
.1520	N24	.1520	2-1/2	3/4	4	5458948	26.58
.1530	-	.1530	2-1/2	3/4	4	5458959	28.49
.1540	N23	.1540	2-1/2	3/4	4	5458970	26.58
.1545	-	.1545	2-1/2	3/4	4	5458981	32.94
.1550	-	.1550	2-1/2	3/4	4	5458992	28.49
.1555	-	.1555	2-1/2	3/4	4	5459003	32.94
.1560	-	.1560	2-1/2	3/4	4	5459014	28.49
.1562	5/32	.1562	2-1/2	3/4	4	5459025	25.76
.1565	-	.1565	2-1/2	3/4	4	5459036	32.94
.1570	N22	.1570	2-1/2	3/4	4	5459047	26.58
.1575	4MM	.1575	2-1/2	3/4	4	5459058	28.49
.1580	-	.1580	2-1/2	3/4	4	5459069	28.49
.1590	N21	.1590	2-1/2	3/4	4	5459080	26.58
.1600	-	.1600	2-1/2	3/4	4	5459091	28.49
.1610	N20	.1610	2-1/2	7/8	4	5459102	29.93

END MILLS

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For technical information, please see page 240.

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Carbide Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



END MILLS

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DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.1620	-	.1620	2-3/4	7/8	4	5459113	32.08
.1630	-	.1630	2-3/4	7/8	4	5459124	32.08
.1640	-	.1640	2-3/4	7/8	4	5459135	32.08
.1650	-	.1650	2-3/4	7/8	4	5459146	29.93
.1660	N19	.1660	2-3/4	7/8	4	5459157	29.93
.1670	-	.1670	2-3/4	7/8	4	5459168	32.08
.1680	-	.1680	2-3/4	7/8	4	5459179	32.08
.1690	-	.1690	2-3/4	7/8	4	5459190	32.08
.1695	N18	.1695	2-3/4	7/8	4	5459201	29.93
.1700	-	.1700	2-3/4	7/8	4	5459212	32.08
.1710	-	.1710	2-3/4	7/8	4	5459223	32.08
.1719	11/64	.1719	2-3/4	7/8	4	5459234	28.85
.1720	-	.1720	2-3/4	7/8	4	5459245	32.08
.1730	N17	.1730	2-3/4	7/8	4	5459256	29.93
.1740	-	.1740	2-3/4	7/8	4	5459267	32.08
.1750	-	.1750	2-3/4	7/8	4	5459278	32.08
.1760	-	.1760	2-3/4	7/8	4	5459289	32.08
.1770	N16	.1770	2-3/4	7/8	4	5459300	29.93
.1772	4.5MM	.1772	2-3/4	7/8	4	5459311	33.40
.1780	-	.1780	2-3/4	7/8	4	5459322	32.08
.1790	-	.1790	2-3/4	7/8	4	5459333	32.08
.1800	N15	.1800	2-3/4	7/8	4	5459344	29.93
.1810	-	.1810	2-3/4	7/8	4	5459355	32.08
.1820	N14	.1820	2-3/4	7/8	4	5459366	29.93
.1830	-	.1830	2-3/4	7/8	4	5459377	32.08
.1840	-	.1840	2-3/4	7/8	4	5459388	32.08
.1850	N13	.1850	2-3/4	7/8	4	5459399	29.93
.1855	-	.1855	2-3/4	7/8	4	5459410	38.55
.1860	-	.1860	2-3/4	7/8	4	5459421	32.08
.1865	-	.1865	2-3/4	7/8	4	5459432	34.48
.1870	-	.1870	2-3/4	7/8	4	5459443	32.08
.1875	3/16	.1875	2-3/4	7/8	4	5459454	28.85
.1880	-	.1880	2-3/4	7/8	4	5459465	32.08
.1885	-	.1885	2-3/4	7/8	4	5459476	34.48
.1890	N12	.1890	2-3/4	7/8	4	5459487	29.93
.1900	-	.1900	2-3/4	7/8	4	5459498	32.08
.1910	N11	.1910	2-3/4	7/8	4	5459509	36.39
.1920	-	.1920	2-3/4	7/8	4	5459520	38.92
.1930	-	.1930	2-3/4	7/8	4	5459531	38.92
.1935	N10	.1935	2-3/4	7/8	4	5459542	36.39

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.1940	-	.1940	2-3/4	7/8	4	5459553	38.92
.1950	-	.1950	2-3/4	7/8	4	5459564	38.92
.1960	N9	.1960	3	1	4	5459575	36.39
.1969	5MM	.1969	3	1	4	5459586	38.92
.1970	-	.1970	3	1	4	5459597	38.92
.1980	-	.1980	3	1	4	5459608	38.92
.1990	N8	.1990	3	1	4	5459619	36.39
.2000	-	.2000	3	1	4	5459630	38.92
.2010	N7	.2010	3	1	4	5459641	36.39
.2020	-	.2020	3	1	4	5459652	38.92
.2030	-	.2030	3	1	4	5459663	38.92
.2031	13/64	.2031	3	1	4	5459674	34.94
.2040	N6	.2040	3	1	4	5459685	36.39
.2050	-	.2050	3	1	4	5459696	38.92
.2055	N5	.2055	3	1	4	5459707	36.39
.2060	-	.2060	3	1	4	5459718	38.92
.2070	-	.2070	3	1	4	5459729	38.92
.2080	-	.2080	3	1	4	5459740	38.92
.2090	N4	.2090	3	1	4	5459751	36.39
.2100	-	.2100	3	1	4	5459762	38.92
.2110	-	.2110	3	1	4	5459773	38.92
.2120	-	.2120	3	1	4	5459784	38.92
.2130	N3	.2130	3	1	4	5459795	36.39
.2140	-	.2140	3	1	4	5459806	38.92
.2150	-	.2150	3	1	4	5459817	38.92
.2160	-	.2160	3	1	4	5459828	38.92
.2165	5.5MM	.2165	3	1	4	5459839	41.06
.2170	-	.2170	3	1	4	5459850	38.92
.2180	-	.2180	3	1	4	5459861	38.92
.2188	7/32	.2188	3	1	4	5459872	34.94
.2190	-	.2190	3	1	4	5459883	38.92
.2200	-	.2200	3	1	4	5459894	38.92
.2210	N2	.2210	3	1	4	5459905	36.39
.2220	-	.2220	3	1	4	5459916	38.92
.2230	-	.2230	3	1	4	5459927	38.92
.2240	-	.2240	3	1	4	5459938	38.92
.2250	-	.2250	3	1	4	5459949	38.92
.2260	-	.2260	3	1	4	5459960	42.75
.2270	-	.2270	3	1	4	5459971	42.75
.2280	N1	.2280	3	1	4	5459982	39.88

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DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.2290	-	.2290	3	1	4	5459993	39.88
.2300	-	.2300	3	1	4	5460004	42.75
.2310	-	.2310	3	1	4	5460015	42.75
.2320	-	.2320	3	1	4	5460026	42.75
.2330	-	.2330	3	1	4	5460037	42.75
.2340	A	.2340	3	1	4	5460048	42.75
.2344	15/64	.2344	3	1	4	5460059	38.43
.2350	-	.2350	3	1	4	5460070	42.75
.2360	-	.2360	3	1	4	5460081	42.75
.2362	6MM	.2362	3	1	4	5460092	40.70
.2370	-	.2370	3	1	4	5460103	42.75
.2380	B	.2380	3	1	4	5460114	42.75
.2390	-	.2390	3	1	4	5460125	42.75
.2400	-	.2400	3	1	4	5460136	42.75
.2410	-	.2410	3	1	4	5460147	42.75
.2420	C	.2420	3	1	4	5460158	42.75
.2430	-	.2430	3	1	4	5460169	42.75
.2440	-	.2440	3	1	4	5460180	42.75
.2450	-	.2450	3	1	4	5460191	42.75
.2460	D	.2460	3	1	4	5460202	42.75
.2470	-	.2470	3	1	4	5460213	42.75
.2480	-	.2480	3	1	4	5460224	42.75
.2485	-	.2485	3	1	4	5460235	47.76
.2490	-	.2490	3	1	4	5460246	42.75
.2495	-	.2495	3	1	4	5460257	45.37
.2500	1/4	.2500	3	1	4	5460268	38.43
.2505	-	.2505	3	1	4	5460279	45.37
.2510	-	.2510	3	1	4	5460290	42.75
.2515	-	.2515	3	1	4	5460301	53.16
.2520	-	.2520	3	1	4	5460312	42.75
.2530	-	.2530	3	1	4	5460323	42.75
.2540	-	.2540	3	1	4	5460334	42.75
.2550	-	.2550	3	1	6	5460345	42.75
.2559	6.5MM	.2559	3-1/4	1-1/8	6	5460356	45.25
.2560	-	.2560	3-1/4	1-1/8	6	5460367	51.71
.2570	F	.2570	3-1/4	1-1/8	6	5460378	51.71
.2580	-	.2580	3-1/4	1-1/8	6	5460389	51.71
.2590	-	.2590	3-1/4	1-1/8	6	5460400	51.71
.2600	-	.2600	3-1/4	1-1/8	6	5460411	51.71
.2610	G	.2610	3-1/4	1-1/8	6	5460422	51.71

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.2620	-	.2620	3-1/4	1-1/8	6	5460433	51.71
.2630	-	.2630	3-1/4	1-1/8	6	5460444	51.71
.2640	-	.2640	3-1/4	1-1/8	6	5460455	51.71
.2650	-	.2650	3-1/4	1-1/8	6	5460466	51.71
.2656	17/64	.2656	3-1/4	1-1/8	6	5460477	46.58
.2660	H	.2660	3-1/4	1-1/8	6	5460488	51.71
.2670	-	.2670	3-1/4	1-1/8	6	5460499	51.71
.2680	-	.2680	3-1/4	1-1/8	6	5460510	51.71
.2690	-	.2690	3-1/4	1-1/8	6	5460521	51.71
.2700	-	.2700	3-1/4	1-1/8	6	5460532	51.71
.2710	-	.2710	3-1/4	1-1/8	6	5460543	51.71
.2720	I	.2720	3-1/4	1-1/8	6	5460554	51.71
.2730	-	.2730	3-1/4	1-1/8	6	5460565	51.71
.2740	-	.2740	3-1/4	1-1/8	6	5460576	51.71
.2750	-	.2750	3-1/4	1-1/8	6	5460587	51.71
.2756	7MM	.2756	3-1/4	1-1/8	6	5460598	56.49
.2760	-	.2760	3-1/4	1-1/8	6	5460609	51.71
.2770	J	.2770	3-1/4	1-1/8	6	5460620	51.71
.2780	-	.2780	3-1/4	1-1/8	6	5460631	51.71
.2790	-	.2790	3-1/4	1-1/8	6	5460642	51.71
.2800	-	.2800	3-1/4	1-1/8	6	5460653	51.71
.2810	K	.2810	3-1/4	1-1/8	6	5460664	51.71
.2812	9/32	.2812	3-1/4	1-1/8	6	5460675	46.58
.2820	-	.2820	3-1/4	1-1/8	6	5460686	51.71
.2830	-	.2830	3-1/4	1-1/8	6	5460697	51.71
.2840	-	.2840	3-1/4	1-1/8	6	5460708	51.71
.2850	-	.2850	3-1/4	1-1/8	6	5460719	51.71
.2860	-	.2860	3-1/4	1-1/8	6	5460730	51.71
.2870	-	.2870	3-1/4	1-1/8	6	5460741	51.71
.2880	-	.2880	3-1/4	1-1/8	6	5460752	51.71
.2890	-	.2890	3-1/4	1-1/8	6	5460763	51.71
.2900	L	.2900	3-1/4	1-1/8	6	5460774	51.71
.2910	-	.2910	3-1/4	1-1/8	6	5460785	51.71
.2920	-	.2920	3-1/4	1-1/8	6	5460796	51.71
.2930	-	.2930	3-1/4	1-1/8	6	5460807	51.71
.2940	-	.2940	3-1/4	1-1/8	6	5460818	51.71
.2950	M	.2950	3-1/4	1-1/8	6	5460829	51.71
.2953	-	.2953	3-1/4	1-1/8	6	5460840	56.49
.2960	-	.2960	3-1/4	1-1/8	6	5460851	51.71
.2969	19/64	.2969	3-1/4	1-1/8	6	5460862	51.71

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

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END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.2970	-	.2970	3-1/4	1-1/8	6	5460873	51.71
.2980	-	.2980	3-1/4	1-1/8	6	5460884	51.71
.2990	-	.2990	3-1/4	1-1/8	6	5460895	51.71
.3000	-	.3000	3-1/4	1-1/8	6	5460906	51.71
.3010	-	.3010	3-1/4	1-1/8	6	5460917	51.71
.3020	N	.3020	3-1/4	1-1/8	6	5460928	51.71
.3030	-	.3030	3-1/4	1-1/8	6	5460939	51.71
.3040	-	.3040	3-1/4	1-1/8	6	5460950	51.71
.3050	-	.3050	3-1/4	1-1/8	6	5460961	51.71
.3060	-	.3060	3-1/4	1-1/8	6	5460972	51.71
.3070	-	.3070	3-1/4	1-1/8	6	5460983	51.71
.3080	-	.3080	3-1/4	1-1/8	6	5460994	51.71
.3090	-	.3090	3-1/4	1-1/8	6	5461005	51.71
.3100	-	.3100	3-1/4	1-1/8	6	5461016	51.71
.3110	-	.3110	3-1/4	1-1/8	6	5461027	51.71
.3115	-	.3115	3-1/4	1-1/8	6	5461038	59.38
.3120	-	.3120	3-1/4	1-1/8	6	5461049	51.71
.3125	5/16	.3125	3-1/4	1-1/8	6	5461060	51.71
.3130	-	.3130	3-1/4	1-1/8	6	5461071	51.71
.3135	-	.3135	3-1/4	1-1/8	6	5461082	59.38
.3140	-	.3140	3-1/4	1-1/8	6	5461093	51.71
.3150	8MM	.3150	3-1/4	1-1/8	6	5461104	51.71
.3160	O	.3160	3-1/4	1-1/8	6	5461115	57.83
.3170	-	.3170	3-1/4	1-1/8	6	5461126	57.83
.3180	-	.3180	3-1/4	1-1/8	6	5461137	57.83
.3190	-	.3190	3-1/4	1-1/8	6	5461148	57.83
.3200	-	.3200	3-1/4	1-1/8	6	5461159	57.83
.3210	-	.3210	3-1/2	1-1/4	6	5461170	57.83
.3220	-	.3220	3-1/2	1-1/4	6	5461181	57.83
.3230	P	.3230	3-1/2	1-1/4	6	5461192	57.83
.3240	-	.3240	3-1/2	1-1/4	6	5461203	57.83
.3250	-	.3250	3-1/2	1-1/4	6	5461214	57.83
.3260	-	.3260	3-1/2	1-1/4	6	5461225	57.83
.3270	-	.3270	3-1/2	1-1/4	6	5461236	57.83
.3280	-	.3280	3-1/2	1-1/4	6	5461247	57.83
.3281	21/64	.3281	3-1/2	1-1/4	6	5461258	58.41
.3290	-	.3290	3-1/2	1-1/4	6	5461269	57.83
.3300	-	.3300	3-1/2	1-1/4	6	5461280	57.83
.3310	-	.3310	3-1/2	1-1/4	6	5461291	57.83
.3320	Q	.3320	3-1/2	1-1/4	6	5461302	57.83

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.3330	-	.3330	3-1/2	1-1/4	6	5461313	57.83
.3340	-	.3340	3-1/2	1-1/4	6	5461324	57.83
.3346	8.5MM	.3346	3-1/2	1-1/4	6	5461335	57.83
.3350	-	.3350	3-1/2	1-1/4	6	5461346	57.83
.3360	-	.3360	3-1/2	1-1/4	6	5461357	57.83
.3370	-	.3370	3-1/2	1-1/4	6	5461368	57.83
.3380	-	.3380	3-1/2	1-1/4	6	5461379	57.83
.3390	R	.3390	3-1/2	1-1/4	6	5461390	58.21
.3400	-	.3400	3-1/2	1-1/4	6	5461401	57.83
.3410	-	.3410	3-1/2	1-1/4	6	5461412	57.83
.3420	-	.3420	3-1/2	1-1/4	6	5461423	57.83
.3430	-	.3430	3-1/2	1-1/4	6	5461434	57.83
.3438	11/32	.3438	3-1/2	1-1/4	6	5461445	58.41
.3440	-	.3440	3-1/2	1-1/4	6	5461456	57.83
.3450	-	.3450	3-1/2	1-1/4	6	5461467	57.83
.3460	-	.3460	3-1/2	1-1/4	6	5461478	57.83
.3470	-	.3470	3-1/2	1-1/4	6	5461489	57.83
.3480	S	.3480	3-1/2	1-1/4	6	5461500	57.83
.3490	-	.3490	3-1/2	1-1/4	6	5461511	57.83
.3500	-	.3500	3-1/2	1-1/4	6	5461522	57.83
.3510	-	.3510	3-1/2	1-1/4	6	5461533	63.09
.3520	-	.3520	3-1/2	1-1/4	6	5461544	63.09
.3530	-	.3530	3-1/2	1-1/4	6	5461555	63.09
.3540	-	.3540	3-1/2	1-1/4	6	5461566	63.09
.3543	9MM	.3543	3-1/2	1-1/4	6	5461577	65.83
.3550	-	.3550	3-1/2	1-1/4	6	5461588	63.09
.3560	-	.3560	3-1/2	1-1/4	6	5461599	63.09
.3570	-	.3570	3-1/2	1-1/4	6	5461610	63.09
.3580	T	.3580	3-1/2	1-1/4	6	5461621	63.09
.3590	-	.3590	3-1/2	1-1/4	6	5461632	64.17
.3594	23/64	.3594	3-1/2	1-1/4	6	5461643	62.24
.3600	-	.3600	3-1/2	1-1/4	6	5461654	63.09
.3610	-	.3610	3-1/2	1-1/4	6	5461665	63.09
.3620	-	.3620	3-1/2	1-1/4	6	5461676	63.09
.3630	-	.3630	3-1/2	1-1/4	6	5461687	63.09
.3640	-	.3640	3-1/2	1-1/4	6	5461698	63.09
.3650	-	.3650	3-1/2	1-1/4	6	5461709	63.09
.3660	-	.3660	3-1/2	1-1/4	6	5461720	63.09
.3670	-	.3670	3-1/2	1-1/4	6	5461731	63.09
.3680	U	.3680	3-1/2	1-1/4	6	5461742	63.09

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DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.3690	-	.3690	3-1/2	1-1/4	6	5461753	63.09
.3700	-	.3700	3-1/2	1-1/4	6	5461764	63.09
.3710	-	.3710	3-1/2	1-1/4	6	5461775	63.09
.3720	-	.3720	3-1/2	1-1/4	6	5461786	63.09
.3730	-	.3730	3-1/2	1-1/4	6	5461797	63.09
.3740	9.5MM	.3740	3-1/2	1-1/4	6	5461808	63.09
.3745	-	.3745	3-1/2	1-1/4	6	5461819	76.61
.3750	3/8	.3750	3-1/2	1-1/4	6	5461830	62.24
.3755	-	.3755	3-1/2	1-1/4	6	5461841	76.61
.3760	-	.3760	3-1/2	1-1/4	6	5461852	79.23
.3765	-	.3765	3-1/2	1-1/4	6	5461863	83.12
.3770	V	.3770	3-1/2	1-1/4	6	5461874	79.23
.3780	-	.3780	3-1/2	1-1/4	6	5461885	79.23
.3790	-	.3790	3-1/2	1-1/4	6	5461896	79.23
.3800	-	.3800	3-1/2	1-1/4	6	5461907	79.23
.3810	-	.3810	3-1/2	1-1/4	6	5461918	79.23
.3820	-	.3820	3-1/2	1-1/4	6	5461929	79.23
.3830	-	.3830	3-1/2	1-1/4	6	5461940	79.23
.3840	-	.3840	3-1/2	1-1/4	6	5461951	79.23
.3850	-	.3850	3-1/2	1-1/4	6	5461962	79.23
.3860	W	.3860	3-1/2	1-1/4	6	5461973	79.23
.3870	-	.3870	3-1/2	1-1/4	6	5461984	98.29
.3880	-	.3880	3-1/2	1-1/4	6	5461995	98.29
.3890	-	.3890	3-1/2	1-1/4	6	5462006	98.29
.3900	-	.3900	3-1/2	1-1/4	6	5462017	98.29
.3906	25/64	.3906	3-1/2	1-1/4	6	5462028	98.29
.3910	-	.3910	3-1/2	1-1/4	6	5462039	98.29
.3920	-	.3920	3-1/2	1-1/4	6	5462050	98.29
.3930	-	.3930	3-1/2	1-1/4	6	5462061	98.29
.3937	10MM	.3937	3-1/2	1-1/4	6	5462072	74.46
.3940	-	.3940	3-1/2	1-1/4	6	5462083	98.29
.3950	-	.3950	3-1/2	1-1/4	6	5462094	98.29
.3960	-	.3960	3-1/2	1-1/4	6	5462105	98.29
.3970	X	.3970	3-1/2	1-1/4	6	5462116	98.29
.3980	-	.3980	3-1/2	1-1/4	6	5462127	98.29
.3990	-	.3990	3-1/2	1-1/4	6	5462138	98.29
.4000	-	.4000	3-1/2	1-1/4	6	5462149	98.29
.4010	-	.4010	3-1/2	1-1/4	6	5462160	98.29
.4020	-	.4020	3-1/2	1-1/4	6	5462171	98.29
.4030	-	.4030	3-1/2	1-1/4	6	5462182	98.29

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.4040	Y	.4040	3-1/2	1-1/4	6	5462193	98.29
.4050	-	.4050	3-1/2	1-1/4	6	5462204	98.29
.4060	-	.4060	3-1/2	1-1/4	6	5462215	98.29
.4062	13/32	.4062	3-1/2	1-1/4	6	5462226	71.35
.4070	-	.4070	3-1/2	1-1/4	6	5462237	98.29
.4080	-	.4080	3-1/2	1-1/4	6	5462248	98.29
.4090	-	.4090	3-1/2	1-1/4	6	5462259	98.29
.4100	-	.4100	3-1/2	1-1/4	6	5462270	98.29
.4110	-	.4110	3-1/2	1-1/4	6	5462281	98.29
.4120	-	.4120	3-1/2	1-1/4	6	5462292	98.29
.4130	Z	.4130	3-1/2	1-1/4	6	5462303	98.29
.4134	-	.4134	3-1/2	1-1/4	6	5462314	89.52
.4140	-	.4140	3-1/2	1-1/4	6	5462325	98.29
.4150	-	.4150	3-1/2	1-1/4	6	5462336	98.29
.4160	-	.4160	4	1-3/8	6	5462347	98.29
.4170	-	.4170	4	1-3/8	6	5462358	98.29
.4180	-	.4180	4	1-3/8	6	5462369	98.29
.4190	-	.4190	4	1-3/8	6	5462380	98.29
.4200	-	.4200	4	1-3/8	6	5462391	98.29
.4210	-	.4210	4	1-3/8	6	5462402	98.29
.4219	27/64	.4219	4	1-3/8	6	5462413	80.90
.4220	-	.4220	4	1-3/8	6	5462424	98.29
.4230	-	.4230	4	1-3/8	6	5462435	98.29
.4240	-	.4240	4	1-3/8	6	5462446	98.29
.4250	-	.4250	4	1-3/8	6	5462457	98.29
.4260	-	.4260	4	1-3/8	6	5462468	98.29
.4270	-	.4270	4	1-3/8	6	5462479	98.29
.4280	-	.4280	4	1-3/8	6	5462490	98.29
.4290	-	.4290	4	1-3/8	6	5462501	98.29
.4300	-	.4300	4	1-3/8	6	5462512	98.29
.4310	-	.4310	4	1-3/8	6	5462523	98.29
.4320	-	.4320	4	1-3/8	6	5462534	98.29
.4330	-	.4330	4	1-3/8	6	5462545	98.29
.4331	-	.4331	4	1-3/8	6	5462556	89.52
.4340	-	.4340	4	1-3/8	6	5462567	98.29
.4350	-	.4350	4	1-3/8	6	5462578	98.29
.4360	-	.4360	4	1-3/8	6	5462589	98.29
.4365	-	.4365	4	1-3/8	6	5462600	98.29
.4370	-	.4370	4	1-3/8	6	5462611	98.29
.4375	7/16	.4375	4	1-3/8	6	5462622	80.90

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

For technical information, please see page 240.

DIAMETER TOLERANCE +.0003, -.0000



Carbide Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.4380	-	.4380	4	1-3/8	6	5462633	98.29
.4385	-	.4385	4	1-3/8	6	5462644	117.44
.4390	-	.4390	4	1-3/8	6	5462655	98.29
.4400	-	.4400	4	1-3/8	6	5462666	98.29
.4410	-	.4410	4	1-3/8	6	5462677	111.53
.4420	-	.4420	4	1-3/8	6	5462688	111.53
.4430	-	.4430	4	1-3/8	6	5462699	111.53
.4440	-	.4440	4	1-3/8	6	5462710	111.53
.4450	-	.4450	4	1-3/8	6	5462721	111.53
.4460	-	.4460	4	1-3/8	6	5462732	111.53
.4470	-	.4470	4	1-3/8	6	5462743	111.53
.4480	-	.4480	4	1-3/8	6	5462754	111.53
.4490	-	.4490	4	1-3/8	6	5462765	111.53
.4500	-	.4500	4	1-3/8	6	5462776	111.53
.4510	-	.4510	4	1-3/8	6	5462787	111.53
.4520	-	.4520	4	1-3/8	6	5462798	111.53
.4528	-	.4528	4	1-3/8	6	5462809	111.53
.4530	-	.4530	4	1-3/8	6	5462820	102.22
.4531	29/64	.4531	4	1-3/8	6	5462831	89.18
.4540	-	.4540	4	1-3/8	6	5462842	111.53
.4550	-	.4550	4	1-3/8	6	5462853	111.53
.4560	-	.4560	4	1-3/8	6	5462864	111.53
.4570	-	.4570	4	1-3/8	6	5462875	111.53
.4580	-	.4580	4	1-3/8	6	5462886	111.53
.4590	-	.4590	4	1-3/8	6	5462897	111.53
.4600	-	.4600	4	1-3/8	6	5462908	111.53
.4610	-	.4610	4	1-3/8	6	5462919	111.53
.4620	-	.4620	4	1-3/8	6	5462930	111.53
.4630	-	.4630	4	1-3/8	6	5462941	111.53
.4640	-	.4640	4	1-3/8	6	5462952	111.53
.4650	-	.4650	4	1-3/8	6	5462963	111.53
.4660	-	.4660	4	1-3/8	6	5462974	111.53
.4670	-	.4670	4	1-3/8	6	5462985	111.53
.4680	-	.4680	4	1-3/8	6	5462996	111.53
.4688	15/32	.4688	4	1-3/8	6	5463007	89.18
.4690	-	.4690	4	1-3/8	6	5463018	117.52
.4700	-	.4700	4	1-3/8	6	5463029	117.52

DEC. EQUIV.	SIZE	SHANK DIA.	OVERALL LENGTH	FLUTE LENGTH	# OF FLUTES	ITEM#	PRICE
.4710	-	.4710	4	1-3/8	6	5463040	117.52
.4720	-	.4720	4	1-3/8	6	5463051	117.52
.4724	12MM	.4724	4	1-3/8	6	5463062	113.23
.4730	-	.4730	4	1-3/8	6	5463073	117.52
.4740	-	.4740	4	1-3/8	6	5463084	117.52
.4750	-	.4750	4	1-3/8	6	5463095	117.52
.4760	-	.4760	4	1-1/2	6	5463106	117.52
.4770	-	.4770	4	1-1/2	6	5463117	117.52
.4780	-	.4780	4	1-1/2	6	5463128	117.52
.4790	-	.4790	4	1-1/2	6	5463139	117.52
.4800	-	.4800	4	1-1/2	6	5463150	117.52
.4810	-	.4810	4	1-1/2	6	5463161	117.52
.4820	-	.4820	4	1-1/2	6	5463172	117.52
.4830	-	.4830	4	1-1/2	6	5463183	117.52
.4840	-	.4840	4	1-1/2	6	5463194	117.52
.4844	31/64	.4844	4	1-1/2	6	5463205	101.04
.4850	-	.4850	4	1-1/2	6	5463216	117.52
.4860	-	.4860	4	1-1/2	6	5463227	117.52
.4870	-	.4870	4	1-1/2	6	5463238	141.72
.4880	-	.4880	4	1-1/2	6	5463249	141.72
.4890	-	.4890	4	1-1/2	6	5463260	141.72
.4900	-	.4900	4	1-1/2	6	5463271	141.72
.4910	-	.4910	4	1-1/2	6	5463282	141.72
.4920	-	.4920	4	1-1/2	6	5463293	141.72
.4921	-	.4921	4	1-1/2	6	5463304	141.72
.4930	-	.4930	4	1-1/2	6	5463315	141.72
.4940	-	.4940	4	1-1/2	6	5463326	141.72
.4950	-	.4950	4	1-1/2	6	5463337	141.72
.4960	-	.4960	4	1-1/2	6	5463348	141.72
.4970	-	.4970	4	1-1/2	6	5463359	141.72
.4980	-	.4980	4	1-1/2	6	5463370	141.72
.4990	-	.4990	4	1-1/2	6	5463381	141.72
.4995	-	.4995	4	1-1/2	6	5463392	141.72
.5000	1/2	.5000	4	1-1/2	6	5463403	101.04
.5005	-	.5005	4	1-1/2	6	5463414	141.72
.5010	-	.5010	4	1-1/2	6	5463425	141.72
.5020	-	.5020	4	1-1/2	6	5463436	141.72

For technical information, please see page 240.

DIAMETER TOLERANCE +.0003, -.0000

Carbide Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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	136.29	90.17	78.63	50.33	39.84	35.65	33.55	31.45	29.36
.0451 - .0500	0.042	3/8	1-1/2	136.29	90.17	78.63	50.33	39.84	35.65	33.55	31.45	29.36
.0501 - .0570	0.046	3/8	1-1/2	137.34	91.21	79.68	51.37	40.89	36.69	34.60	32.50	30.41
.0571 - .0650	0.053	3/8	1-1/2	136.29	90.17	78.63	50.33	39.84	35.65	33.55	31.45	29.36
.0651 - .0800	0.060	1/2	1-3/4	137.34	91.21	79.68	51.37	40.89	36.69	34.60	32.50	30.41
.0801 - .0950	0.075	1/2	2	138.40	92.26	80.73	52.43	41.94	37.75	35.65	33.55	31.45
.0951 - .1150	0.090	5/8	2-1/4	140.49	94.35	82.82	54.52	44.03	39.84	37.75	35.65	33.55
.1151 - .1300	0.110	5/8	2-1/4	141.54	95.40	83.87	55.57	45.08	40.89	38.79	36.69	34.60
.1301 - .1450	0.125	3/4	2-1/2	144.67	98.55	87.02	58.71	48.24	44.03	41.94	39.84	37.75
.1451 - .1600	0.140	3/4	2-1/2	147.83	101.69	90.17	61.86	51.37	47.18	45.08	42.99	40.89
.1601 - .1750	0.155	7/8	2-3/4	150.97	104.84	93.30	65.00	54.52	50.33	48.24	46.13	44.03
.1751 - .1950	0.170	7/8	2-3/4	155.17	109.03	97.51	69.19	58.71	54.52	52.43	50.33	48.24
.1951 - .2100	0.188	1	3	163.55	117.42	105.90	77.58	67.10	62.91	60.81	58.71	56.61
.2101 - .2250	0.205	1	3	166.70	120.57	109.03	80.73	70.25	66.05	63.96	61.86	59.75
.2251 - .2400	0.220	1	3	171.94	125.82	114.28	85.97	75.49	71.29	69.19	67.10	65.00
.2401 - .2550	0.235	1	3	176.13	130.00	118.47	90.17	79.68	75.49	73.38	71.29	69.19
.2551 - .2750	0.250	1	3-1/4	186.62	140.49	128.95	100.65	90.17	85.97	83.87	81.78	79.68
.2751 - .2950	0.270	1-1/8	3-1/4	187.66	141.54	130.00	101.69	91.21	87.02	84.92	82.82	80.73
.2951 - .3150	0.290	1-1/8	3-1/4	198.14	152.01	140.49	112.18	101.69	97.51	95.40	93.30	91.21
.3151 - .3350	0.313	1-1/4	3-1/2	212.82	166.70	155.17	126.86	116.38	112.18	110.08	107.99	105.90
.3351 - .3550	0.330	1-1/4	3-1/2	214.91	170.89	157.27	128.95	118.47	114.28	112.18	110.08	107.99
.3551 - .3800	0.350	1-1/4	3-1/2	219.11	175.08	161.45	133.16	122.66	118.47	116.38	114.28	112.18
.3801 - .4100	0.375	1-1/4	4	234.84	188.72	177.18	148.88	138.40	134.19	132.10	130.00	127.90
.4101 - .4400	0.405	1-3/8	4	243.22	197.11	185.57	157.27	146.78	142.58	140.49	138.40	136.29
.4401 - .4700	0.438	1-3/8	4	255.80	209.68	198.14	169.84	159.35	155.17	153.07	150.97	148.88
.4701 - .5050	0.465	1-1/2	4	276.78	230.65	219.11	190.80	180.32	176.13	174.04	171.94	169.84
.5051 - .5400	0.500	1-1/2	4-1/2	304.03	257.91	246.38	218.07	207.58	203.39	201.29	199.20	197.11
.5401 - .5800	0.535	1-1/2	4-1/2	345.97	299.83	288.31	260.00	249.52	245.33	243.22	241.13	239.03
.5801 - .6260	0.575	1-3/4	4-1/2	379.52	333.39	321.85	293.55	283.07	278.88	276.78	274.68	272.58
.6261 - .6600	0.615	1-3/4	4-1/2	429.84	383.71	372.18	343.88	333.39	329.19	327.10	325.01	322.91
.6601 - .7050	0.655	2	5	492.75	446.62	435.08	406.78	396.30	392.10	390.00	387.91	385.81
.7051 - .7550	0.700	2	5	534.67	488.56	477.01	448.71	438.23	434.02	431.94	429.84	427.75
.7551 - .7950	0.750	2	5	576.61	530.49	518.95	490.64	480.16	475.97	473.87	471.78	469.68
.7951 - .8450	0.750	2-1/4	5	618.55	572.42	560.89	532.58	522.11	517.90	515.80	513.72	511.62
.8451 - .9000	0.750	2-1/4	5	702.42	656.30	644.76	616.46	605.98	601.77	599.68	597.59	595.49
.9001 - .9600	0.875	2-1/4	5	807.26	761.13	749.60	721.29	710.80	706.61	704.52	702.42	700.32
.9601 - 1.025	0.875	2-1/4	5	891.13	845.01	833.47	805.17	794.68	790.49	788.39	786.29	784.19

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

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END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS



Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

SA - CYLINDRICAL



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SA-61	1/16	3/32	1/4	1-1/2	5560585	5.27	5560750	5.27
* SA-41	1/16	1/8	1/4	1-1/2	5422131	4.99	5422461	4.99
* SA-41L2	1/16	1/8	1/4	2	5560596	7.47	5560761	7.47
* SA-41L3	1/16	1/8	1/4	3	5560607	8.27	5560772	8.27
* SA-63	3/32	3/32	3/8	1-1/2	5560618	5.27	5560783	5.27
* SA-42	3/32	1/8	7/16	1-1/2	5422153	4.99	5422483	4.99
* SA-42L2	3/32	1/8	7/16	2	5560629	7.47	5560794	7.47
* SA-42L3	3/32	1/8	7/16	3	5560640	8.27	5560805	8.27
* SA-43	1/8	1/8	9/16	1-1/2	5422175	4.99	5422505	4.99
* SA-43L2	1/8	1/8	9/16	2	5560651	7.47	5560816	7.47
* SA-43L3	1/8	1/8	9/16	3	5560662	8.27	5560827	8.27
* SA-11	1/8	1/4	1/2	2	5422263	9.90	5422593	9.90
* SA-12	1/8	1/4	5/8	2	5560673	9.95	5560838	9.95
SA-52	5/32	1/8	1/2	2	5422197	10.97	5422527	10.97
* SA-13	5/32	1/4	5/8	2	5428973	13.72	5429171	13.72
SA-53	3/16	1/8	1/2	2	5422219	10.97	5422549	10.97
* SA-81	3/16	3/16	1/2	2	5560684	12.05	5560849	12.05
* SA-14	3/16	1/4	5/8	2	5422285	11.85	5422615	11.85
SA-51	1/4	1/8	1/2	2	5422241	7.40	5422571	7.40
* SA-1	1/4	1/4	5/8	2	5422307	8.39	5422637	8.39
SA-1L6	1/4	1/4	1/2	6-1/2	5427763	17.01	5427829	17.01
* SA-1L	1/4	1/4	1	2	5560695	12.96	5560860	12.96
SA-2	5/16	1/4	3/4	2-1/2	5422329	15.50	5422659	15.50
SA-3	3/8	1/4	3/4	2-1/2	5422351	10.39	5422681	10.39
SA-3L6	3/8	1/4	3/4	6-3/4	5427785	23.95	5427851	23.95
SA-3L	3/8	1/4	1	2-3/4	5560706	15.99	5560871	15.99
SA-3X	3/8	1/4	1-1/2	3-1/4	5560717	22.74	5560882	22.74
SA-4	7/16	1/4	1	2-3/4	5422373	24.08	5422703	24.08
SA-5	1/2	1/4	1	2-3/4	5422395	16.57	5422725	16.57
SA-5L6	1/2	1/4	1	7	5427807	37.43	5427873	37.43
SA-6	5/8	1/4	1	2-3/4	5422417	23.89	5422747	23.89
SA-15	3/4	1/4	1/2	2-1/4	5560728	36.39	5560893	36.39
SA-16	3/4	1/4	3/4	2-1/2	5560739	36.39	5560904	36.39
SA-7	3/4	1/4	1	2-3/4	5422439	37.26	5422769	37.26
SA-9	1	1/4	1	2-3/4	5428995	58.83	5429193	58.83

* One Piece

SA - CYLINDRICAL - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
* SA-1NF	1/4	1/4	5/8	2	5428423	12.14
SA-3NF	3/8	1/4	3/4	2-1/2	5428445	16.97
SA-5NF	1/2	1/4	1	2-3/4	5428467	28.35
SA-6NF	5/8	1/4	1	2-3/4	5428489	42.13
SA-7NF	3/4	1/4	1	2-3/4	5428511	55.35

* One Piece

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PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



SB - CYLINDRICAL END CUT



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SB-41	1/16	1/8	1/4	1-1/2	5422791	6.72	5429259	6.72
* SB-41L2	1/16	1/8	1/4	2	5561135	8.22	5561278	8.22
* SB-41L3	1/16	1/8	1/4	3	5561146	9.10	5561289	9.10
* SB-42	3/32	1/8	7/16	1-1/2	5422813	5.32	5429237	5.32
* SB-42L2	3/32	1/8	7/16	2	5561157	8.22	5561300	8.22
* SB-42L3	3/32	1/8	7/16	3	5561168	9.10	5561311	9.10
† SB-ECO	1/8	1/8	-	1-1/2	5561179	3.86	-	-
* SB-43	1/8	1/8	9/16	1-1/2	5422835	4.87	5429215	4.87
* SB-43L2	1/8	1/8	9/16	2	5561190	8.22	5561333	8.22
* SB-43L3	1/8	1/8	9/16	3	5561201	9.10	5561344	9.10
* SB-11	1/8	1/4	1/2	2	5422901	12.82	5423077	12.82
* SB-12	1/8	1/4	5/8	2	5561212	10.92	5561355	10.92
* SB-13	5/32	1/4	5/8	2	5429017	15.48	5429281	15.48
* SB-14	3/16	1/4	5/8	2	5422923	12.82	5423099	12.82
SB-51	1/4	1/8	3/16	1-11/16	5422857	7.42	5423033	7.42
SB-51	1/4	1/8	1/2	2	5422879	8.07	5423055	8.07
* SB-1	1/4	1/4	5/8	2	5422945	9.96	5423121	9.96
* SB-1L	1/4	1/4	1	2	5561223	14.25	5561366	14.25
SB-2	5/16	1/4	3/4	2-1/2	5422967	17.04	5423143	17.04
SB-3	3/8	1/4	3/4	2-1/2	5422989	11.88	5423165	11.88
SB-3L	3/8	1/4	1	2-3/4	5561234	17.56	5561377	17.56
SB-3X	3/8	1/4	1-1/2	3-1/4	5561245	23.21	5561388	23.21
SB-4	7/16	1/4	1	2-3/4	5429039	27.36	5423187	27.36
SB-5	1/2	1/4	1	2-3/4	5423011	18.24	5423209	18.24
SB-6	5/8	1/4	1	2-3/4	5429369	26.73	5423231	26.73
SB-15	3/4	1/4	1/2	2-1/4	5561256	39.87	5561399	39.87
SB-16	3/4	1/4	3/4	2-1/2	5561267	39.87	5561410	39.87
SB-7	3/4	1/4	1	2-3/4	5429061	41.05	5423253	41.05
SB-9	1	1/4	1	2-3/4	5429083	64.20	5429303	64.20

* One Piece † SB-ECO = End Cut Only

SB - CYLINDRICAL END CUT - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
SB-3NF	3/8	1/4	3/4	2-1/2	5561421	19.18
SB-5NF	1/2	1/4	1	2-3/4	5561432	29.43
SB-6NF	5/8	1/4	1	2-3/4	5561443	40.67
SB-7NF	3/4	1/4	1	2-3/4	5561454	59.54

For technical information, please see page 224.

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END MILLS

DRILL MILLS

CHAMFER MILLS

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Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

SC - CYLINDRICAL BALL NOSE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SC-61	3/32	3/32	3/8	1-1/2	5560915	5.27	5561025	5.27
* SC-41	3/32	1/8	7/16	1-1/2	5423275	4.99	5423583	4.99
* SC-42	1/8	1/8	9/16	1-1/2	5423297	4.99	5423605	4.99
* SC-42L2	1/8	1/8	9/16	2	5560926	7.47	5561036	7.47
* SC-42L3	1/8	1/8	9/16	3	5560937	8.27	5561047	8.27
* SC-11	1/8	1/4	1/2	2	5423385	13.78	5423693	13.78
* SC-12	1/8	1/4	5/8	2	5560948	10.56	5561058	10.56
SC-52	5/32	1/8	1/2	2	5423319	10.97	5423627	10.97
* SC-13	5/32	1/4	5/8	2	5429105	15.76	5429325	15.76
SC-53	3/16	1/8	1/2	2	5423341	10.97	5423649	10.97
* SC-81	3/16	3/16	1/2	2	5560959	12.05	5561069	12.05
* SC-14	3/16	1/4	5/8	2	5423407	13.78	5423715	13.78
SC-51	1/4	1/8	1/2	2	5423363	7.42	5423671	7.42
* SC-1	1/4	1/4	5/8	2	5423429	9.97	5423737	9.97
* SC-1L	1/4	1/4	1	2	5560970	12.96	5561080	12.96
SC-1L6	1/4	1/4	1/2	6-1/2	5427895	19.80	5427961	19.80
SC-2	5/16	1/4	3/4	2-1/2	5423451	16.75	5423759	16.75
SC-3	3/8	1/4	3/4	2-1/2	5423473	12.06	5423781	12.06
SC-3L	3/8	1/4	1	2-3/4	5560981	17.51	5561091	17.51
SC-3L6	3/8	1/4	3/4	6-3/4	5427917	26.68	5427983	26.68
SC-3X	3/8	1/4	1-1/2	3-1/4	5560992	20.57	5561102	20.57
SC-4	7/16	1/4	1	2-3/4	5423495	26.46	5423803	26.46
SC-5	1/2	1/4	1	2-3/4	5423517	18.69	5423825	18.69
SC-5L6	1/2	1/4	1	7	5427939	41.98	5428005	41.98
SC-6	5/8	1/4	1	2-3/4	5423539	27.85	5423847	27.85
SC-15	3/4	1/4	1/2	2-1/4	5561003	39.06	5561113	39.06
SC-16	3/4	1/4	3/4	2-1/2	5561014	39.06	5561124	39.06
SC-7	3/4	1/4	1	2-3/4	5423561	40.13	5423869	40.13
SC-9	1	1/4	1	2-3/4	5429435	60.69	5429457	60.69

* One Piece

SC - CYLINDRICAL BALL NOSE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
* SC-1NF	1/4	1/4	5/8	2	5428533	11.95
SC-3NF	3/8	1/4	3/4	2-1/2	5428555	15.93
SC-5NF	1/2	1/4	1	2-3/4	5428577	22.58
SC-7NF	3/4	1/4	1	2-3/4	5428599	54.73

* One Piece

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END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

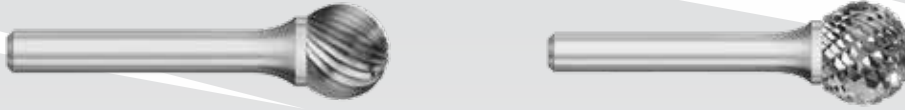
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Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



SD - BALL SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SD-40	1/16	1/8	1/16	1-1/2	5426267	5.27	5560255	5.27
* SD-61	3/32	3/32	3/32	1-1/2	5560189	5.27	5560266	5.27
* SD-41	3/32	1/8	3/32	1-1/2	5426289	4.99	5426531	4.99
* SD-42	1/8	1/8	1/8	1-1/2	5429127	4.99	5426553	4.99
* SD-42L2	1/8	1/8	1/8	2	5560200	7.47	5560277	7.47
SD-42L3	1/8	1/8	1/8	3	5560211	8.27	5560288	8.27
SD-11	1/8	1/4	1/8	2	5426333	12.65	5426619	12.65
* SD-52	5/32	1/8	5/32	1-21/32	5560222	10.16	5560299	10.16
* SD-53	3/16	1/8	3/16	1-11/16	5560233	10.97	5426575	10.97
SD-81	3/16	3/16	5/32	2	5560244	12.05	5560310	12.05
* SD-14	3/16	1/4	3/16	2	5426355	12.65	5426641	12.65
SD-51	1/4	1/8	1/4	1-3/4	5426311	7.40	5426597	7.40
SD-1	1/4	1/4	1/4	2	5426377	9.69	5426663	9.69
SD-1L6	1/4	1/4	1/4	6-1/4	5428027	18.26	5428093	18.26
SD-2	5/16	1/4	5/16	2-1/16	5426399	13.62	5426685	13.62
SD-3	3/8	1/4	3/8	2-1/8	5426421	10.39	5426707	10.39
SD-3L6	3/8	1/4	3/8	6-3/8	5428049	21.96	5428115	21.96
SD-4	7/16	1/4	7/16	2-3/16	5426443	17.58	5426729	17.58
SD-5	1/2	1/4	1/2	2-1/2	5426465	14.09	5426751	14.09
SD-5L6	1/2	1/4	1/2	6-1/2	5428071	29.58	5428137	29.58
SD-6	5/8	1/4	5/8	2-3/8	5426487	21.93	5426773	21.93
SD-7	3/4	1/4	3/4	2-1/2	5426509	30.26	5426795	30.26
SD-9	1	1/4	1	2-3/4	5429149	64.20	5429347	64.20

* One Piece

SD - BALL SHAPE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
* SD-1NF	1/4	1/4	1/4	2	5428885	11.78
SD-3NF	3/8	1/4	3/8	2-1/8	5428907	14.89
SD-5NF	1/2	1/4	1/2	2-13/64	5428929	24.42
SD-6NF	5/8	1/4	5/8	2-5/16	5428951	36.78

* One Piece

END MILLS

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PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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SE - EGG SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SE-61	3/32	3/32	1/8	1-1/2	5560321	5.27	5560409	5.27
* SE-41	1/8	1/8	7/32	1-1/2	5425519	4.99	5425695	4.99
* SE-41L2	1/8	1/8	7/32	2	5560332	7.47	5560420	7.47
* SE-41L3	1/8	1/8	7/32	3	5560343	8.27	5560431	8.27
SE-53	3/16	1/8	9/32	1-25/32	5425541	10.97	5425717	10.97
* SE-81	3/16	3/16	9/32	2	5560354	12.05	5560442	12.05
* SE-11	3/16	1/4	5/16	2	5560365	10.84	5560453	10.84
SE-51	1/4	1/8	3/8	1-7/8	5425563	7.40	5425739	7.40
* SE-1	1/4	1/4	3/8	2	5425585	11.85	5425761	11.85
SE-1L6	1/4	1/4	3/8	6-3/8	5560376	15.99	5560464	15.99
SE-3	3/8	1/4	5/8	2-3/8	5425607	12.47	5425783	12.47
SE-3L6	3/8	1/4	5/8	6-5/8	5560387	17.92	5560475	17.92
SE-5	1/2	1/4	7/8	2-5/8	5425629	17.44	5425805	17.44
SE-5L6	1/2	1/4	7/8	6-7/8	5560398	26.88	5560486	26.88
SE-6	5/8	1/4	1	2-3/4	5425651	27.55	5425827	27.55
SE-7	3/4	1/4	1	2-3/4	5425673	38.53	5425849	38.53

* One Piece

SE - EGG SHAPE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
SE-3NF	3/8	1/4	5/8	2-3/8	5428731	16.54
SE-5NF	1/2	1/4	7/8	2-5/8	5428753	28.78
SE-6NF	5/8	1/4	1	2-3/4	5428775	40.77
SE-7NF	3/4	1/4	1	2-3/4	5428797	58.35

For technical information, please see page 224.

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Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



SF - ROUND NOSE TREE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SF-61	3/32	3/32	1/4	1-1/2	5560497	5.27	5560541	5.27
* SF-41	1/8	1/8	1/4	1-1/2	5423891	4.99	5424177	4.99
* SF-42	1/8	1/8	1/2	1-1/2	5423913	4.99	5424199	4.99
* SF-42L2	1/8	1/8	1/2	2	5560508	7.47	5560552	7.47
* SF-42L3	1/8	1/8	1/2	3	5560519	8.27	5560563	8.27
SF-53	3/16	1/8	1/2	2	5423935	10.97	5424221	10.97
* SF-81	3/16	3/16	1/2	2	5560530	12.05	5560574	12.05
SF-51	1/4	1/8	1/2	2	5423957	7.40	5424243	7.40
* SF-1	1/4	1/4	3/4	2	5423979	10.81	5424265	10.81
SF-1L6	1/4	1/4	1/2	6-1/2	5428159	20.65	5428225	20.65
SF-3	3/8	1/4	3/4	2-1/2	5424001	12.06	5424287	12.06
SF-3L6	3/8	1/4	3/4	6-3/4	5428181	26.16	5428247	26.16
SF-4	7/16	1/4	1	2-3/4	5424023	25.21	5424309	25.21
SF-13	1/2	1/4	3/4	2-1/2	5424045	26.84	5424331	26.84
SF-5	1/2	1/4	1	2-3/4	5424067	18.10	5424353	18.10
SF-5L6	1/2	1/4	1	7	5428203	38.58	5428269	38.58
SF-6	5/8	1/4	1	2-3/4	5424089	27.71	5424375	27.71
SF-7	3/4	1/4	1	2-3/4	5424111	38.71	5424397	38.71
SF-14	3/4	1/4	1-1/4	3	5424133	70.49	5424419	70.49
SF-15	3/4	1/4	1-1/2	3-1/4	5424155	82.78	5424441	82.78

* One Piece

SF - ROUND NOSE TREE FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
* SF-1NF	1/4	1/4	3/4	2	5428621	12.18
SF-3NF	3/8	1/4	3/4	2-1/2	5428643	16.10
SF-5NF	1/2	1/4	1	2-3/4	5428665	28.49
SF-6NF	5/8	1/4	1	2-3/4	5428687	43.47
SF-14NF	3/4	1/4	1-1/4	3	5428709	52.88

* One Piece

END MILLS

DRILL MILLS

CHAMFER MILLS

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For technical information, please see page 224.

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Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

SG - POINTED TREE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SG-61	3/32	3/32	1/4	1-1/2	5561465	5.27	5561553	5.27
* SG-41	1/8	1/8	1/4	1-1/2	5424463	4.97	5424749	4.97
* SG-42	1/8	1/8	5/16	1-1/2	5424485	4.97	5424771	4.97
* SG-43	1/8	1/8	3/8	1-1/2	5424507	4.97	5424793	4.97
* SG-44	1/8	1/8	1/2	1-1/2	5424529	6.92	5424815	6.92
* SG-44L2	1/8	1/8	1/2	2	5561476	7.47	5561564	7.47
* SG-44L3	1/8	1/8	1/2	3	5561487	8.27	5561575	8.27
SG-53	3/16	1/8	1/2	2	5424551	10.97	5424837	10.97
* SG-81	3/16	3/16	1/2	2	5561498	12.05	5561586	12.05
SG-51	1/4	1/8	1/2	2	5424573	7.40	5424859	7.40
* SG-1	1/4	1/4	5/8	2	5424595	11.01	5424881	11.01
SG-1L6	1/4	1/4	1/2	6-1/2	5561509	15.11	5561597	15.11
SG-2	5/16	1/4	3/4	2-1/2	5424617	17.45	5424903	17.45
SG-3	3/8	1/4	3/4	2-1/2	5424639	12.42	5424925	12.42
SG-3L6	3/8	1/4	3/4	6-3/4	5561520	19.02	5561608	19.02
SG-13	1/2	1/4	3/4	2-1/2	5424661	26.33	5424947	26.33
SG-5	1/2	1/4	1	2-3/4	5424683	18.24	5424969	18.24
SG-5L6	1/2	1/4	1	7	5561531	24.81	5561619	24.81
SG-6	5/8	1/4	1	2-3/4	5424705	28.29	5424991	28.29
SG-7	3/4	1/4	1	2-3/4	5424727	37.85	5425013	37.85
SG-15	3/4	1/4	1-1/2	3-1/4	5561542	45.48	5561630	45.48

* One Piece

SH - FLAME SHAPE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
SH-41	1/8	1/8	1/4	1-1/2	5426817	4.99	5426949	4.99
SH41L2	1/8	1/8	1/4	2	5561641	7.47	5561685	7.47
* SH41L3	1/8	1/8	1/4	3	5561652	8.27	5561696	8.27
* SH-53	3/16	1/8	3/8	1-7/8	5426839	10.97	5426971	10.97
* SH-1	1/4	1/4	5/8	2	5429501	11.71	5429523	11.71
SH-2	5/16	1/4	3/4	2-1/2	5426861	13.50	5426993	13.50
* SH-2L6	5/16	1/4	3/4	6-3/4	5561663	17.92	5561707	17.92
SH-5	1/2	1/4	1-1/4	3	5426883	26.16	5427015	26.16
SH-5L6	1/2	1/4	1-1/4	7-1/4	5561674	28.95	5561718	28.95
SH-6	5/8	1/4	1-7/16	3-3/16	5426905	61.66	5427037	61.66
SH-7	3/4	1/4	1-5/8	3-3/8	5426927	78.34	5427059	78.34

* One Piece

END MILLS

DRILL MILLS

CHAMFER MILLS

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BURS

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PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



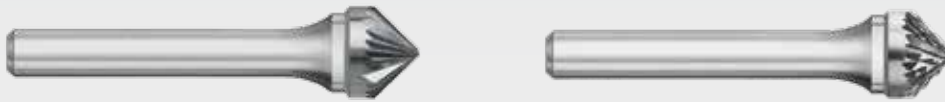
SJ - 60° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SJ-42	1/8	1/8	3/32	1-1/2	5427587	4.99	5427675	4.99
* SJ-1	1/4	1/4	3/16	2	5427609	9.69	5427697	9.69
SJ-3	3/8	1/4	5/16	2-3/16	5427631	11.88	5427719	11.88
SJ-5	1/2	1/4	7/16	2-19/64	5427653	16.29	5427741	16.29
SJ-6	5/8	1/4	9/16	2-5/16	5561729	19.66	5561762	19.66
SJ-7	3/4	1/4	11/16	2-7/16	5561740	25.78	5561773	25.78
SJ-9	1	1/4	15/16	2-11/16	5561751	51.85	5561784	51.85

* One Piece

SK - 90° INCLUDED ANGLE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SK-42	1/8	1/8	1/16	1-1/2	5427411	4.99	5427499	4.99
* SK-1	1/4	1/4	1/8	2	5427433	9.69	5427521	9.69
SK-3	3/8	1/4	3/16	2-1/16	5427455	10.02	5427543	10.02
SK-5	1/2	1/4	1/4	2-1/8	5427477	15.70	5427565	15.70
SK-6	5/8	1/4	5/16	2-3/16	5561795	19.66	5561817	19.66
SK-7	3/4	1/4	3/8	2-1/4	5429391	31.98	5429413	31.98
SK-9	1	1/4	1/2	2-1/4	5561806	48.71	5561828	48.71

* One Piece



END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

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For technical information, please see page 224.

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Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

SL - INCLUDED ANGLE WITH RADIUS END



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SL-41	1/8	1/8	3/8	1-1/2	5425871	4.97	5426069	4.97
* SL-42	1/8	1/8	1/2	1-1/2	5425893	4.97	5426091	4.97
* SL-42L2	1/8	1/8	1/2	2	5561839	7.47	5561872	7.47
* SL-42L3	1/8	1/8	1/2	3	5561850	8.27	5561883	8.27
SL-53	3/16	1/8	1/2	2	5425915	10.97	5426113	10.97
* SL-81	3/16	3/16	7/16	2	5561861	12.05	5561894	12.05
* SL-1	1/4	1/4	5/8	2	5425937	10.09	5426135	10.09
SL-1L6	1/4	1/4	5/8	6-5/8	5428291	21.16	5428357	21.16
SL-2	5/16	1/4	7/8	2-3/4	5425959	19.30	5426157	19.30
SL-3	3/8	1/4	1-1/16	2-15/16	5425981	13.97	5426179	13.97
SL-3L6	3/8	1/4	1-1/16	7-1/16	5428313	33.33	5428379	33.33
SL-4	1/2	1/4	1-1/8	3	5426003	28.30	5426201	28.30
SL-4L6	1/2	1/4	1-1/4	7-1/4	5428335	40.84	5428401	40.84
SL-6	5/8	1/4	1-5/16	3-3/16	5426025	45.38	5426223	45.38
SL-7	3/4	1/4	1-1/2	3-3/8	5426047	62.10	5426245	62.10

* One Piece

SL - INCLUDED ANGLE WITH RADIUS END - FOR ALUMINUM



TOOL #	SIZE	SHANK	LOC	OAL	ALUMA CUT	PRICE
SL-3NF	3/8	1/4	1-1/16	2-15/16	5559483	24.94
SL-4NF	1/2	1/4	1-1/4	3	5428819	28.56
SL-5NF	5/8	1/4	1-3/16	3-5/16	5559494	51.95
SL-6NF	5/8	1/4	1-5/16	3-3/16	5428841	57.51
SL-7NF	3/4	1/4	1-1/2	3-3/8	5428863	71.43

SM - POINTED CONE



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SM-61	3/32	3/32	1/4	1-1/2	5560002	5.27	5560035	5.27
* SM-41	1/8	1/8	11/32	1-1/2	5425035	4.99	5425277	4.99
* SM-42	1/8	1/8	7/16	1-1/2	5425057	4.99	5425299	4.99
* SM-42L2	1/8	1/8	7/16	2	5560013	7.47	5560046	7.47
* SM-42L3	1/8	1/8	7/16	3	5560024	8.27	5560057	8.27
* SM-43	1/8	1/8	5/8	1-1/2	5425079	4.99	5425321	4.99
SM-53	3/16	1/8	1/2	2	5425101	10.97	5425343	10.97
SM-51	1/4	1/8	1/2	2-1/8	5425123	7.40	5425365	7.40
* SM-1	1/4	1/4	1/2	2	5425145	9.49	5425387	9.49
* SM-2	1/4	1/4	3/4	2	5425167	14.70	5425409	14.70
* SM-3	1/4	1/4	1	2	5425189	10.60	5425431	10.60
SM-4	3/8	1/4	5/8	2-1/2	5425211	14.12	5425453	14.12
SM-5	1/2	1/4	7/8	2-3/4	5425233	19.77	5425475	19.77
SM-6	5/8	1/4	1	2-7/8	5425255	44.65	5425497	44.65

* One Piece

For technical information, please see page 224.

KODIAKCUTTINGTOOLS.COM

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

Carbide Burs

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



SN - INVERTED TAPER



TOOL #	SIZE	SHANK	LOC	OAL	SINGLE CUT	PRICE	DOUBLE CUT	PRICE
* SN-61	3/32	3/32	1/8	1-1/2	5560068	5.27	5560123	5.27
* SN-41	3/32	1/8	1/8	1-1/2	5427081	4.99	5560134	4.99
* SN-42	1/8	1/8	3/16	1-1/2	5427103	4.99	5427213	4.99
SN-53	3/16	1/8	1/4	1-3/4	5427125	10.97	5427235	10.97
* SN-81	3/16	3/16	1/4	2	5560079	12.05	5560145	12.05
SN-51	1/4	1/8	1/4	1-3/4	5427147	7.40	5427257	7.40
* SN-1	1/4	1/4	5/16	2	5427169	9.64	5427279	9.64
SN-2	3/8	1/4	3/8	2-1/8	5560090	13.56	5560156	13.56
SN-4	1/2	1/4	1/2	2-1/4	5427191	28.14	5427301	28.14
SN-6	5/8	1/4	3/4	2-1/2	5560101	24.89	5560167	24.89
SN-7	3/4	1/4	5/8	2-3/8	5560112	30.05	5560178	30.05

* One Piece

CARBIDE BUR SETS



ITEM# 5427323



ITEM# 5429545

SET SIZES	# OF PCS. IN SET	DIA.	SHANK DIAMETER	CASE TYPE	TYPE	ITEM#	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	5427323	73.44
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	5429545	138.28

END MILLS

DRILL MILLS

CHAMFER MILLS

DRILLS

REAMERS

BURS

For technical information, please see page 224.

KODIAKCUTTINGTOOLS.COM



Carbide Micro End Mills

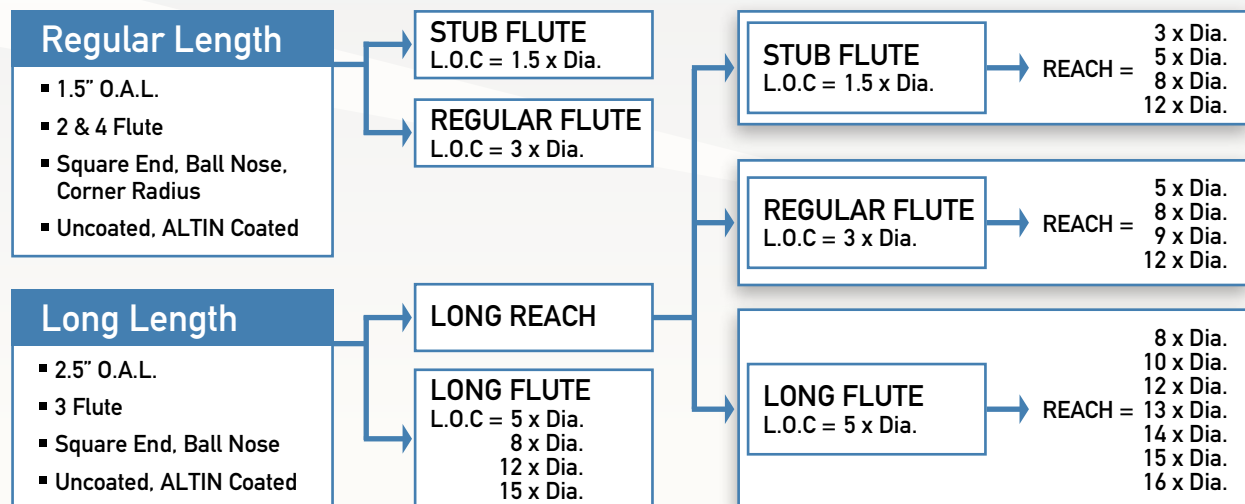
PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

**Top quality
Carbide Micro End Mills
Made in the USA**

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

PREMIUM QUALITY AMERICAN-MADE 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, we are 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	LOC	ITEM#	PRICE
0.005	0.008	5520526	29.98
0.010	0.015	5520537	26.87
0.015	0.023	5520548	16.82
0.020	0.030	5520559	15.29
0.025	0.038	5520570	15.29
0.030	0.045	5520581	14.35
0.031	0.047	5520592	13.45
0.035	0.053	5520603	13.45
0.040	0.060	5520614	13.45
0.045	0.068	5520625	13.12
0.047	0.071	5520636	13.12
0.050	0.075	5520647	13.12
0.055	0.083	5520658	13.12

DIA	LOC	ITEM#	PRICE
0.060	0.090	5520669	13.12
0.062	0.093	5520680	13.12
0.065	0.098	5520691	13.12
0.070	0.105	5520702	13.12
0.075	0.113	5520713	13.12
0.078	0.117	5520724	13.12
0.080	0.120	5520735	13.12
0.085	0.128	5520746	13.12
0.090	0.135	5520757	13.12
0.093	0.140	5520768	13.12
0.095	0.143	5520779	13.12
0.100	0.150	5520790	13.12



ALTIN COATED

DIA	LOC	ITEM#	PRICE
0.005	0.008	5520801	35.97
0.010	0.015	5520812	32.24
0.015	0.023	5520823	20.18
0.020	0.030	5520834	18.34
0.025	0.038	5520845	18.34
0.030	0.045	5520856	17.22
0.031	0.047	5520867	16.12
0.035	0.053	5520878	16.12
0.040	0.060	5520889	16.12
0.045	0.068	5520900	15.74
0.047	0.071	5520911	15.74
0.050	0.075	5520922	15.74
0.055	0.083	5520933	15.74

DIA	LOC	ITEM#	PRICE
0.060	0.090	5520944	15.74
0.062	0.093	5520955	15.74
0.065	0.098	5520966	15.74
0.070	0.105	5520977	15.74
0.075	0.113	5520988	15.74
0.078	0.117	5520999	15.74
0.080	0.120	5521010	15.74
0.085	0.128	5521021	15.74
0.090	0.135	5521032	15.74
0.093	0.140	5521043	15.74
0.095	0.143	5521054	15.74
0.100	0.150	5521065	15.74

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, -.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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	LOC	ITEM#	PRICE
0.005	0.008	5521076	37.47
0.010	0.015	5521087	33.59
0.015	0.023	5521098	21.02
0.020	0.030	5521109	19.11
0.025	0.038	5521120	19.11
0.030	0.045	5521131	17.93
0.031	0.047	5521142	16.82
0.035	0.053	5521153	16.82
0.040	0.060	5521164	16.82
0.045	0.068	5521175	16.40
0.047	0.071	5521186	16.40
0.050	0.075	5521197	16.40
0.055	0.083	5521208	16.40

DIA	LOC	ITEM#	PRICE
0.060	0.090	5521219	16.40
0.062	0.093	5521230	16.40
0.065	0.098	5521241	16.40
0.070	0.105	5521252	16.40
0.075	0.113	5521263	16.40
0.078	0.117	5521274	16.40
0.080	0.120	5521285	16.40
0.085	0.128	5521296	16.40
0.090	0.135	5521307	16.40
0.093	0.140	5521318	16.40
0.095	0.143	5521329	16.40
0.100	0.150	5521340	16.40



ALTIN COATED

DIA	LOC	ITEM#	PRICE
0.005	0.008	5521351	44.97
0.010	0.015	5521362	40.30
0.015	0.023	5521373	25.22
0.020	0.030	5521384	22.93
0.025	0.038	5521395	22.93
0.030	0.045	5521406	21.51
0.031	0.047	5521417	20.18
0.035	0.053	5521428	20.18
0.040	0.060	5521439	20.18
0.045	0.068	5521450	19.70
0.047	0.071	5521461	19.70
0.050	0.075	5521472	19.70
0.055	0.083	5521483	19.70

DIA	LOC	ITEM#	PRICE
0.060	0.090	5521494	19.70
0.062	0.093	5521505	19.70
0.065	0.098	5521516	19.70
0.070	0.105	5521527	19.70
0.075	0.113	5521538	19.70
0.078	0.117	5521549	19.70
0.080	0.120	5521560	19.70
0.085	0.128	5521571	19.70
0.090	0.135	5521582	19.70
0.093	0.140	5521593	19.70
0.095	0.143	5521604	19.70
0.100	0.150	5521615	19.70

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	LOC	ITEM#	PRICE
0.005	0.015	5443768	26.07
0.006	0.018	5443779	26.07
0.007	0.021	5443790	26.07
0.008	0.024	5443801	26.07
0.009	0.027	5443812	23.36
0.010	0.030	5443823	23.36
0.011	0.033	5443834	20.92
0.012	0.036	5443845	20.92
0.013	0.039	5443856	17.30
0.014	0.042	5443867	17.30
0.015	0.045	5443878	14.63
0.016	0.048	5443889	14.63
0.017	0.051	5443900	14.63
0.018	0.054	5443911	14.63
0.019	0.057	5443922	14.63
0.020	0.060	5443933	13.29
0.021	0.063	5443944	13.29
0.022	0.066	5443955	13.29
0.023	0.069	5443966	13.29
0.024	0.072	5443977	13.29
0.025	0.075	5443988	13.29
0.026	0.078	5443999	12.47
0.027	0.081	5444010	12.47
0.028	0.084	5444021	12.47
0.029	0.087	5444032	12.47
0.030	0.090	5444043	12.47
0.031	0.093	5444054	11.69
0.032	0.096	5444065	11.69
0.033	0.099	5444076	11.69
0.034	0.102	5444087	11.69
0.035	0.105	5444098	11.69
0.036	0.108	5444109	11.69
0.037	0.111	5444120	11.69
0.038	0.114	5444131	11.69
0.039	0.117	5444142	11.69
0.040	0.120	5444153	11.69

DIA	LOC	ITEM#	PRICE
0.041	0.123	5444164	11.69
0.042	0.126	5444175	11.69
0.043	0.129	5444186	11.69
0.044	0.132	5444197	11.40
0.045	0.135	5444208	11.40
0.046	0.138	5444219	11.40
0.047	0.141	5444230	11.40
0.048	0.144	5444241	11.40
0.049	0.147	5444252	11.40
0.050	0.150	5444263	11.40
0.051	0.153	5444274	11.40
0.052	0.156	5444285	11.40
0.053	0.159	5444296	11.40
0.054	0.162	5444307	11.40
0.055	0.165	5444318	11.40
0.056	0.168	5444329	11.40
0.057	0.171	5444340	11.40
0.058	0.174	5444351	11.40
0.059	0.177	5444362	11.40
0.060	0.180	5444373	11.40
0.061	0.183	5444384	11.40
0.062	0.186	5444395	11.40
0.063	0.189	5444406	11.40
0.064	0.192	5444417	11.40
0.065	0.195	5444428	11.40
0.066	0.198	5444439	11.40
0.067	0.201	5444450	11.40
0.068	0.204	5444461	11.40
0.069	0.207	5444472	11.40
0.070	0.210	5444483	11.40
0.071	0.213	5444494	11.40
0.072	0.216	5444505	11.40
0.073	0.219	5444516	11.40
0.074	0.222	5444527	11.40
0.075	0.225	5444538	11.40
0.076	0.228	5444549	11.40

DIA	LOC	ITEM#	PRICE
0.077	0.231	5444560	11.40
0.078	0.234	5444571	11.40
0.079	0.237	5444582	11.40
0.080	0.240	5444593	11.40
0.081	0.243	5444604	11.40
0.082	0.246	5444615	11.40
0.083	0.249	5444626	11.40
0.084	0.252	5444637	11.40
0.085	0.255	5444648	11.40
0.086	0.258	5444659	11.40
0.087	0.261	5444670	11.40
0.088	0.264	5444681	11.40
0.089	0.267	5444692	11.40
0.090	0.270	5444703	11.40
0.091	0.273	5444714	11.40
0.092	0.276	5444725	11.40
0.093	0.279	5444736	11.40
0.094	0.282	5444747	11.40
0.095	0.285	5444758	11.40
0.096	0.288	5444769	11.40
0.097	0.291	5444780	11.40
0.098	0.294	5444791	11.40
0.099	0.297	5444802	11.40
0.100	0.300	5444813	11.40
0.101	0.303	5444824	11.40
0.102	0.306	5444835	11.40
0.103	0.309	5444846	11.40
0.104	0.312	5444857	11.40
0.105	0.315	5444868	11.40
0.106	0.318	5444879	11.40
0.107	0.321	5444890	11.40
0.108	0.324	5444901	11.40
0.109	0.327	5444912	11.40
0.110	0.330	5444923	11.40
0.115	0.345	5444934	11.40
0.120	0.360	5444945	11.40

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	ITEM#	PRICE
0.005	0.015	5522682	31.28
0.006	0.018	5522693	31.28
0.007	0.021	5522704	31.28
0.008	0.024	5522715	31.28
0.009	0.027	5522726	28.04
0.010	0.030	5522737	28.04
0.011	0.033	5522748	25.10
0.012	0.036	5522759	25.10
0.013	0.039	5522770	20.76
0.014	0.042	5522781	20.76
0.015	0.045	5522792	17.55
0.016	0.048	5522803	17.55
0.017	0.051	5522814	17.55
0.018	0.054	5522825	17.55
0.019	0.057	5522836	17.55
0.020	0.060	5522847	15.95
0.021	0.063	5522858	15.95
0.022	0.066	5522869	15.95
0.023	0.069	5522880	15.95
0.024	0.072	5522891	15.95
0.025	0.075	5522902	15.95
0.026	0.078	5522913	14.97
0.027	0.081	5522924	14.97
0.028	0.084	5522935	14.97
0.029	0.087	5522946	14.97
0.030	0.090	5522957	14.97
0.031	0.093	5522968	14.02
0.032	0.096	5522979	14.02
0.033	0.099	5522990	14.02
0.034	0.102	5523001	14.02
0.035	0.105	5523012	14.02
0.036	0.108	5523023	14.02
0.037	0.111	5523034	14.02
0.038	0.114	5523045	14.02
0.039	0.117	5523056	14.02
0.040	0.120	5523067	14.02

DIA	LOC	ITEM#	PRICE
0.041	0.123	5523078	14.02
0.042	0.126	5523089	14.02
0.043	0.129	5523100	14.02
0.044	0.132	5523111	13.69
0.045	0.135	5523122	13.69
0.046	0.138	5523133	13.69
0.047	0.141	5523144	13.69
0.048	0.144	5523155	13.69
0.049	0.147	5523166	13.69
0.050	0.150	5523177	13.69
0.051	0.153	5523188	13.69
0.052	0.156	5523199	13.69
0.053	0.159	5523210	13.69
0.054	0.162	5523221	13.69
0.055	0.165	5523232	13.69
0.056	0.168	5523243	13.69
0.057	0.171	5523254	13.69
0.058	0.174	5523265	13.69
0.059	0.177	5523276	13.69
0.060	0.180	5523287	13.69
0.061	0.183	5523298	13.69
0.062	0.186	5523309	13.69
0.063	0.189	5523320	13.69
0.064	0.192	5523331	13.69
0.065	0.195	5523342	13.69
0.066	0.198	5523353	13.69
0.067	0.201	5523364	13.69
0.068	0.204	5523375	13.69
0.069	0.207	5523386	13.69
0.070	0.210	5523397	13.69
0.071	0.213	5523408	13.69
0.072	0.216	5523419	13.69
0.073	0.219	5523430	13.69
0.074	0.222	5523441	13.69
0.075	0.225	5523452	13.69
0.076	0.228	5523463	13.69

DIA	LOC	ITEM#	PRICE
0.077	0.231	5523474	13.69
0.078	0.234	5523485	13.69
0.079	0.237	5523496	13.69
0.080	0.240	5523507	13.69
0.081	0.243	5523518	13.69
0.082	0.246	5523529	13.69
0.083	0.249	5523540	13.69
0.084	0.252	5523551	13.69
0.085	0.255	5523562	13.69
0.086	0.258	5523573	13.69
0.087	0.261	5523584	13.69
0.088	0.264	5523595	13.69
0.089	0.267	5523606	13.69
0.090	0.270	5523617	13.69
0.091	0.273	5523628	13.69
0.092	0.276	5523639	13.69
0.093	0.279	5523650	13.69
0.094	0.282	5523661	13.69
0.095	0.285	5523672	13.69
0.096	0.288	5523683	13.69
0.097	0.291	5523694	13.69
0.098	0.294	5523705	13.69
0.099	0.297	5523716	13.69
0.100	0.300	5523727	13.69
0.101	0.303	5523738	13.69
0.102	0.306	5523749	13.69
0.103	0.309	5523760	13.69
0.104	0.312	5523771	13.69
0.105	0.315	5523782	13.69
0.106	0.318	5523793	13.69
0.107	0.321	5523804	13.69
0.108	0.324	5523815	13.69
0.109	0.327	5523826	13.69
0.110	0.330	5523837	13.69
0.115	0.345	5523848	13.69
0.120	0.360	5523859	13.69

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



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	ITEM#	PRICE
0.005	0.015	5444956	32.59
0.006	0.018	5444967	32.59
0.007	0.021	5444978	32.59
0.008	0.024	5444989	32.59
0.009	0.027	5445000	29.22
0.010	0.030	5445011	29.22
0.011	0.033	5445022	26.14
0.012	0.036	5445033	26.14
0.013	0.039	5445044	21.66
0.014	0.042	5445055	21.66
0.015	0.045	5445066	18.27
0.016	0.048	5445077	18.27
0.017	0.051	5445088	18.27
0.018	0.054	5445099	18.27
0.019	0.057	5445110	18.27
0.020	0.060	5445121	16.62
0.021	0.063	5445132	16.62
0.022	0.066	5445143	16.62
0.023	0.069	5445154	16.62
0.024	0.072	5445165	16.62
0.025	0.075	5445176	16.62
0.026	0.078	5445187	15.60
0.027	0.081	5445198	15.60
0.028	0.084	5445209	15.60
0.029	0.087	5445220	15.60
0.030	0.090	5445231	15.60
0.031	0.093	5445242	14.63
0.032	0.096	5445253	14.63
0.033	0.099	5445264	14.63
0.034	0.102	5445275	14.63
0.035	0.105	5445286	14.63
0.036	0.108	5445297	14.63
0.037	0.111	5445308	14.63
0.038	0.114	5445319	14.63
0.039	0.117	5445330	14.63
0.040	0.120	5445341	14.63

DIA	LOC	ITEM#	PRICE
0.041	0.123	5445352	14.63
0.042	0.126	5445363	14.63
0.043	0.129	5445374	14.63
0.044	0.132	5445385	14.26
0.045	0.135	5445396	14.26
0.046	0.138	5445407	14.26
0.047	0.141	5445418	14.26
0.048	0.144	5445429	14.26
0.049	0.147	5445440	14.26
0.050	0.150	5445451	14.26
0.051	0.153	5445462	14.26
0.052	0.156	5445473	14.26
0.053	0.159	5445484	14.26
0.054	0.162	5445495	14.26
0.055	0.165	5445506	14.26
0.056	0.168	5445517	14.26
0.057	0.171	5445528	14.26
0.058	0.174	5445539	14.26
0.059	0.177	5445550	14.26
0.060	0.180	5445561	14.26
0.061	0.183	5445572	14.26
0.062	0.186	5445583	14.26
0.063	0.189	5445594	14.26
0.064	0.192	5445605	14.26
0.065	0.195	5445616	14.26
0.066	0.198	5445627	14.26
0.067	0.201	5445638	14.26
0.068	0.204	5445649	14.26
0.069	0.207	5445660	14.26
0.070	0.210	5445671	14.26
0.071	0.213	5445682	14.26
0.072	0.216	5445693	14.26
0.073	0.219	5445704	14.26
0.074	0.222	5445715	14.26
0.075	0.225	5445726	14.26
0.076	0.228	5445737	14.26

DIA	LOC	ITEM#	PRICE
0.077	0.231	5445748	14.26
0.078	0.234	5445759	14.26
0.079	0.237	5445770	14.26
0.080	0.240	5445781	14.26
0.081	0.243	5445792	14.26
0.082	0.246	5445803	14.26
0.083	0.249	5445814	14.26
0.084	0.252	5445825	14.26
0.085	0.255	5445836	14.26
0.086	0.258	5445847	14.26
0.087	0.261	5445858	14.26
0.088	0.264	5445869	14.26
0.089	0.267	5445880	14.26
0.090	0.270	5445891	14.26
0.091	0.273	5445902	14.26
0.092	0.276	5445913	14.26
0.093	0.279	5445924	14.26
0.094	0.282	5445935	14.26
0.095	0.285	5445946	14.26
0.096	0.288	5445957	14.26
0.097	0.291	5445968	14.26
0.098	0.294	5445979	14.26
0.099	0.297	5445990	14.26
0.100	0.300	5446001	14.26
0.101	0.303	5446012	14.26
0.102	0.306	5446023	14.26
0.103	0.309	5446034	14.26
0.104	0.312	5446045	14.26
0.105	0.315	5446056	14.26
0.106	0.318	5446067	14.26
0.107	0.321	5446078	14.26
0.108	0.324	5446089	14.26
0.109	0.327	5446100	14.26
0.110	0.330	5446111	14.26
0.115	0.345	5446122	14.26
0.120	0.360	5446133	14.26

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTIM COATED

DIA	LOC	ITEM#	PRICE
0.005	0.015	5523870	39.10
0.006	0.018	5523881	39.10
0.007	0.021	5523892	39.10
0.008	0.024	5523903	39.10
0.009	0.027	5523914	35.05
0.010	0.030	5523925	35.05
0.011	0.033	5523936	31.39
0.012	0.036	5523947	31.39
0.013	0.039	5523958	25.99
0.014	0.042	5523969	25.99
0.015	0.045	5523980	21.92
0.016	0.048	5523991	21.92
0.017	0.051	5524002	21.92
0.018	0.054	5524013	21.92
0.019	0.057	5524024	21.92
0.020	0.060	5524035	19.94
0.021	0.063	5524046	19.94
0.022	0.066	5524057	19.94
0.023	0.069	5524068	19.94
0.024	0.072	5524079	19.94
0.025	0.075	5524090	19.94
0.026	0.078	5524101	18.70
0.027	0.081	5524112	18.70
0.028	0.084	5524123	18.70
0.029	0.087	5524134	18.70
0.030	0.090	5524145	18.70
0.031	0.093	5524156	17.55
0.032	0.096	5524167	17.55
0.033	0.099	5524178	17.55
0.034	0.102	5524189	17.55
0.035	0.105	5524200	17.55
0.036	0.108	5524211	17.55
0.037	0.111	5524222	17.55
0.038	0.114	5524233	17.55
0.039	0.117	5524244	17.55
0.040	0.120	5524255	17.55

DIA	LOC	ITEM#	PRICE
0.041	0.123	5524266	17.55
0.042	0.126	5524277	17.55
0.043	0.129	5524288	17.55
0.044	0.132	5524299	17.13
0.045	0.135	5524310	17.13
0.046	0.138	5524321	17.13
0.047	0.141	5524332	17.13
0.048	0.144	5524343	17.13
0.049	0.147	5524354	17.13
0.050	0.150	5524365	17.13
0.051	0.153	5524376	17.13
0.052	0.156	5524387	17.13
0.053	0.159	5524398	17.13
0.054	0.162	5524409	17.13
0.055	0.165	5524420	17.13
0.056	0.168	5524431	17.13
0.057	0.171	5524442	17.13
0.058	0.174	5524453	17.13
0.059	0.177	5524464	17.13
0.060	0.180	5524475	17.13
0.061	0.183	5524486	17.13
0.062	0.186	5524497	17.13
0.063	0.189	5524508	17.13
0.064	0.192	5524519	17.13
0.065	0.195	5524530	17.13
0.066	0.198	5524541	17.13
0.067	0.201	5524552	17.13
0.068	0.204	5524563	17.13
0.069	0.207	5524574	17.13
0.070	0.210	5524585	17.13
0.071	0.213	5524596	17.13
0.072	0.216	5524607	17.13
0.073	0.219	5524618	17.13
0.074	0.222	5524629	17.13
0.075	0.225	5524640	17.13
0.076	0.228	5524651	17.13

DIA	LOC	ITEM#	PRICE
0.077	0.231	5524662	17.13
0.078	0.234	5524673	17.13
0.079	0.237	5524684	17.13
0.080	0.240	5524695	17.13
0.081	0.243	5524706	17.13
0.082	0.246	5524717	17.13
0.083	0.249	5524728	17.13
0.084	0.252	5524739	17.13
0.085	0.255	5524750	17.13
0.086	0.258	5524761	17.13
0.087	0.261	5524772	17.13
0.088	0.264	5524783	17.13
0.089	0.267	5524794	17.13
0.090	0.270	5524805	17.13
0.091	0.273	5524816	17.13
0.092	0.276	5524827	17.13
0.093	0.279	5524838	17.13
0.094	0.282	5524849	17.13
0.095	0.285	5524860	17.13
0.096	0.288	5524871	17.13
0.097	0.291	5524882	17.13
0.098	0.294	5524893	17.13
0.099	0.297	5524904	17.13
0.100	0.300	5524915	17.13
0.101	0.303	5524926	17.13
0.102	0.306	5524937	17.13
0.103	0.309	5524948	17.13
0.104	0.312	5524959	17.13
0.105	0.315	5524970	17.13
0.106	0.318	5524981	17.13
0.107	0.321	5524992	17.13
0.108	0.324	5525003	17.13
0.109	0.327	5525014	17.13
0.110	0.330	5525025	17.13
0.115	0.345	5525036	17.13
0.120	0.360	5525047	17.13

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



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	LOC	ITEM#	PRICE
0.010	0.015	5521626	26.87
0.015	0.023	5521637	16.82
0.020	0.030	5521648	15.29
0.025	0.038	5521659	15.29
0.030	0.045	5521670	14.35
0.031	0.047	5521681	13.45
0.035	0.053	5521692	13.45
0.040	0.060	5521703	13.45
0.045	0.068	5521714	13.12
0.047	0.071	5521725	13.12
0.050	0.075	5521736	13.12
0.055	0.083	5521747	13.12

DIA	LOC	ITEM#	PRICE
0.060	0.090	5521758	13.12
0.062	0.093	5521769	13.12
0.065	0.098	5521780	13.12
0.070	0.105	5521791	13.12
0.075	0.113	5521802	13.12
0.078	0.117	5521813	13.12
0.080	0.120	5521824	13.12
0.085	0.128	5521835	13.12
0.090	0.135	5521846	13.12
0.093	0.140	5521857	13.12
0.095	0.143	5521868	13.12
0.100	0.150	5521879	13.12

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



ALTIN COATED

DIA	LOC	ITEM#	PRICE
0.010	0.015	5521890	32.24
0.015	0.023	5521901	20.18
0.020	0.030	5521912	18.34
0.025	0.038	5521923	18.34
0.030	0.045	5521934	17.22
0.031	0.047	5521945	16.12
0.035	0.053	5521956	16.12
0.040	0.060	5521967	16.12
0.045	0.068	5521978	15.74
0.047	0.071	5521989	15.74
0.050	0.075	5522000	15.74
0.055	0.083	5522011	15.74

DIA	LOC	ITEM#	PRICE
0.060	0.090	5522022	15.74
0.062	0.093	5522033	15.74
0.065	0.098	5522044	15.74
0.070	0.105	5522055	15.74
0.075	0.113	5522066	15.74
0.078	0.117	5522077	15.74
0.080	0.120	5522088	15.74
0.085	0.128	5522099	15.74
0.090	0.135	5522110	15.74
0.093	0.140	5522121	15.74
0.095	0.143	5522132	15.74
0.100	0.150	5522143	15.74

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	LOC	ITEM#	PRICE
0.010	0.015	5522154	29.22
0.015	0.023	5522165	18.27
0.020	0.030	5522176	16.62
0.025	0.038	5522187	16.62
0.030	0.045	5522198	15.60
0.031	0.047	5522209	14.63
0.035	0.053	5522220	14.63
0.040	0.060	5522231	14.63
0.045	0.068	5522242	14.26
0.047	0.071	5522253	14.26
0.050	0.075	5522264	14.26
0.055	0.083	5522275	14.26

DIA	LOC	ITEM#	PRICE
0.060	0.090	5522286	14.26
0.062	0.093	5522297	14.26
0.065	0.098	5522308	14.26
0.070	0.105	5522319	14.26
0.075	0.113	5522330	14.26
0.078	0.117	5522341	14.26
0.080	0.120	5522352	14.26
0.085	0.128	5522363	14.26
0.090	0.135	5522374	14.26
0.093	0.140	5522385	14.26
0.095	0.143	5522396	14.26
0.100	0.150	5522407	14.26

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL



ALTIN COATED

DIA	LOC	ITEM#	PRICE
0.010	0.015	5522418	40.30
0.015	0.023	5522429	25.22
0.020	0.030	5522440	22.93
0.025	0.038	5522451	22.93
0.030	0.045	5522462	21.51
0.031	0.047	5522473	20.18
0.035	0.053	5522484	20.18
0.040	0.060	5522495	20.18
0.045	0.068	5522506	19.70
0.047	0.071	5522517	19.70
0.050	0.075	5522528	19.70
0.055	0.083	5522539	19.70

DIA	LOC	ITEM#	PRICE
0.060	0.090	5522550	19.70
0.062	0.093	5522561	19.70
0.065	0.098	5522572	19.70
0.070	0.105	5522583	19.70
0.075	0.113	5522594	19.70
0.078	0.117	5522605	19.70
0.080	0.120	5522616	19.70
0.085	0.128	5522627	19.70
0.090	0.135	5522638	19.70
0.093	0.140	5522649	19.70
0.095	0.143	5522660	19.70
0.100	0.150	5522671	19.70

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



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	LOC	RAD	ITEM#	PRICE
0.015	0.023	0.003	5518722	35.56
0.020	0.030	0.005	5518733	33.20
0.025	0.038	0.005	5518744	33.20
0.030	0.045	0.005	5518755	23.71
0.030	0.045	0.010	5518766	23.71
0.031	0.047	0.005	5518777	23.71
0.031	0.047	0.010	5518788	23.71
0.035	0.053	0.005	5518799	23.71
0.035	0.053	0.010	5518810	23.71
0.040	0.060	0.005	5518821	23.71
0.040	0.060	0.010	5518832	23.71
0.045	0.068	0.005	5518843	23.71
0.045	0.068	0.010	5518854	23.71
0.045	0.068	0.015	5518865	23.71

DIA	LOC	RAD	ITEM#	PRICE
0.047	0.071	0.005	5518876	23.71
0.047	0.071	0.010	5518887	23.71
0.047	0.071	0.015	5518898	23.71
0.050	0.075	0.005	5518909	23.71
0.050	0.075	0.010	5518920	23.71
0.050	0.075	0.015	5518931	23.71
0.060	0.090	0.005	5518942	23.71
0.060	0.090	0.010	5518953	23.71
0.060	0.090	0.015	5518964	23.71
0.062	0.093	0.005	5518975	23.71
0.062	0.093	0.010	5518986	23.71
0.062	0.093	0.015	5518997	23.71
0.075	0.113	0.005	5519008	23.71
0.075	0.113	0.010	5519019	23.71

DIA	LOC	RAD	ITEM#	PRICE
0.075	0.113	0.015	5519030	23.71
0.078	0.117	0.005	5519041	23.71
0.078	0.117	0.010	5519052	23.71
0.078	0.117	0.015	5519063	23.71
0.090	0.135	0.005	5519074	23.71
0.090	0.135	0.010	5519085	23.71
0.090	0.135	0.015	5519096	23.71
0.093	0.140	0.005	5519107	23.71
0.093	0.140	0.010	5519118	23.71
0.093	0.140	0.015	5519129	23.71
0.100	0.150	0.005	5519140	23.71
0.100	0.150	0.010	5519151	23.71
0.100	0.150	0.015	5519162	23.71



ALTiN COATED

DIA	LOC	RAD	ITEM#	PRICE
0.015	0.023	0.003	5519173	44.09
0.020	0.030	0.005	5519184	41.15
0.025	0.038	0.005	5519195	41.15
0.030	0.045	0.005	5519206	29.39
0.030	0.045	0.010	5519217	29.39
0.031	0.047	0.005	5519228	29.39
0.031	0.047	0.010	5519239	29.39
0.035	0.053	0.005	5519250	29.39
0.035	0.053	0.010	5519261	29.39
0.040	0.060	0.005	5519272	29.39
0.040	0.060	0.010	5519283	29.39
0.045	0.068	0.005	5519294	29.39
0.045	0.068	0.010	5519305	29.39
0.045	0.068	0.015	5519316	29.39

DIA	LOC	RAD	ITEM#	PRICE
0.047	0.071	0.005	5519327	29.39
0.047	0.071	0.010	5519338	29.39
0.047	0.071	0.015	5519349	29.39
0.050	0.075	0.005	5519360	29.39
0.050	0.075	0.010	5519371	29.39
0.050	0.075	0.015	5519382	29.39
0.060	0.090	0.005	5519393	29.39
0.060	0.090	0.010	5519404	29.39
0.060	0.090	0.015	5519415	29.39
0.062	0.093	0.005	5519426	29.39
0.062	0.093	0.010	5519437	29.39
0.062	0.093	0.015	5519448	29.39
0.075	0.113	0.005	5519459	29.39
0.075	0.113	0.010	5519470	29.39

DIA	LOC	RAD	ITEM#	PRICE
0.075	0.113	0.015	5519481	29.39
0.078	0.117	0.005	5519492	29.39
0.078	0.117	0.010	5519503	29.39
0.078	0.117	0.015	5519514	29.39
0.090	0.135	0.005	5519525	29.39
0.090	0.135	0.010	5519536	29.39
0.090	0.135	0.015	5519547	29.39
0.093	0.140	0.005	5519558	29.39
0.093	0.140	0.010	5519569	29.39
0.093	0.140	0.015	5519580	29.39
0.100	0.150	0.005	5519591	29.39
0.100	0.150	0.010	5519602	29.39
0.100	0.150	0.015	5519613	29.39

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	+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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	LOC	RAD	ITEM#	PRICE
0.015	0.045	0.003	5519624	35.56
0.020	0.060	0.005	5519635	33.20
0.025	0.075	0.005	5519646	33.20
0.030	0.090	0.005	5519657	23.71
0.030	0.090	0.010	5519668	23.71
0.031	0.093	0.005	5519679	23.71
0.031	0.093	0.010	5519690	23.71
0.035	0.105	0.005	5519701	23.71
0.035	0.105	0.010	5519712	23.71
0.040	0.120	0.005	5519723	23.71
0.040	0.120	0.010	5519734	23.71
0.045	0.135	0.005	5519745	23.71
0.045	0.135	0.010	5519756	23.71
0.045	0.135	0.015	5519767	23.71

DIA	LOC	RAD	ITEM#	PRICE
0.047	0.141	0.005	5519778	23.71
0.047	0.141	0.010	5519789	23.71
0.047	0.141	0.015	5519800	23.71
0.050	0.150	0.005	5519811	23.71
0.050	0.150	0.010	5519822	23.71
0.050	0.150	0.015	5519833	23.71
0.060	0.180	0.005	5519844	23.71
0.060	0.180	0.010	5519855	23.71
0.060	0.180	0.015	5519866	23.71
0.062	0.186	0.005	5519877	23.71
0.062	0.186	0.010	5519888	23.71
0.062	0.186	0.015	5519899	23.71
0.075	0.225	0.005	5519910	23.71
0.075	0.225	0.010	5519921	23.71

DIA	LOC	RAD	ITEM#	PRICE
0.075	0.225	0.015	5519932	23.71
0.078	0.234	0.005	5519943	23.71
0.078	0.234	0.010	5519954	23.71
0.078	0.234	0.015	5519965	23.71
0.090	0.270	0.005	5519976	23.71
0.090	0.270	0.010	5519987	23.71
0.090	0.270	0.015	5519998	23.71
0.093	0.279	0.005	5520009	23.71
0.093	0.279	0.010	5520020	23.71
0.093	0.279	0.015	5520031	23.71
0.100	0.300	0.005	5520042	23.71
0.100	0.300	0.010	5520053	23.71
0.100	0.300	0.015	5520064	23.71



ALTiN COATED

DIA	LOC	RAD	ITEM#	PRICE
0.015	0.045	0.003	5520075	44.09
0.020	0.060	0.005	5520086	41.15
0.025	0.075	0.005	5520097	41.15
0.030	0.090	0.005	5520108	29.39
0.030	0.090	0.010	5520119	29.39
0.031	0.093	0.005	5520130	29.39
0.031	0.093	0.010	5520141	29.39
0.035	0.105	0.005	5520152	29.39
0.035	0.105	0.010	5520163	29.39
0.040	0.120	0.005	5520174	29.39
0.040	0.120	0.010	5520185	29.39
0.045	0.135	0.005	5520196	29.39
0.045	0.135	0.010	5520207	29.39
0.045	0.135	0.015	5520218	29.39

DIA	LOC	RAD	ITEM#	PRICE
0.047	0.141	0.005	5520229	29.39
0.047	0.141	0.010	5520240	29.39
0.047	0.141	0.015	5520251	29.39
0.050	0.150	0.005	5520262	29.39
0.050	0.150	0.010	5520273	29.39
0.050	0.150	0.015	5520284	29.39
0.060	0.180	0.005	5520295	29.39
0.060	0.180	0.010	5520306	29.39
0.060	0.180	0.015	5520317	29.39
0.062	0.186	0.005	5520328	29.39
0.062	0.186	0.010	5520339	29.39
0.062	0.186	0.015	5520350	29.39
0.075	0.225	0.005	5520361	29.39
0.075	0.225	0.010	5520372	29.39

DIA	LOC	RAD	ITEM#	PRICE
0.075	0.225	0.015	5520383	29.39
0.078	0.234	0.005	5520394	29.39
0.078	0.234	0.010	5520405	29.39
0.078	0.234	0.015	5520416	29.39
0.090	0.270	0.005	5520427	29.39
0.090	0.270	0.010	5520438	29.39
0.090	0.270	0.015	5520449	29.39
0.093	0.279	0.005	5520460	29.39
0.093	0.279	0.010	5520471	29.39
0.093	0.279	0.015	5520482	29.39
0.100	0.300	0.005	5520493	29.39
0.100	0.300	0.010	5520504	29.39
0.100	0.300	0.015	5520515	29.39

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	+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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	LOC	ITEM#	PRICE
0.010	0.030	5446144	23.36
0.011	0.033	5446155	20.92
0.012	0.036	5446166	20.92
0.013	0.039	5446177	17.30
0.014	0.042	5446188	17.30
0.015	0.045	5446199	14.63
0.016	0.048	5446210	14.63
0.017	0.051	5446221	14.63
0.018	0.054	5446232	14.63
0.019	0.057	5446243	14.63
0.020	0.060	5446254	13.29
0.021	0.063	5446265	13.29
0.022	0.066	5446276	13.29
0.023	0.069	5446287	13.29
0.024	0.072	5446298	13.29
0.025	0.075	5446309	13.29
0.026	0.078	5446320	12.47
0.027	0.081	5446331	12.47
0.028	0.084	5446342	12.47
0.029	0.087	5446353	12.47
0.030	0.090	5446364	12.47
0.031	0.093	5446375	11.69
0.032	0.096	5446386	11.69
0.033	0.099	5446397	11.69
0.034	0.102	5446408	11.69
0.035	0.105	5446419	11.69
0.036	0.108	5446430	11.69
0.037	0.111	5446441	11.69
0.038	0.114	5446452	11.69
0.039	0.117	5446463	11.69
0.040	0.120	5446474	11.69
0.041	0.123	5446485	11.69
0.042	0.126	5446496	11.69
0.043	0.129	5446507	11.69
0.044	0.132	5446518	11.40

DIA	LOC	ITEM#	PRICE
0.045	0.135	5446529	11.40
0.046	0.138	5446540	11.40
0.047	0.141	5446551	11.40
0.048	0.144	5446562	11.40
0.049	0.147	5446573	11.40
0.050	0.150	5446584	11.40
0.051	0.153	5446595	11.40
0.052	0.156	5446606	11.40
0.053	0.159	5446617	11.40
0.054	0.162	5446628	11.40
0.055	0.165	5446639	11.40
0.056	0.168	5446650	11.40
0.057	0.171	5446661	11.40
0.058	0.174	5446672	11.40
0.059	0.177	5446683	11.40
0.060	0.180	5446694	11.40
0.061	0.183	5446705	11.40
0.062	0.186	5446716	11.40
0.063	0.189	5446727	11.40
0.064	0.192	5446738	11.40
0.065	0.195	5446749	11.40
0.066	0.198	5446760	11.40
0.067	0.201	5446771	11.40
0.068	0.204	5446782	11.40
0.069	0.207	5446793	11.40
0.070	0.210	5446804	11.40
0.071	0.213	5446815	11.40
0.072	0.216	5446826	11.40
0.073	0.219	5446837	11.40
0.074	0.222	5446848	11.40
0.075	0.225	5446859	11.40
0.076	0.228	5446870	11.40
0.077	0.231	5446881	11.40
0.078	0.234	5446892	11.40
0.079	0.237	5446903	11.40

DIA	LOC	ITEM#	PRICE
0.080	0.240	5446914	11.40
0.081	0.243	5446925	11.40
0.082	0.246	5446936	11.40
0.083	0.249	5446947	11.40
0.084	0.252	5446958	11.40
0.085	0.255	5446969	11.40
0.086	0.258	5446980	11.40
0.087	0.261	5446991	11.40
0.088	0.264	5447002	11.40
0.089	0.267	5447013	11.40
0.090	0.270	5447024	11.40
0.091	0.273	5447035	11.40
0.092	0.276	5447046	11.40
0.093	0.279	5447057	11.40
0.094	0.282	5447068	11.40
0.095	0.285	5447079	11.40
0.096	0.288	5447090	11.40
0.097	0.291	5447101	11.40
0.098	0.294	5447112	11.40
0.099	0.297	5447123	11.40
0.100	0.300	5447134	11.40
0.101	0.303	5447145	11.40
0.102	0.306	5447156	11.40
0.103	0.309	5447167	11.40
0.104	0.312	5447178	11.40
0.105	0.315	5447189	11.40
0.106	0.318	5447200	11.40
0.107	0.321	5447211	11.40
0.108	0.324	5447222	11.40
0.109	0.327	5447233	11.40
0.110	0.330	5447244	11.40
0.115	0.345	5447255	11.40
0.120	0.360	5447266	11.40

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	ITEM#	PRICE
0.010	0.030	5525058	28.04
0.011	0.033	5525069	25.10
0.012	0.036	5525080	25.10
0.013	0.039	5525091	20.76
0.014	0.042	5525102	20.76
0.015	0.045	5525113	17.55
0.016	0.048	5525124	17.55
0.017	0.051	5525135	17.55
0.018	0.054	5525146	17.55
0.019	0.057	5525157	17.55
0.020	0.060	5525168	15.95
0.021	0.063	5525179	15.95
0.022	0.066	5525190	15.95
0.023	0.069	5525201	15.95
0.024	0.072	5525212	15.95
0.025	0.075	5525223	15.95
0.026	0.078	5525234	14.97
0.027	0.081	5525245	14.97
0.028	0.084	5525256	14.97
0.029	0.087	5525267	14.97
0.030	0.090	5525278	14.97
0.031	0.093	5525289	14.02
0.032	0.096	5525300	14.02
0.033	0.099	5525311	14.02
0.034	0.102	5525322	14.02
0.035	0.105	5525333	14.02
0.036	0.108	5525344	14.02
0.037	0.111	5525355	14.02
0.038	0.114	5525366	14.02
0.039	0.117	5525377	14.02
0.040	0.120	5525388	14.02
0.041	0.123	5525399	14.02
0.042	0.126	5525410	14.02
0.043	0.129	5525421	14.02
0.044	0.132	5525432	13.69

DIA	LOC	ITEM#	PRICE
0.045	0.135	5525443	13.69
0.046	0.138	5525454	13.69
0.047	0.141	5525465	13.69
0.048	0.144	5525476	13.69
0.049	0.147	5525487	13.69
0.050	0.150	5525498	13.69
0.051	0.153	5525509	13.69
0.052	0.156	5525520	13.69
0.053	0.159	5525531	13.69
0.054	0.162	5525542	13.69
0.055	0.165	5525553	13.69
0.056	0.168	5525564	13.69
0.057	0.171	5525575	13.69
0.058	0.174	5525586	13.69
0.059	0.177	5525597	13.69
0.060	0.180	5525608	13.69
0.061	0.183	5525619	13.69
0.062	0.186	5525630	13.69
0.063	0.189	5525641	13.69
0.064	0.192	5525652	13.69
0.065	0.195	5525663	13.69
0.066	0.198	5525674	13.69
0.067	0.201	5525685	13.69
0.068	0.204	5525696	13.69
0.069	0.207	5525707	13.69
0.070	0.210	5525718	13.69
0.071	0.213	5525729	13.69
0.072	0.216	5525740	13.69
0.073	0.219	5525751	13.69
0.074	0.222	5525762	13.69
0.075	0.225	5525773	13.69
0.076	0.228	5525784	13.69
0.077	0.231	5525795	13.69
0.078	0.234	5525806	13.69
0.079	0.237	5525817	13.69

DIA	LOC	ITEM#	PRICE
0.080	0.240	5525828	13.69
0.081	0.243	5525839	13.69
0.082	0.246	5525850	13.69
0.083	0.249	5525861	13.69
0.084	0.252	5525872	13.69
0.085	0.255	5525883	13.69
0.086	0.258	5525894	13.69
0.087	0.261	5525905	13.69
0.088	0.264	5525916	13.69
0.089	0.267	5525927	13.69
0.090	0.270	5525938	13.69
0.091	0.273	5525949	13.69
0.092	0.276	5525960	13.69
0.093	0.279	5525971	13.69
0.094	0.282	5525982	13.69
0.095	0.285	5525993	13.69
0.096	0.288	5526004	13.69
0.097	0.291	5526015	13.69
0.098	0.294	5526026	13.69
0.099	0.297	5526037	13.69
0.100	0.300	5526048	13.69
0.101	0.303	5526059	13.69
0.102	0.306	5526070	13.69
0.103	0.309	5526081	13.69
0.104	0.312	5526092	13.69
0.105	0.315	5526103	13.69
0.106	0.318	5526114	13.69
0.107	0.321	5526125	13.69
0.108	0.324	5526136	13.69
0.109	0.327	5526147	13.69
0.110	0.330	5526158	13.69
0.115	0.345	5526169	13.69
0.120	0.360	5526180	13.69

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	ITEM#	PRICE
0.010	0.030	5447277	29.22
0.011	0.033	5447288	26.14
0.012	0.036	5447299	26.14
0.013	0.039	5447310	21.66
0.014	0.042	5447321	21.66
0.015	0.045	5447332	18.27
0.016	0.048	5447343	18.27
0.017	0.051	5447354	18.27
0.018	0.054	5447365	18.27
0.019	0.057	5447376	18.27
0.020	0.060	5447387	16.62
0.021	0.063	5447398	16.62
0.022	0.066	5447409	16.62
0.023	0.069	5447420	16.62
0.024	0.072	5447431	16.62
0.025	0.075	5447442	16.62
0.026	0.078	5447453	15.60
0.027	0.081	5447464	15.60
0.028	0.084	5447475	15.60
0.029	0.087	5447486	15.60
0.030	0.090	5447497	15.60
0.031	0.093	5447508	14.63
0.032	0.096	5447519	14.63
0.033	0.099	5447530	14.63
0.034	0.102	5447541	14.63
0.035	0.105	5447552	14.63
0.036	0.108	5447563	14.63
0.037	0.111	5447574	14.63
0.038	0.114	5447585	14.63
0.039	0.117	5447596	14.63
0.040	0.120	5447607	14.63
0.041	0.123	5447618	14.63
0.042	0.126	5447629	14.63
0.043	0.129	5447640	14.63
0.044	0.132	5447651	14.26

DIA	LOC	ITEM#	PRICE
0.045	0.135	5447662	14.26
0.046	0.138	5447673	14.26
0.047	0.141	5447684	14.26
0.048	0.144	5447695	14.26
0.049	0.147	5447706	14.26
0.050	0.150	5447717	14.26
0.051	0.153	5447728	14.26
0.052	0.156	5447739	14.26
0.053	0.159	5447750	14.26
0.054	0.162	5447761	14.26
0.055	0.165	5447772	14.26
0.056	0.168	5447783	14.26
0.057	0.171	5447794	14.26
0.058	0.174	5447805	14.26
0.059	0.177	5447816	14.26
0.060	0.180	5447827	14.26
0.061	0.183	5447838	14.26
0.062	0.186	5447849	14.26
0.063	0.189	5447860	14.26
0.064	0.192	5447871	14.26
0.065	0.195	5447882	14.26
0.066	0.198	5447893	14.26
0.067	0.201	5447904	14.26
0.068	0.204	5447915	14.26
0.069	0.207	5447926	14.26
0.070	0.210	5447937	14.26
0.071	0.213	5447948	14.26
0.072	0.216	5447959	14.26
0.073	0.219	5447970	14.26
0.074	0.222	5447981	14.26
0.075	0.225	5447992	14.26
0.076	0.228	5448003	14.26
0.077	0.231	5448014	14.26
0.078	0.234	5448025	14.26
0.079	0.237	5448036	14.26

DIA	LOC	ITEM#	PRICE
0.080	0.240	5448047	14.26
0.081	0.243	5448058	14.26
0.082	0.246	5448069	14.26
0.083	0.249	5448080	14.26
0.084	0.252	5448091	14.26
0.085	0.255	5448102	14.26
0.086	0.258	5448113	14.26
0.087	0.261	5448124	14.26
0.088	0.264	5448135	14.26
0.089	0.267	5448146	14.26
0.090	0.270	5448157	14.26
0.091	0.273	5448168	14.26
0.092	0.276	5448179	14.26
0.093	0.279	5448190	14.26
0.094	0.282	5448201	14.26
0.095	0.285	5448212	14.26
0.096	0.288	5448223	14.26
0.097	0.291	5448234	14.26
0.098	0.294	5448245	14.26
0.099	0.297	5448256	14.26
0.100	0.300	5448267	14.26
0.101	0.303	5448278	14.26
0.102	0.306	5448289	14.26
0.103	0.309	5448300	14.26
0.104	0.312	5448311	14.26
0.105	0.315	5448322	14.26
0.106	0.318	5448333	14.26
0.107	0.321	5448344	14.26
0.108	0.324	5448355	14.26
0.109	0.327	5448366	14.26
0.110	0.330	5448377	14.26
0.115	0.345	5448388	14.26
0.120	0.360	5448399	14.26

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

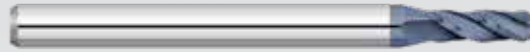
TOLERANCES	DIAMETER	SHANK	RADIUS
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6	+.0002, -.0002

Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	ITEM#	PRICE
0.010	0.030	5526191	35.05
0.011	0.033	5526202	31.39
0.012	0.036	5526213	31.39
0.013	0.039	5526224	25.99
0.014	0.042	5526235	25.99
0.015	0.045	5526246	21.92
0.016	0.048	5526257	21.92
0.017	0.051	5526268	21.92
0.018	0.054	5526279	21.92
0.019	0.057	5526290	21.92
0.020	0.060	5526301	19.94
0.021	0.063	5526312	19.94
0.022	0.066	5526323	19.94
0.023	0.069	5526334	19.94
0.024	0.072	5526345	19.94
0.025	0.075	5526356	19.94
0.026	0.078	5526367	18.70
0.027	0.081	5526378	18.70
0.028	0.084	5526389	18.70
0.029	0.087	5526400	18.70
0.030	0.090	5526411	18.70
0.031	0.093	5526422	17.55
0.032	0.096	5526433	17.55
0.033	0.099	5526444	17.55
0.034	0.102	5526455	17.55
0.035	0.105	5526466	17.55
0.036	0.108	5526477	17.55
0.037	0.111	5526488	17.55
0.038	0.114	5526499	17.55
0.039	0.117	5526510	17.55
0.040	0.120	5526521	17.55
0.041	0.123	5526532	17.55
0.042	0.126	5526543	17.55
0.043	0.129	5526554	17.55
0.044	0.132	5526565	17.13

DIA	LOC	ITEM#	PRICE
0.045	0.135	5526576	17.13
0.046	0.138	5526587	17.13
0.047	0.141	5526598	17.13
0.048	0.144	5526609	17.13
0.049	0.147	5526620	17.13
0.050	0.150	5526631	17.13
0.051	0.153	5526642	17.13
0.052	0.156	5526653	17.13
0.053	0.159	5526664	17.13
0.054	0.162	5526675	17.13
0.055	0.165	5526686	17.13
0.056	0.168	5526697	17.13
0.057	0.171	5526708	17.13
0.058	0.174	5526719	17.13
0.059	0.177	5526730	17.13
0.060	0.180	5526741	17.13
0.061	0.183	5526752	17.13
0.062	0.186	5526763	17.13
0.063	0.189	5526774	17.13
0.064	0.192	5526785	17.13
0.065	0.195	5526796	17.13
0.066	0.198	5526807	17.13
0.067	0.201	5526818	17.13
0.068	0.204	5526829	17.13
0.069	0.207	5526840	17.13
0.070	0.210	5526851	17.13
0.071	0.213	5526862	17.13
0.072	0.216	5526873	17.13
0.073	0.219	5526884	17.13
0.074	0.222	5526895	17.13
0.075	0.225	5526906	17.13
0.076	0.228	5526917	17.13
0.077	0.231	5526928	17.13
0.078	0.234	5526939	17.13
0.079	0.237	5526950	17.13

DIA	LOC	ITEM#	PRICE
0.080	0.240	5526961	17.13
0.081	0.243	5526972	17.13
0.082	0.246	5526983	17.13
0.083	0.249	5526994	17.13
0.084	0.252	5527005	17.13
0.085	0.255	5527016	17.13
0.086	0.258	5527027	17.13
0.087	0.261	5527038	17.13
0.088	0.264	5527049	17.13
0.089	0.267	5527060	17.13
0.090	0.270	5527071	17.13
0.091	0.273	5527082	17.13
0.092	0.276	5527093	17.13
0.093	0.279	5527104	17.13
0.094	0.282	5527115	17.13
0.095	0.285	5527126	17.13
0.096	0.288	5527137	17.13
0.097	0.291	5527148	17.13
0.098	0.294	5527159	17.13
0.099	0.297	5527170	17.13
0.100	0.300	5527181	17.13
0.101	0.303	5527192	17.13
0.102	0.306	5527203	17.13
0.103	0.309	5527214	17.13
0.104	0.312	5527225	17.13
0.105	0.315	5527236	17.13
0.106	0.318	5527247	17.13
0.107	0.321	5527258	17.13
0.108	0.324	5527269	17.13
0.109	0.327	5527280	17.13
0.110	0.330	5527291	17.13
0.115	0.345	5527302	17.13
0.120	0.360	5527313	17.13

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



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.015	3	0.030	5564895	37.78
0.010	0.015	5	0.050	5564906	37.78
0.010	0.015	8	0.080	5564917	37.78
0.010	0.015	12	0.125	5564928	39.87
0.015	0.022	3	0.045	5564939	31.34
0.015	0.022	5	0.078	5564950	31.34
0.015	0.022	8	0.125	5564961	31.34
0.015	0.022	12	0.187	5564972	32.43
0.020	0.030	3	0.060	5564983	30.05
0.020	0.030	5	0.100	5564994	30.05
0.020	0.030	8	0.160	5565005	30.05
0.020	0.030	12	0.250	5565016	31.24
0.025	0.037	3	0.075	5565027	28.86
0.025	0.037	5	0.125	5565038	28.86
0.025	0.037	8	0.203	5565049	28.86
0.025	0.037	12	0.312	5565060	29.85
0.030	0.045	3	0.090	5565071	28.86
0.030	0.045	5	0.156	5565082	28.86
0.030	0.045	8	0.250	5565093	28.86
0.030	0.045	12	0.375	5565104	29.85
0.031	0.046	3	0.093	5565115	28.86
0.031	0.046	5	0.156	5565126	28.86
0.031	0.046	8	0.250	5565137	28.86
0.031	0.046	12	0.375	5565148	29.85
0.035	0.052	3	0.105	5565159	28.86
0.035	0.052	5	0.187	5565170	28.86
0.035	0.052	8	0.281	5565181	28.86
0.035	0.052	12	0.425	5565192	29.85
0.040	0.060	3	0.120	5565203	28.86
0.040	0.060	5	0.203	5565214	28.86
0.040	0.060	8	0.325	5565225	28.86
0.040	0.060	12	0.480	5565236	29.85

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.045	0.067	3	0.135	5565247	28.27
0.045	0.067	5	0.225	5565258	28.27
0.045	0.067	8	0.375	5565269	28.27
0.045	0.067	12	0.550	5565280	29.16
0.047	0.070	3	0.141	5565291	28.27
0.047	0.070	5	0.250	5565302	28.27
0.047	0.070	8	0.375	5565313	28.27
0.047	0.070	12	0.570	5565324	29.16
0.050	0.075	3	0.150	5565335	28.27
0.050	0.075	5	0.250	5565346	28.27
0.050	0.075	8	0.400	5565357	28.27
0.050	0.075	12	0.600	5565368	29.16
0.055	0.082	3	0.165	5565379	28.27
0.055	0.082	5	0.275	5565390	28.27
0.055	0.082	8	0.450	5565401	28.27
0.055	0.082	12	0.660	5565412	29.16
0.060	0.090	3	0.180	5565423	28.27
0.060	0.090	5	0.312	5565434	28.27
0.060	0.090	8	0.500	5565445	28.27
0.060	0.090	12	0.720	5565456	29.16
0.062	0.093	3	0.186	5565467	28.27
0.062	0.093	5	0.312	5565478	28.27
0.062	0.093	8	0.500	5565489	28.27
0.062	0.093	12	0.750	5565500	29.16
0.065	0.097	3	0.195	5565511	28.27
0.065	0.097	5	0.325	5565522	28.27
0.065	0.097	8	0.530	5565533	28.27
0.065	0.097	12	0.800	5565544	29.16
0.070	0.105	3	0.210	5565555	28.27
0.070	0.105	5	0.375	5565566	28.27
0.070	0.105	8	0.570	5565577	28.27
0.070	0.105	12	0.850	5565588	29.16

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.075	0.112	3	0.225	5565599	28.27
0.075	0.112	5	0.375	5565610	28.27
0.075	0.112	8	0.625	5565621	28.27
0.075	0.112	12	0.900	5565632	29.16
0.078	0.117	3	0.234	5565643	28.27
0.078	0.117	5	0.406	5565654	28.27
0.078	0.117	8	0.625	5565665	28.27
0.078	0.117	12	0.940	5565676	29.16
0.080	0.120	3	0.240	5565687	28.27
0.080	0.120	5	0.406	5565698	28.27
0.080	0.120	8	0.650	5565709	28.27
0.080	0.120	12	0.960	5565720	29.16
0.085	0.127	3	0.255	5565731	28.27
0.085	0.127	5	0.425	5565742	28.27
0.085	0.127	8	0.700	5565753	28.27
0.085	0.127	12	1.020	5565764	29.16
0.090	0.135	3	0.270	5565775	28.27
0.090	0.135	5	0.450	5565786	28.27
0.090	0.135	8	0.750	5565797	28.27
0.090	0.135	12	1.080	5565808	29.16
0.093	0.139	3	0.279	5565819	28.27
0.093	0.139	5	0.500	5565830	28.27
0.093	0.139	8	0.750	5565841	28.27
0.093	0.139	12	1.125	5565852	29.16
0.095	0.142	3	0.285	5565863	28.27
0.095	0.142	5	0.500	5565874	28.27
0.095	0.142	8	0.750	5565885	28.27
0.095	0.142	12	1.150	5565896	29.16
0.100	0.150	3	0.300	5565907	28.27
0.100	0.150	5	0.500	5565918	28.27
0.100	0.150	8	0.800	5565929	28.27
0.100	0.150	12	1.200	5565940	29.16

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

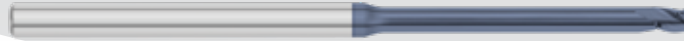
TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000

Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.015	3	0.030	5572287	45.35
0.010	0.015	5	0.050	5572298	45.35
0.010	0.015	8	0.080	5572309	45.35
0.010	0.015	12	0.125	5572320	47.85
0.015	0.022	3	0.045	5572331	37.61
0.015	0.022	5	0.078	5572342	37.61
0.015	0.022	8	0.125	5572353	37.61
0.015	0.022	12	0.187	5572364	38.92
0.020	0.030	3	0.060	5572375	36.06
0.020	0.030	5	0.100	5572386	36.06
0.020	0.030	8	0.160	5572397	36.06
0.020	0.030	12	0.250	5572408	37.49
0.025	0.037	3	0.075	5572419	34.64
0.025	0.037	5	0.125	5572430	34.64
0.025	0.037	8	0.203	5572441	34.64
0.025	0.037	12	0.312	5572452	35.83
0.030	0.045	3	0.090	5572463	34.64
0.030	0.045	5	0.156	5572474	34.64
0.030	0.045	8	0.250	5572485	34.64
0.030	0.045	12	0.375	5572496	35.83
0.031	0.046	3	0.093	5572507	34.64
0.031	0.046	5	0.156	5572518	34.64
0.031	0.046	8	0.250	5572529	34.64
0.031	0.046	12	0.375	5572540	35.83
0.035	0.052	3	0.105	5572551	34.64
0.035	0.052	5	0.187	5572562	34.64
0.035	0.052	8	0.281	5572573	34.64
0.035	0.052	12	0.425	5572584	35.83
0.040	0.060	3	0.120	5572595	34.64
0.040	0.060	5	0.203	5572606	34.64
0.040	0.060	8	0.325	5572617	34.64
0.040	0.060	12	0.480	5572628	35.83

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.045	0.067	3	0.135	5572639	33.92
0.045	0.067	5	0.225	5572650	33.92
0.045	0.067	8	0.375	5572661	33.92
0.045	0.067	12	0.550	5572672	34.99
0.047	0.070	3	0.141	5572683	33.92
0.047	0.070	5	0.250	5572694	33.92
0.047	0.070	8	0.375	5572705	33.92
0.047	0.070	12	0.570	5572716	34.99
0.050	0.075	3	0.150	5572727	33.92
0.050	0.075	5	0.250	5572738	33.92
0.050	0.075	8	0.400	5572749	33.92
0.050	0.075	12	0.600	5572760	34.99
0.055	0.082	3	0.165	5572771	33.92
0.055	0.082	5	0.275	5572782	33.92
0.055	0.082	8	0.450	5572793	33.92
0.055	0.082	12	0.660	5572804	34.99
0.060	0.090	3	0.180	5572815	33.92
0.060	0.090	5	0.312	5572826	33.92
0.060	0.090	8	0.500	5572837	33.92
0.060	0.090	12	0.720	5572848	34.99
0.062	0.093	3	0.186	5572859	33.92
0.062	0.093	5	0.312	5572870	33.92
0.062	0.093	8	0.500	5572881	33.92
0.062	0.093	12	0.750	5572892	34.99
0.065	0.097	3	0.195	5572903	33.92
0.065	0.097	5	0.325	5572914	33.92
0.065	0.097	8	0.530	5572925	33.92
0.065	0.097	12	0.800	5572936	34.99
0.070	0.105	3	0.210	5572947	33.92
0.070	0.105	5	0.375	5572958	33.92
0.070	0.105	8	0.570	5572969	33.92
0.070	0.105	12	0.850	5572980	34.99

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.075	0.112	3	0.225	5572991	33.92
0.075	0.112	5	0.375	5573002	33.92
0.075	0.112	8	0.625	5573013	33.92
0.075	0.112	12	0.900	5573024	34.99
0.078	0.117	3	0.234	5573035	33.92
0.078	0.117	5	0.406	5573046	33.92
0.078	0.117	8	0.625	5573057	33.92
0.078	0.117	12	0.940	5573068	34.99
0.080	0.120	3	0.240	5573079	33.92
0.080	0.120	5	0.406	5573090	33.92
0.080	0.120	8	0.650	5573101	33.92
0.080	0.120	12	0.960	5573112	34.99
0.085	0.127	3	0.255	5573123	33.92
0.085	0.127	5	0.425	5573134	33.92
0.085	0.127	8	0.700	5573145	33.92
0.085	0.127	12	1.020	5573156	34.99
0.090	0.135	3	0.270	5573167	33.92
0.090	0.135	5	0.450	5573178	33.92
0.090	0.135	8	0.750	5573189	33.92
0.090	0.135	12	1.080	5573200	34.99
0.093	0.139	3	0.279	5573211	33.92
0.093	0.139	5	0.500	5573222	33.92
0.093	0.139	8	0.750	5573233	33.92
0.093	0.139	12	1.125	5573244	34.99
0.095	0.142	3	0.285	5573255	33.92
0.095	0.142	5	0.500	5573266	33.92
0.095	0.142	8	0.750	5573277	33.92
0.095	0.142	12	1.150	5573288	34.99
0.100	0.150	3	0.300	5573299	33.92
0.100	0.150	5	0.500	5573310	33.92
0.100	0.150	8	0.800	5573321	33.92
0.100	0.150	12	1.200	5573332	34.99

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

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

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+0.005, -0.005	-0.001, -0.003 ISO H6	+0.010, -0.000



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.015	3	0.030	5567007	47.41
0.010	0.015	5	0.050	5567018	47.41
0.010	0.015	8	0.080	5567029	49.49
0.010	0.015	12	0.125	5567040	55.64
0.015	0.022	3	0.045	5567051	40.57
0.015	0.022	5	0.078	5567062	40.57
0.015	0.022	8	0.125	5567073	40.57
0.015	0.022	12	0.187	5567084	41.56
0.020	0.030	3	0.060	5567095	39.28
0.020	0.030	5	0.100	5567106	39.28
0.020	0.030	8	0.160	5567117	39.28
0.020	0.030	12	0.250	5567128	40.37
0.025	0.037	3	0.075	5567139	33.92
0.025	0.037	5	0.125	5567150	33.92
0.025	0.037	8	0.203	5567161	33.92
0.025	0.037	12	0.312	5567172	34.91
0.030	0.045	3	0.090	5567183	33.92
0.030	0.045	5	0.156	5567194	33.92
0.030	0.045	8	0.250	5567205	33.92
0.030	0.045	12	0.375	5567216	34.91
0.031	0.046	3	0.093	5567227	33.92
0.031	0.046	5	0.156	5567238	33.92
0.031	0.046	8	0.250	5567249	33.92
0.031	0.046	12	0.375	5567260	34.91
0.035	0.052	3	0.105	5567271	33.92
0.035	0.052	5	0.187	5567282	33.92
0.035	0.052	8	0.281	5567293	33.92
0.035	0.052	12	0.425	5567304	34.91
0.040	0.060	3	0.120	5567315	33.92
0.040	0.060	5	0.203	5567326	33.92
0.040	0.060	8	0.325	5567337	33.92
0.040	0.060	12	0.480	5567348	34.91

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.045	0.067	3	0.135	5567359	33.13
0.045	0.067	5	0.225	5567370	33.13
0.045	0.067	8	0.375	5567381	33.13
0.045	0.067	12	0.550	5567392	34.02
0.047	0.070	3	0.141	5567403	33.13
0.047	0.070	5	0.250	5567414	33.13
0.047	0.070	8	0.375	5567425	33.13
0.047	0.070	12	0.570	5567436	34.02
0.050	0.075	3	0.150	5567447	33.13
0.050	0.075	5	0.250	5567458	33.13
0.050	0.075	8	0.400	5567469	33.13
0.050	0.075	12	0.600	5567480	34.02
0.055	0.082	3	0.165	5567491	33.13
0.055	0.082	5	0.275	5567502	33.13
0.055	0.082	8	0.450	5567513	33.13
0.055	0.082	12	0.660	5567524	34.02
0.060	0.090	3	0.180	5567535	33.13
0.060	0.090	5	0.312	5567546	33.13
0.060	0.090	8	0.500	5567557	33.13
0.060	0.090	12	0.720	5567568	34.02
0.062	0.093	3	0.186	5567579	33.13
0.062	0.093	5	0.312	5567590	33.13
0.062	0.093	8	0.500	5567601	33.13
0.062	0.093	12	0.750	5567612	34.02
0.065	0.097	3	0.195	5567623	33.13
0.065	0.097	5	0.325	5567634	33.13
0.065	0.097	8	0.530	5567645	33.13
0.065	0.097	12	0.780	5567656	34.02
0.070	0.105	3	0.210	5567667	33.13
0.070	0.105	5	0.375	5567678	33.13
0.070	0.105	8	0.570	5567689	33.13
0.070	0.105	12	0.840	5567700	34.02

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.075	0.112	3	0.225	5567711	33.13
0.075	0.112	5	0.375	5567722	33.13
0.075	0.112	8	0.625	5567733	33.13
0.075	0.112	12	0.900	5567744	34.02
0.078	0.117	3	0.234	5567755	33.13
0.078	0.117	5	0.406	5567766	33.13
0.078	0.117	8	0.625	5567777	33.13
0.078	0.117	12	0.940	5567788	34.02
0.080	0.120	3	0.240	5567799	33.13
0.080	0.120	5	0.406	5567810	33.13
0.080	0.120	8	0.650	5567821	33.13
0.080	0.120	12	0.960	5567832	34.02
0.085	0.127	3	0.255	5567843	33.13
0.085	0.127	5	0.425	5567854	33.13
0.085	0.127	8	0.700	5567865	33.13
0.085	0.127	12	1.020	5567876	34.02
0.090	0.135	3	0.270	5567887	33.13
0.090	0.135	5	0.450	5567898	33.13
0.090	0.135	8	0.750	5567909	33.13
0.090	0.135	12	1.080	5567920	34.02
0.093	0.139	3	0.279	5567931	33.13
0.093	0.139	5	0.500	5567942	33.13
0.093	0.139	8	0.750	5567953	33.13
0.093	0.139	12	1.125	5567964	34.02
0.095	0.142	3	0.285	5567975	33.13
0.095	0.142	5	0.500	5567986	33.13
0.095	0.142	8	0.750	5567997	33.13
0.095	0.142	12	1.150	5568008	34.02
0.100	0.150	3	0.300	5568019	33.13
0.100	0.150	5	0.500	5568030	33.13
0.100	0.150	8	0.800	5568041	33.13
0.100	0.150	12	1.200	5568052	34.02

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.015	3	0.030	5568063	56.89
0.010	0.015	5	0.050	5568074	56.89
0.010	0.015	8	0.080	5568085	59.39
0.010	0.015	12	0.125	5568096	66.77
0.015	0.022	3	0.045	5568107	48.68
0.015	0.022	5	0.078	5568118	48.68
0.015	0.022	8	0.125	5568129	48.68
0.015	0.022	12	0.187	5568140	49.87
0.020	0.030	3	0.060	5568151	47.13
0.020	0.030	5	0.100	5568162	47.13
0.020	0.030	8	0.160	5568173	47.13
0.020	0.030	12	0.250	5568184	48.44
0.025	0.037	3	0.075	5568195	40.70
0.025	0.037	5	0.125	5568206	40.70
0.025	0.037	8	0.203	5568217	40.70
0.025	0.037	12	0.312	5568228	41.90
0.030	0.045	3	0.090	5568239	40.70
0.030	0.045	5	0.156	5568250	40.70
0.030	0.045	8	0.250	5568261	40.70
0.030	0.045	12	0.375	5568272	41.90
0.031	0.046	3	0.093	5568283	40.70
0.031	0.046	5	0.156	5568294	40.70
0.031	0.046	8	0.250	5568305	40.70
0.031	0.046	12	0.375	5568316	41.90
0.035	0.052	3	0.105	5568327	40.70
0.035	0.052	5	0.187	5568338	40.70
0.035	0.052	8	0.281	5568349	40.70
0.035	0.052	12	0.425	5568360	41.90
0.040	0.060	3	0.120	5568371	40.70
0.040	0.060	5	0.203	5568382	40.70
0.040	0.060	8	0.325	5568393	40.70
0.040	0.060	12	0.480	5568404	41.90

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.045	0.067	3	0.135	5568415	39.75
0.045	0.067	5	0.225	5568426	39.75
0.045	0.067	8	0.375	5568437	39.75
0.045	0.067	12	0.550	5568448	40.82
0.047	0.070	3	0.141	5568459	39.75
0.047	0.070	5	0.250	5568470	39.75
0.047	0.070	8	0.375	5568481	39.75
0.047	0.070	12	0.570	5568492	40.82
0.050	0.075	3	0.150	5568503	39.75
0.050	0.075	5	0.250	5568514	39.75
0.050	0.075	8	0.400	5568525	39.75
0.050	0.075	12	0.600	5568536	40.82
0.055	0.082	3	0.165	5568547	39.75
0.055	0.082	5	0.275	5568558	39.75
0.055	0.082	8	0.450	5568569	39.75
0.055	0.082	12	0.660	5568580	40.82
0.060	0.090	3	0.180	5568591	39.75
0.060	0.090	5	0.312	5568602	39.75
0.060	0.090	8	0.500	5568613	39.75
0.060	0.090	12	0.720	5568624	40.82
0.062	0.093	3	0.186	5568635	39.75
0.062	0.093	5	0.312	5568646	39.75
0.062	0.093	8	0.500	5568657	39.75
0.062	0.093	12	0.750	5568668	40.82
0.065	0.097	3	0.195	5568679	39.75
0.065	0.097	5	0.325	5568690	39.75
0.065	0.097	8	0.530	5568701	39.75
0.065	0.097	12	0.780	5568712	40.82
0.070	0.105	3	0.210	5568723	39.75
0.070	0.105	5	0.375	5568734	39.75
0.070	0.105	8	0.570	5568745	39.75
0.070	0.105	12	0.840	5568756	40.82

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.075	0.112	3	0.225	5568767	39.75
0.075	0.112	5	0.375	5568778	39.75
0.075	0.112	8	0.625	5568789	39.75
0.075	0.112	12	0.900	5568800	40.82
0.078	0.117	3	0.234	5568811	39.75
0.078	0.117	5	0.406	5568822	39.75
0.078	0.117	8	0.625	5568833	39.75
0.078	0.117	12	0.940	5568844	40.82
0.080	0.120	3	0.240	5568855	39.75
0.080	0.120	5	0.406	5568866	39.75
0.080	0.120	8	0.650	5568877	39.75
0.080	0.120	12	0.960	5568888	40.82
0.085	0.127	3	0.255	5568899	39.75
0.085	0.127	5	0.425	5568910	39.75
0.085	0.127	8	0.700	5568921	39.75
0.085	0.127	12	1.020	5568932	40.82
0.090	0.135	3	0.270	5568943	39.75
0.090	0.135	5	0.450	5568954	39.75
0.090	0.135	8	0.750	5568965	39.75
0.090	0.135	12	1.080	5568976	40.82
0.093	0.139	3	0.279	5568987	39.75
0.093	0.139	5	0.500	5568998	39.75
0.093	0.139	8	0.750	5569009	39.75
0.093	0.139	12	1.125	5569020	40.82
0.095	0.142	3	0.285	5569031	39.75
0.095	0.142	5	0.500	5569042	39.75
0.095	0.142	8	0.750	5569053	39.75
0.095	0.142	12	1.150	5569064	40.82
0.100	0.150	3	0.300	5569075	39.75
0.100	0.150	5	0.500	5569086	39.75
0.100	0.150	8	0.800	5569097	39.75
0.100	0.150	12	1.200	5569108	40.82

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, -0.000	+0.0002, -0.0002



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.030	5	0.050	5569119	37.78
0.010	0.030	8	0.080	5569130	37.78
0.010	0.030	12	0.125	5569141	39.87
0.015	0.045	5	0.078	5569152	31.34
0.015	0.045	8	0.128	5569163	31.34
0.015	0.045	12	0.187	5569174	32.43
0.020	0.060	5	0.100	5569185	30.05
0.020	0.060	8	0.170	5569196	30.05
0.020	0.060	12	0.250	5569207	31.24
0.025	0.075	5	0.125	5569218	28.86
0.025	0.075	8	0.213	5569229	28.86
0.025	0.075	12	0.312	5569240	29.95
0.030	0.090	5	0.156	5569251	28.86
0.030	0.090	9	0.270	5569262	28.86
0.030	0.090	12	0.375	5569273	29.85
0.031	0.093	5	0.156	5569284	28.86
0.031	0.093	9	0.279	5569295	28.86
0.031	0.093	12	0.375	5569306	29.85
0.035	0.105	5	0.175	5569317	28.86
0.035	0.105	9	0.315	5569328	28.86
0.035	0.105	12	0.420	5569339	29.85
0.040	0.120	5	0.203	5569350	28.86
0.040	0.120	9	0.360	5569361	28.86
0.040	0.120	12	0.480	5569372	29.85
0.045	0.135	5	0.225	5569383	28.27
0.045	0.135	9	0.405	5569394	28.27
0.045	0.135	12	0.540	5569405	29.85
0.047	0.141	5	0.250	5569416	28.27
0.047	0.141	9	0.423	5569427	28.27
0.047	0.141	12	0.570	5569438	29.16
0.050	0.150	5	0.250	5569449	28.27
0.050	0.150	8	0.400	5569460	28.27
0.050	0.150	12	0.600	5569471	29.16
0.055	0.165	5	0.275	5569482	28.27
0.055	0.165	8	0.440	5569493	28.27
0.055	0.165	12	0.660	5569504	29.16

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.180	5	0.312	5569515	28.27
0.060	0.180	8	0.500	5569526	28.27
0.060	0.180	12	0.720	5569537	29.16
0.062	0.186	5	0.312	5569548	28.27
0.062	0.186	8	0.500	5569559	28.27
0.062	0.186	12	0.750	5569570	29.16
0.065	0.195	5	0.325	5569581	28.27
0.065	0.195	8	0.500	5569592	28.27
0.065	0.195	12	0.780	5569603	29.16
0.070	0.210	5	0.350	5569614	28.27
0.070	0.210	8	0.560	5569625	28.27
0.070	0.210	12	0.850	5569636	29.16
0.075	0.225	5	0.375	5569647	28.27
0.075	0.225	8	0.600	5569658	28.27
0.075	0.225	12	0.900	5569669	29.16
0.078	0.234	5	0.390	5569680	28.27
0.078	0.234	8	0.624	5569691	28.27
0.078	0.234	12	0.940	5569702	29.16
0.080	0.240	5	0.400	5569713	28.27
0.080	0.240	8	0.640	5569724	28.27
0.080	0.240	12	0.960	5569735	29.16
0.085	0.255	5	0.425	5569746	28.27
0.085	0.255	8	0.680	5569757	28.27
0.085	0.255	12	1.020	5569768	29.16
0.090	0.270	5	0.450	5569779	28.27
0.090	0.270	8	0.720	5569790	28.27
0.090	0.270	12	1.080	5569801	29.16
0.093	0.279	5	0.500	5569812	28.27
0.093	0.279	8	0.744	5569823	28.27
0.093	0.279	12	1.125	5569834	29.16
0.095	0.285	5	0.475	5569845	28.27
0.095	0.285	8	0.760	5569856	28.27
0.095	0.285	12	1.140	5569867	29.16
0.100	0.300	5	0.500	5569878	28.27
0.100	0.300	8	0.800	5569889	28.27
0.100	0.300	12	1.200	5569900	29.16

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.030	5	0.050	5569911	45.35
0.010	0.030	8	0.080	5569922	45.35
0.010	0.030	12	0.125	5569933	47.85
0.015	0.045	5	0.078	5569944	37.61
0.015	0.045	8	0.128	5569955	37.61
0.015	0.045	12	0.187	5569966	38.92
0.020	0.060	5	0.100	5569977	36.06
0.020	0.060	8	0.170	5569988	36.06
0.020	0.060	12	0.250	5569999	37.49
0.025	0.075	5	0.125	5570010	34.64
0.025	0.075	8	0.213	5570021	34.64
0.025	0.075	12	0.312	5570032	35.94
0.030	0.090	5	0.156	5570043	34.64
0.030	0.090	9	0.270	5570054	34.64
0.030	0.090	12	0.375	5570065	35.83
0.031	0.093	5	0.156	5570076	34.64
0.031	0.093	9	0.279	5570087	34.64
0.031	0.093	12	0.375	5570098	35.83
0.035	0.105	5	0.175	5570109	34.64
0.035	0.105	9	0.315	5570120	34.64
0.035	0.105	12	0.420	5570131	35.83
0.040	0.120	5	0.203	5570142	34.64
0.040	0.120	9	0.360	5570153	34.64
0.040	0.120	12	0.480	5570164	35.83
0.045	0.135	5	0.225	5570175	33.92
0.045	0.135	9	0.405	5570186	33.92
0.045	0.135	12	0.540	5570197	35.83
0.047	0.141	5	0.250	5570208	33.92
0.047	0.141	9	0.423	5570219	33.92
0.047	0.141	12	0.570	5570230	34.99
0.050	0.150	5	0.250	5570241	33.92
0.050	0.150	8	0.400	5570252	33.92
0.050	0.150	12	0.600	5570263	34.99
0.055	0.165	5	0.275	5570274	33.92
0.055	0.165	8	0.440	5570285	33.92
0.055	0.165	12	0.660	5570296	34.99

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.180	5	0.312	5570307	33.92
0.060	0.180	8	0.500	5570318	33.92
0.060	0.180	12	0.720	5570329	34.99
0.062	0.186	5	0.312	5570340	33.92
0.062	0.186	8	0.500	5570351	33.92
0.062	0.186	12	0.750	5570362	34.99
0.065	0.195	5	0.325	5570373	33.92
0.065	0.195	8	0.500	5570384	33.92
0.065	0.195	12	0.780	5570395	34.99
0.070	0.210	5	0.350	5570406	33.92
0.070	0.210	8	0.560	5570417	33.92
0.070	0.210	12	0.850	5570428	34.99
0.075	0.225	5	0.375	5570439	33.92
0.075	0.225	8	0.600	5570450	33.92
0.075	0.225	12	0.900	5570461	34.99
0.078	0.234	5	0.390	5570472	33.92
0.078	0.234	8	0.624	5570483	33.92
0.078	0.234	12	0.940	5570494	34.99
0.080	0.240	5	0.400	5570505	33.92
0.080	0.240	8	0.640	5570516	33.92
0.080	0.240	12	0.960	5570527	34.99
0.085	0.255	5	0.425	5570538	33.92
0.085	0.255	8	0.680	5570549	33.92
0.085	0.255	12	1.020	5570560	34.99
0.090	0.270	5	0.450	5570571	33.92
0.090	0.270	8	0.720	5570582	33.92
0.090	0.270	12	1.080	5570593	34.99
0.093	0.279	5	0.500	5570604	33.92
0.093	0.279	8	0.744	5570615	33.92
0.093	0.279	12	1.125	5570626	34.99
0.095	0.285	5	0.475	5570637	33.92
0.095	0.285	8	0.760	5570648	33.92
0.095	0.285	12	1.140	5570659	34.99
0.100	0.300	5	0.500	5570670	33.92
0.100	0.300	8	0.800	5570681	33.92
0.100	0.300	12	1.200	5570692	34.99

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

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

TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+ .0005, -.0005	-.0001, -.0003 ISO H6	+ .010, -.000



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.030	5	0.050	5570703	51.18
0.010	0.030	8	0.080	5570714	51.18
0.010	0.030	12	0.125	5570725	52.07
0.015	0.045	5	0.078	5570736	41.06
0.015	0.045	8	0.128	5570747	41.06
0.015	0.045	12	0.187	5570758	41.95
0.020	0.060	5	0.100	5570769	39.48
0.020	0.060	8	0.170	5570780	39.48
0.020	0.060	12	0.250	5570791	40.37
0.025	0.075	5	0.125	5570802	36.10
0.025	0.075	8	0.213	5570813	36.10
0.025	0.075	12	0.312	5570824	36.99
0.030	0.090	5	0.156	5570835	36.10
0.030	0.090	9	0.270	5570846	36.10
0.030	0.090	12	0.375	5570857	36.99
0.031	0.093	5	0.156	5570868	36.10
0.031	0.093	9	0.279	5570879	36.10
0.031	0.093	12	0.375	5570890	36.99
0.035	0.105	5	0.175	5570901	36.10
0.035	0.105	8	0.280	5570912	36.10
0.035	0.105	12	0.420	5570923	36.99
0.040	0.120	5	0.200	5570934	36.10
0.040	0.120	8	0.320	5570945	36.10
0.040	0.120	12	0.480	5570956	36.99
0.045	0.135	5	0.225	5570967	34.91
0.045	0.135	8	0.360	5570978	34.91
0.045	0.135	12	0.540	5570989	35.81
0.047	0.141	5	0.250	5571000	34.91
0.047	0.141	8	0.376	5571011	34.91
0.047	0.141	12	0.570	5571022	35.81
0.050	0.150	5	0.250	5571033	34.91
0.050	0.150	8	0.400	5571044	34.91
0.050	0.150	12	0.600	5571055	35.81
0.055	0.165	5	0.275	5571066	34.91
0.055	0.165	8	0.440	5571077	34.91
0.055	0.165	12	0.660	5571088	35.81

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.180	5	0.300	5571099	34.91
0.060	0.180	8	0.500	5571110	34.91
0.060	0.180	12	0.720	5571121	35.81
0.062	0.186	5	0.312	5571132	34.91
0.062	0.186	8	0.500	5571143	34.91
0.062	0.186	12	0.750	5571154	35.81
0.065	0.195	5	0.325	5571165	34.91
0.065	0.195	8	0.500	5571176	34.91
0.065	0.195	12	0.780	5571187	35.81
0.070	0.210	5	0.350	5571198	34.91
0.070	0.210	8	0.560	5571209	34.91
0.070	0.210	12	0.840	5571220	35.81
0.075	0.225	5	0.375	5571231	34.91
0.075	0.225	8	0.600	5571242	34.91
0.075	0.225	12	0.900	5571253	35.81
0.078	0.234	5	0.390	5571264	34.91
0.078	0.234	8	0.624	5571275	34.91
0.078	0.234	12	0.940	5571286	35.81
0.080	0.240	5	0.400	5571297	34.91
0.080	0.240	8	0.640	5571308	34.91
0.080	0.240	12	0.960	5571319	35.81
0.085	0.255	5	0.425	5571330	34.91
0.085	0.255	8	0.680	5571341	34.91
0.085	0.255	12	1.020	5571352	35.81
0.090	0.270	5	0.450	5571363	34.91
0.090	0.270	8	0.720	5571374	34.91
0.090	0.270	12	1.080	5571385	35.81
0.093	0.279	5	0.500	5571396	34.91
0.093	0.279	8	0.744	5571407	34.91
0.093	0.279	12	1.125	5571418	35.81
0.095	0.285	5	0.475	5571429	34.91
0.095	0.285	8	0.760	5571440	34.91
0.095	0.285	12	1.140	5571451	35.81
0.100	0.300	5	0.500	5571462	34.91
0.100	0.300	8	0.800	5571473	34.91
0.100	0.300	12	1.200	5571484	35.81

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.030	5	0.050	5571495	61.41
0.010	0.030	8	0.080	5571506	61.41
0.010	0.030	12	0.125	5571517	62.48
0.015	0.045	5	0.078	5571528	49.27
0.015	0.045	8	0.128	5571539	49.27
0.015	0.045	12	0.187	5571550	50.34
0.020	0.060	5	0.100	5571561	47.37
0.020	0.060	8	0.170	5571572	47.37
0.020	0.060	12	0.250	5571583	48.44
0.025	0.075	5	0.125	5571594	43.32
0.025	0.075	8	0.213	5571605	43.32
0.025	0.075	12	0.312	5571616	44.39
0.030	0.090	5	0.156	5571627	43.32
0.030	0.090	9	0.270	5571638	43.32
0.030	0.090	12	0.375	5571649	44.39
0.031	0.093	5	0.156	5571660	43.32
0.031	0.093	9	0.279	5571671	43.32
0.031	0.093	12	0.375	5571682	44.39
0.035	0.105	5	0.175	5571693	43.32
0.035	0.105	8	0.280	5571704	43.32
0.035	0.105	12	0.420	5571715	44.39
0.040	0.120	5	0.200	5571726	43.32
0.040	0.120	8	0.320	5571737	43.32
0.040	0.120	12	0.480	5571748	44.39
0.045	0.135	5	0.225	5571759	41.90
0.045	0.135	8	0.360	5571770	41.90
0.045	0.135	12	0.540	5571781	42.97
0.047	0.141	5	0.250	5571792	41.90
0.047	0.141	8	0.376	5571803	41.90
0.047	0.141	12	0.570	5571814	42.97
0.050	0.150	5	0.250	5571825	41.90
0.050	0.150	8	0.400	5571836	41.90
0.050	0.150	12	0.600	5571847	42.97
0.055	0.165	5	0.275	5571858	41.90
0.055	0.165	8	0.440	5571869	41.90
0.055	0.165	12	0.660	5571880	42.97

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.180	5	0.300	5571891	41.90
0.060	0.180	8	0.500	5571902	41.90
0.060	0.180	12	0.720	5571913	42.97
0.062	0.186	5	0.312	5571924	41.90
0.062	0.186	8	0.500	5571935	41.90
0.062	0.186	12	0.750	5571946	42.97
0.065	0.195	5	0.325	5571957	41.90
0.065	0.195	8	0.500	5571968	41.90
0.065	0.195	12	0.780	5571979	42.97
0.070	0.210	5	0.350	5571990	41.90
0.070	0.210	8	0.560	5572001	41.90
0.070	0.210	12	0.840	5572012	42.97
0.075	0.225	5	0.375	5572023	41.90
0.075	0.225	8	0.600	5572034	41.90
0.075	0.225	12	0.900	5572045	42.97
0.078	0.234	5	0.390	5572056	41.90
0.078	0.234	8	0.624	5572067	41.90
0.078	0.234	12	0.940	5572078	42.97
0.080	0.240	5	0.400	5572089	41.90
0.080	0.240	8	0.640	5572100	41.90
0.080	0.240	12	0.960	5572111	42.97
0.085	0.255	5	0.425	5572122	41.90
0.085	0.255	8	0.680	5572133	41.90
0.085	0.255	12	1.020	5572144	42.97
0.090	0.270	5	0.450	5572155	41.90
0.090	0.270	8	0.720	5572166	41.90
0.090	0.270	12	1.080	5572177	42.97
0.093	0.279	5	0.500	5572188	41.90
0.093	0.279	8	0.744	5572199	41.90
0.093	0.279	12	1.125	5572210	42.97
0.095	0.285	5	0.475	5572221	41.90
0.095	0.285	8	0.760	5572232	41.90
0.095	0.285	12	1.140	5572243	42.97
0.100	0.300	5	0.500	5572254	41.90
0.100	0.300	8	0.800	5572265	41.90
0.100	0.300	12	1.200	5572276	42.97

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, -0.000	+0.0002, -0.0002

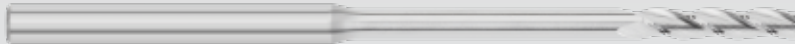


Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

LOC = 5 X DIA



UNCOATED

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.050	10	0.100	5565951	38.38
0.010	0.050	15	0.150	5565962	47.41
0.015	0.075	10	0.150	5565973	32.03
0.015	0.075	15	0.225	5565984	40.76
0.020	0.100	10	0.200	5565995	30.85
0.020	0.100	15	0.300	5566006	39.28
0.025	0.125	10	0.250	5566017	29.56
0.025	0.125	15	0.375	5566028	38.09
0.030	0.150	10	0.300	5566039	29.56
0.030	0.150	15	0.450	5566050	38.09
0.031	0.155	10	0.310	5566061	29.56
0.031	0.155	15	0.470	5566072	38.09
0.035	0.175	10	0.350	5566083	29.56
0.035	0.175	15	0.525	5566094	38.09
0.040	0.200	10	0.400	5566105	29.56
0.040	0.200	15	0.600	5566116	38.09
0.045	0.225	10	0.450	5566127	28.96
0.045	0.225	15	0.675	5566138	36.20
0.047	0.250	10	0.500	5566149	28.96
0.047	0.250	15	0.710	5566160	36.20
0.050	0.300	10	0.500	5566171	28.96
0.050	0.300	15	0.750	5566182	36.20
0.055	0.385	10	0.550	5566193	28.96
0.055	0.385	15	0.825	5566204	36.20

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.312	10	0.625	5566215	28.96
0.060	0.500	16	1.000	5566226	28.96
0.062	0.312	10	0.625	5566237	28.96
0.062	0.500	16	1.000	5566248	28.96
0.065	0.325	10	0.650	5566259	28.96
0.065	0.500	15	1.000	5566270	28.96
0.070	0.350	10	0.700	5566281	28.96
0.070	0.500	14	1.000	5566292	28.96
0.075	0.375	10	0.750	5566303	28.96
0.075	0.500	13	1.000	5566314	28.96
0.078	0.406	10	0.800	5566325	28.96
0.078	0.406	15	1.187	5566336	28.96
0.080	0.400	10	0.800	5566347	28.96
0.080	0.750	15	1.250	5566358	28.96
0.085	0.425	10	0.850	5566369	28.96
0.085	0.750	14	1.250	5566380	28.96
0.090	0.450	10	0.900	5566391	28.96
0.090	0.750	13	1.250	5566402	28.96
0.093	0.500	10	0.950	5566413	28.96
0.093	0.500	15	1.400	5566424	28.96
0.095	0.500	10	0.950	5566435	28.96
0.095	0.750	13	1.250	5566446	28.96
0.100	0.500	10	1.000	5566457	28.96
0.100	0.750	12	1.250	5566468	28.96



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.050	10	0.100	5566479	46.06
0.010	0.050	15	0.150	5566490	56.89
0.015	0.075	10	0.150	5566501	38.44
0.015	0.075	15	0.225	5566512	48.92
0.020	0.100	10	0.200	5566523	37.02
0.020	0.100	15	0.300	5566534	47.13
0.025	0.125	10	0.250	5566545	35.47
0.025	0.125	15	0.375	5566556	45.70
0.030	0.150	10	0.300	5566567	35.47
0.030	0.150	15	0.450	5566578	45.70
0.031	0.155	10	0.310	5566589	35.47
0.031	0.155	15	0.470	5566600	45.70
0.035	0.175	10	0.350	5566611	35.47
0.035	0.175	15	0.525	5566622	45.70
0.040	0.200	10	0.400	5566633	35.47
0.040	0.200	15	0.600	5566644	45.70
0.045	0.225	10	0.450	5566655	34.75
0.045	0.225	15	0.675	5566666	43.44
0.047	0.250	10	0.500	5566677	34.75
0.047	0.250	15	0.710	5566688	43.44
0.050	0.300	10	0.500	5566699	34.75
0.050	0.300	15	0.750	5566710	43.44
0.055	0.385	10	0.550	5566721	34.75
0.055	0.385	15	0.825	5566732	43.44

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.312	10	0.625	5566743	34.75
0.060	0.500	16	1.000	5566754	34.75
0.062	0.312	10	0.625	5566765	34.75
0.062	0.500	16	1.000	5566776	34.75
0.065	0.325	10	0.650	5566787	34.75
0.065	0.500	15	1.000	5566798	34.75
0.070	0.350	10	0.700	5566809	34.75
0.070	0.500	14	1.000	5566820	34.75
0.075	0.375	10	0.750	5566831	34.75
0.075	0.500	13	1.000	5566842	34.75
0.078	0.406	10	0.800	5566853	34.75
0.078	0.406	15	1.187	5566864	34.75
0.080	0.400	10	0.800	5566875	34.75
0.080	0.750	15	1.250	5566886	34.75
0.085	0.425	10	0.850	5566897	34.75
0.085	0.750	14	1.250	5566908	34.75
0.090	0.450	10	0.900	5566919	34.75
0.090	0.750	13	1.250	5566930	34.75
0.093	0.500	10	0.950	5566941	34.75
0.093	0.500	15	1.400	5566952	34.75
0.095	0.500	10	0.950	5566963	34.75
0.095	0.750	13	1.250	5566974	34.75
0.100	0.500	10	1.000	5566985	34.75
0.100	0.750	12	1.250	5566996	34.75

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL



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

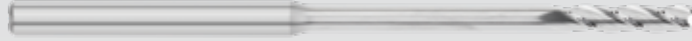
TOLERANCES	DIAMETER	SHANK	REACH
ALL SIZES	+ .0005, -.0005	-.0001, -.0003 ISO H6	+ .010, -.000



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR
LENGTH

LONG REACH
STUB FL

LONG REACH
REG FL

LONG REACH
LONG FL

LONG LENGTH
LONG FL

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.050	10	0.100	5560143	48.00
0.010	0.050	15	0.150	5560154	48.00
0.015	0.075	10	0.150	5560165	41.16
0.015	0.075	15	0.225	5560176	41.16
0.020	0.100	10	0.200	5560187	39.87
0.020	0.100	15	0.300	5560198	39.87
0.025	0.125	10	0.250	5560209	34.52
0.025	0.125	15	0.375	5560220	34.52
0.030	0.150	10	0.300	5560231	34.52
0.030	0.150	15	0.450	5560242	34.52
0.031	0.155	10	0.310	5560253	34.52
0.031	0.155	15	0.470	5560264	34.52
0.035	0.175	10	0.350	5560275	34.52
0.035	0.175	15	0.525	5560286	34.52
0.040	0.200	10	0.400	5560297	34.52
0.040	0.200	15	0.600	5560308	34.52
0.045	0.225	10	0.450	5560319	33.62
0.045	0.225	15	0.675	5560330	33.62
0.047	0.250	10	0.500	5560341	33.62
0.047	0.250	15	0.710	5560352	33.62
0.050	0.300	10	0.500	5560363	33.62
0.050	0.300	15	0.750	5560374	33.62
0.055	0.385	10	0.550	5560385	33.62
0.055	0.385	15	0.825	5560396	33.62

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.312	10	0.625	5560407	33.62
0.060	0.500	16	1.000	5560418	33.62
0.062	0.312	10	0.625	5560429	33.62
0.062	0.500	16	1.000	5560440	33.62
0.065	0.325	10	0.650	5560451	33.62
0.065	0.500	15	1.000	5560462	33.62
0.070	0.350	10	0.700	5560473	33.62
0.070	0.500	14	1.000	5560484	33.62
0.075	0.375	10	0.750	5560495	33.62
0.075	0.500	13	1.000	5560506	33.62
0.078	0.406	10	0.800	5560517	33.62
0.078	0.406	15	1.187	5560528	33.62
0.080	0.400	10	0.800	5560539	33.62
0.080	0.750	15	1.250	5560550	33.62
0.085	0.425	10	0.850	5560561	33.62
0.085	0.750	14	1.250	5560572	33.62
0.090	0.450	10	0.900	5560583	33.62
0.090	0.750	13	1.250	5560594	33.62
0.093	0.500	10	0.950	5560605	33.62
0.093	0.500	15	1.400	5560616	33.62
0.095	0.500	10	0.950	5560627	33.62
0.095	0.750	13	1.250	5560638	33.62
0.100	0.500	10	1.000	5560649	33.62
0.100	0.750	12	1.250	5560660	33.62



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.010	0.050	10	0.100	5560671	57.60
0.010	0.050	15	0.150	5560682	57.60
0.015	0.075	10	0.150	5560693	49.39
0.015	0.075	15	0.225	5560704	49.39
0.020	0.100	10	0.200	5560715	47.85
0.020	0.100	15	0.300	5560726	47.85
0.025	0.125	10	0.250	5560737	41.42
0.025	0.125	15	0.375	5560748	41.42
0.030	0.150	10	0.300	5560759	41.42
0.030	0.150	15	0.450	5560770	41.42
0.031	0.155	10	0.310	5560781	41.42
0.031	0.155	15	0.470	5560792	41.42
0.035	0.175	10	0.350	5560803	41.42
0.035	0.175	15	0.525	5560814	41.42
0.040	0.200	10	0.400	5560825	41.42
0.040	0.200	15	0.600	5560836	41.42
0.045	0.225	10	0.450	5560847	40.35
0.045	0.225	15	0.675	5560858	40.35
0.047	0.250	10	0.500	5560869	40.35
0.047	0.250	15	0.710	5560880	40.35
0.050	0.300	10	0.500	5560891	40.35
0.050	0.300	15	0.750	5560902	40.35
0.055	0.385	10	0.550	5560913	40.35
0.055	0.385	15	0.825	5560924	40.35

DIA	LOC	xDIA	REACH	ITEM#	PRICE
0.060	0.312	10	0.625	5560935	40.35
0.060	0.500	16	1.000	5560946	40.35
0.062	0.312	10	0.625	5560957	40.35
0.062	0.500	16	1.000	5560968	40.35
0.065	0.325	10	0.650	5560979	40.35
0.065	0.500	15	1.000	5560990	40.35
0.070	0.350	10	0.700	5561001	40.35
0.070	0.500	14	1.000	5561012	40.35
0.075	0.375	10	0.750	5561023	40.35
0.075	0.500	13	1.000	5561034	40.35
0.078	0.406	10	0.800	5561045	40.35
0.078	0.406	15	1.187	5561056	40.35
0.080	0.400	10	0.800	5561067	40.35
0.080	0.750	15	1.250	5561078	40.35
0.085	0.425	10	0.850	5561089	40.35
0.085	0.750	14	1.250	5561100	40.35
0.090	0.450	10	0.900	5561111	40.35
0.090	0.750	13	1.250	5561122	40.35
0.093	0.500	10	0.950	5561133	40.35
0.093	0.500	15	1.400	5561144	40.35
0.095	0.500	10	0.950	5561155	40.35
0.095	0.750	13	1.250	5561166	40.35
0.100	0.500	10	1.000	5561177	40.35
0.100	0.750	12	1.250	5561188	40.35



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

TOLERANCES	DIAMETER	SHANK	REACH	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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

REGULAR LENGTH

DIA	xDIA	LOC	ITEM#	PRICE
0.010	5	0.050	5561199	30.85
0.010	8	0.080	5561210	51.77
0.010	12	0.120	5561221	61.49
0.015	5	0.078	5561232	28.66
0.015	8	0.125	5561243	49.49
0.015	12	0.187	5561254	60.90
0.020	5	0.100	5561265	24.60
0.020	8	0.160	5561276	44.46
0.020	12	0.250	5561287	58.42
0.025	5	0.125	5561298	23.51
0.025	8	0.203	5561309	44.46
0.025	12	0.312	5561320	51.67
0.030	5	0.150	5561331	22.61
0.030	8	0.250	5561342	38.10
0.030	12	0.375	5561353	49.10
0.031	5	0.156	5561364	22.61
0.031	8	0.250	5561375	36.37
0.031	12	0.375	5561386	49.10
0.035	5	0.175	5561397	22.61
0.035	8	0.280	5561408	36.37
0.035	12	0.425	5561419	49.10
0.040	5	0.200	5561430	22.61
0.040	8	0.325	5561441	36.37
0.040	12	0.480	5561452	49.10
0.045	5	0.225	5561463	22.61
0.045	8	0.375	5561474	36.37
0.045	12	0.550	5561485	48.80
0.047	5	0.250	5561496	22.61
0.047	8	0.375	5561507	36.37
0.047	12	0.570	5561518	48.80
0.050	5	0.250	5561529	22.61
0.050	8	0.400	5561540	36.37
0.050	12	0.600	5561551	49.10
0.055	5	0.275	5561562	22.61
0.055	8	0.440	5561573	36.37
0.055	12	0.660	5561584	49.10
0.060	5	0.312	5561595	20.14
0.060	8	0.500	5561606	22.61
0.060	12	0.720	5561617	49.10
0.062	5	0.312	5561628	20.14
0.062	8	0.500	5561639	22.52
0.062	12	0.750	5561650	38.48

LONG REACH STUB FL

DIA	xDIA	LOC	ITEM#	PRICE
0.062	15	0.950	5561661	52.67
0.065	5	0.325	5561672	20.14
0.065	8	0.500	5561683	22.52
0.065	12	0.780	5561694	38.48
0.070	5	0.375	5561705	20.14
0.070	8	0.560	5561716	22.52
0.070	12	0.850	5561727	38.48
0.075	5	0.375	5561738	20.14
0.075	8	0.625	5561749	22.52
0.075	12	0.900	5561760	38.48
0.078	5	0.406	5561771	20.14
0.078	8	0.625	5561782	22.52
0.078	12	0.940	5561793	38.48
0.078	15	1.187	5561804	52.67
0.080	5	0.406	5561815	20.14
0.080	8	0.750	5561826	22.52
0.080	12	0.960	5561837	38.48
0.085	5	0.425	5561848	20.14
0.085	8	0.750	5561859	22.52
0.085	12	1.020	5561870	38.48
0.090	5	0.450	5561881	20.14
0.090	8	0.750	5561892	22.52
0.090	12	1.080	5561903	38.48
0.093	5	0.500	5561914	20.14
0.093	8	0.750	5561925	22.52
0.093	12	1.125	5561936	38.48
0.093	15	1.400	5561947	54.75
0.095	5	0.500	5561958	20.14
0.095	8	0.750	5561969	22.52
0.095	12	1.140	5561980	38.48
0.100	5	0.500	5561991	20.14
0.100	8	0.800	5562002	22.52
0.100	12	1.200	5562013	38.48
0.109	5	0.570	5562024	20.14
0.109	8	0.900	5562035	22.52
0.109	12	1.320	5562046	38.48
0.118	5	0.625	5562057	20.14
0.118	8	0.950	5562068	22.52
0.118	12	1.375	5562079	38.48
0.120	5	0.600	5562090	20.14
0.120	8	1.000	5562101	22.52
0.120	12	1.500	5562112	38.48

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

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

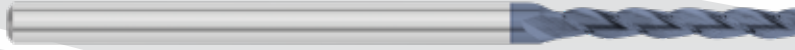
TOLERANCES	DIAMETER	SHANK
ALL SIZES	+.0005, -.0005	-.0001, -.0003 ISO H6

Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	xDIA	LOC	ITEM#	PRICE
0.010	5	0.050	5562123	37.02
0.010	8	0.080	5562134	62.13
0.010	12	0.120	5562145	73.79
0.015	5	0.078	5562156	34.40
0.015	8	0.125	5562167	59.39
0.015	12	0.187	5562178	73.08
0.020	5	0.100	5562189	29.52
0.020	8	0.160	5562200	53.35
0.020	12	0.250	5562211	70.10
0.025	5	0.125	5562222	28.21
0.025	8	0.203	5562233	53.35
0.025	12	0.312	5562244	62.01
0.030	5	0.150	5562255	27.14
0.030	8	0.250	5562266	45.72
0.030	12	0.375	5562277	58.91
0.031	5	0.156	5562288	27.14
0.031	8	0.250	5562299	43.64
0.031	12	0.375	5562310	58.91
0.035	5	0.175	5562321	27.14
0.035	8	0.280	5562332	43.64
0.035	12	0.425	5562343	58.91
0.040	5	0.200	5562354	27.14
0.040	8	0.325	5562365	43.64
0.040	12	0.480	5562376	58.91
0.045	5	0.225	5562387	27.14
0.045	8	0.375	5562398	43.64
0.045	12	0.550	5562409	58.56
0.047	5	0.250	5562420	27.14
0.047	8	0.375	5562431	43.64
0.047	12	0.570	5562442	58.56
0.050	5	0.250	5562453	27.14
0.050	8	0.400	5562464	43.64
0.050	12	0.600	5562475	58.91
0.055	5	0.275	5562486	27.14
0.055	8	0.440	5562497	43.64
0.055	12	0.660	5562508	58.91
0.060	5	0.312	5562519	24.16
0.060	8	0.500	5562530	27.14
0.060	12	0.720	5562541	58.91
0.062	5	0.312	5562552	24.16
0.062	8	0.500	5562563	27.02
0.062	12	0.750	5562574	46.18

DIA	xDIA	LOC	ITEM#	PRICE
0.062	15	0.950	5562585	63.20
0.065	5	0.325	5562596	24.16
0.065	8	0.500	5562607	27.02
0.065	12	0.780	5562618	46.18
0.070	5	0.375	5562629	24.16
0.070	8	0.560	5562640	27.02
0.070	12	0.850	5562651	46.18
0.075	5	0.375	5562662	24.16
0.075	8	0.625	5562673	27.02
0.075	12	0.900	5562684	46.18
0.078	5	0.406	5562695	24.16
0.078	8	0.625	5562706	27.02
0.078	12	0.940	5562717	46.18
0.078	15	1.187	5562728	63.20
0.080	5	0.406	5562739	24.16
0.080	8	0.750	5562750	27.02
0.080	12	0.960	5562761	46.18
0.085	5	0.425	5562772	24.16
0.085	8	0.750	5562783	27.02
0.085	12	1.020	5562794	46.18
0.090	5	0.450	5562805	24.16
0.090	8	0.750	5562816	27.02
0.090	12	1.080	5562827	46.18
0.093	5	0.500	5562838	24.16
0.093	8	0.750	5562849	27.02
0.093	12	1.125	5562860	46.18
0.093	15	1.400	5562871	65.69
0.095	5	0.500	5562882	24.16
0.095	8	0.750	5562893	27.02
0.095	12	1.140	5562904	46.18
0.100	5	0.500	5562915	24.16
0.100	8	0.800	5562926	27.02
0.100	12	1.200	5562937	46.18
0.109	5	0.570	5562948	24.16
0.109	8	0.900	5562959	27.02
0.109	12	1.320	5562970	46.18
0.118	5	0.625	5562981	24.16
0.118	8	0.950	5562992	27.02
0.118	12	1.375	5563003	46.18
0.120	5	0.600	5563014	24.16
0.120	8	1.000	5563025	27.02
0.120	12	1.500	5563036	46.18

REGULAR LENGTH

LONG REACH STUB FL

LONG REACH REG FL

LONG REACH LONG FL

LONG LENGTH LONG FL

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



Carbide Micro End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

DIA	xDIA	LOC	ITEM#	PRICE
0.010	5	0.050	5563047	35.31
0.010	8	0.080	5563058	59.31
0.010	12	0.120	5563069	69.43
0.015	5	0.078	5563080	32.83
0.015	8	0.125	5563091	56.83
0.015	12	0.187	5563102	70.22
0.020	5	0.100	5563113	28.27
0.020	8	0.160	5563124	52.76
0.020	12	0.250	5563135	65.96
0.025	5	0.125	5563146	26.88
0.025	8	0.203	5563157	51.38
0.025	12	0.312	5563168	63.48
0.030	5	0.150	5563179	25.99
0.030	8	0.250	5563190	42.51
0.030	12	0.375	5563201	62.48
0.031	5	0.156	5563212	25.99
0.031	8	0.250	5563223	40.93
0.031	12	0.375	5563234	56.34
0.035	5	0.175	5563245	25.99
0.035	8	0.281	5563256	42.51
0.035	12	0.425	5563267	56.34
0.040	5	0.200	5563278	25.99
0.040	8	0.325	5563289	42.51
0.040	12	0.480	5563300	56.34
0.045	5	0.225	5563311	25.99
0.045	8	0.375	5563322	42.51
0.045	12	0.550	5563333	56.34
0.047	5	0.250	5563344	25.99
0.047	8	0.375	5563355	42.51
0.047	12	0.570	5563366	56.34
0.050	5	0.250	5563377	25.99
0.050	8	0.400	5563388	42.51
0.050	12	0.600	5563399	56.34
0.055	5	0.275	5563410	23.01
0.055	8	0.440	5563421	27.77
0.055	12	0.660	5563432	52.57
0.060	5	0.312	5563443	23.01
0.060	8	0.500	5563454	25.99
0.060	12	0.720	5563465	47.81
0.062	5	0.312	5563476	23.01
0.062	8	0.500	5563487	25.69
0.062	12	0.750	5563498	44.14

DIA	xDIA	LOC	ITEM#	PRICE
0.062	15	0.950	5563509	60.40
0.065	5	0.325	5563520	23.01
0.065	8	0.500	5563531	25.69
0.065	12	0.780	5563542	44.14
0.070	5	0.375	5563553	23.01
0.070	8	0.560	5563564	25.69
0.070	12	0.900	5563575	44.14
0.075	5	0.375	5563586	23.01
0.075	8	0.625	5563597	25.69
0.075	12	0.900	5563608	44.14
0.078	5	0.406	5563619	23.01
0.078	8	0.625	5563630	25.69
0.078	12	0.940	5563641	44.14
0.078	15	1.187	5563652	60.40
0.080	5	0.406	5563663	23.01
0.080	8	0.750	5563674	25.69
0.080	12	0.960	5563685	44.14
0.085	5	0.425	5563696	23.01
0.085	8	0.750	5563707	25.69
0.085	12	1.020	5563718	44.14
0.090	5	0.450	5563729	23.01
0.090	8	0.750	5563740	25.69
0.090	12	1.080	5563751	44.14
0.093	5	0.500	5563762	23.01
0.093	8	0.750	5563773	25.69
0.093	12	1.125	5563784	44.14
0.093	15	1.400	5563795	61.69
0.095	5	0.500	5563806	23.01
0.095	8	0.750	5563817	25.69
0.095	12	1.140	5563828	44.14
0.100	5	0.500	5563839	23.01
0.100	8	0.800	5563850	25.69
0.100	12	1.200	5563861	44.14
0.109	5	0.570	5563872	23.01
0.109	8	0.900	5563883	25.69
0.109	12	1.320	5563894	44.14
0.118	5	0.625	5563905	23.01
0.118	8	0.950	5563916	25.69
0.118	12	1.375	5563927	44.14
0.120	5	0.600	5563938	23.01
0.120	8	1.000	5563949	25.69
0.120	12	1.500	5563960	44.14

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



ALTiN COATED

DIA	xDIA	LOC	ITEM#	PRICE
0.010	5	0.050	5563971	42.37
0.010	8	0.080	5563982	71.17
0.010	12	0.120	5563993	83.31
0.015	5	0.078	5564004	39.40
0.015	8	0.125	5564015	68.19
0.015	12	0.187	5564026	84.26
0.020	5	0.100	5564037	33.92
0.020	8	0.160	5564048	63.32
0.020	12	0.250	5564059	79.15
0.025	5	0.125	5564070	32.25
0.025	8	0.203	5564081	61.65
0.025	12	0.312	5564092	76.17
0.030	5	0.150	5564103	31.18
0.030	8	0.250	5564114	51.01
0.030	12	0.375	5564125	74.98
0.031	5	0.156	5564136	31.18
0.031	8	0.250	5564147	49.12
0.031	12	0.375	5564158	67.60
0.035	5	0.175	5564169	31.18
0.035	8	0.281	5564180	51.01
0.035	12	0.425	5564191	67.60
0.040	5	0.200	5564202	31.18
0.040	8	0.325	5564213	51.01
0.040	12	0.480	5564224	67.60
0.045	5	0.225	5564235	31.18
0.045	8	0.375	5564246	51.01
0.045	12	0.550	5564257	67.60
0.047	5	0.250	5564268	31.18
0.047	8	0.375	5564279	51.01
0.047	12	0.570	5564290	67.60
0.050	5	0.250	5564301	31.18
0.050	8	0.400	5564312	51.01
0.050	12	0.600	5564323	67.60
0.055	5	0.275	5564334	27.61
0.055	8	0.440	5564345	33.33
0.055	12	0.660	5564356	63.08
0.060	5	0.312	5564367	27.61
0.060	8	0.500	5564378	31.18
0.060	12	0.720	5564389	57.37
0.062	5	0.312	5564400	27.61
0.062	8	0.500	5564411	30.83
0.062	12	0.750	5564422	52.96

DIA	xDIA	LOC	ITEM#	PRICE
0.062	15	0.950	5564433	72.48
0.065	5	0.325	5564444	27.61
0.065	8	0.500	5564455	30.83
0.065	12	0.780	5564466	52.96
0.070	5	0.375	5564477	27.61
0.070	8	0.560	5564488	30.83
0.070	12	0.900	5564499	52.96
0.075	5	0.375	5564510	27.61
0.075	8	0.625	5564521	30.83
0.075	12	0.900	5564532	52.96
0.078	5	0.406	5564543	27.61
0.078	8	0.625	5564554	30.83
0.078	12	0.940	5564565	52.96
0.078	15	1.187	5564576	72.48
0.080	5	0.406	5564587	27.61
0.080	8	0.750	5564598	30.83
0.080	12	0.960	5564609	52.96
0.085	5	0.425	5564620	27.61
0.085	8	0.750	5564631	30.83
0.085	12	1.020	5564642	52.96
0.090	5	0.450	5564653	27.61
0.090	8	0.750	5564664	30.83
0.090	12	1.080	5564675	52.96
0.093	5	0.500	5564686	27.61
0.093	8	0.750	5564697	30.83
0.093	12	1.125	5564708	52.96
0.093	15	1.400	5564719	74.03
0.095	5	0.500	5564730	27.61
0.095	8	0.750	5564741	30.83
0.095	12	1.140	5564752	52.96
0.100	5	0.500	5564763	27.61
0.100	8	0.800	5564774	30.83
0.100	12	1.200	5564785	52.96
0.109	5	0.570	5564796	27.61
0.109	8	0.900	5564807	30.83
0.109	12	1.320	5564818	52.96
0.118	5	0.625	5564829	27.61
0.118	8	0.950	5564840	30.83
0.118	12	1.375	5564851	52.96
0.120	5	0.600	5564862	27.61
0.120	8	1.000	5564873	30.83
0.120	12	1.500	5564884	52.96

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, -0.000	+0.0002, -0.0002



M42 Cobalt Roughing End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

COARSE PITCH - NON CENTER CUTTING - 30° HELIX



ALTIM COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/4	3/8	5/8	2-7/16	3	5467385	47.17
5/16	3/8	3/4	2-1/2	3	5467396	51.52
3/8	3/8	3/4	2-1/2	4	5467407	53.82
7/16	3/8	1	2-11/16	4	5467418	54.13
1/2	1/2	1	3	4	5467429	55.12
1/2	1/2	1-1/4	3-1/4	4	5467440	57.00
5/8	5/8	1-5/8	3-3/4	4	5467451	72.54
3/4	3/4	1-5/8	3-7/8	4	5467462	79.83
7/8	3/4	1-7/8	4-1/8	5	5467473	110.62
1	1	2	4-1/2	5	5467484	106.93
1-1/8	1	2	4-1/2	6	5467495	166.05
1-1/4	1-1/4	2	4-1/2	6	5467506	180.21
1-1/2	1-1/4	2	4-1/2	6	5467517	211.36
2	1-1/4	2	4-1/2	8	5467539	293.68

FINE PITCH - NON CENTER CUTTING - 30° HELIX



ALTIM COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/4	3/8	5/8	2-7/16	3	5468518	47.17
5/16	3/8	3/4	2-1/2	3	5468529	51.52
3/8	3/8	3/4	2-1/2	4	5468540	54.13
7/16	3/8	1	2-11/16	4	5468551	54.41
1/2	1/2	1-1/4	3-1/4	4	5468562	55.12
5/8	5/8	1-5/8	3-3/4	4	5468573	72.54
3/4	3/4	1-5/8	3-7/8	4	5468584	79.83
7/8	3/4	1-7/8	4-1/8	5	5468595	104.43
1	1	2	4-1/2	5	5468606	107.01
1-1/8	1	2	4-1/2	6	5468617	177.40
1-1/4	1-1/4	2	4-1/2	6	5468628	180.21
1-1/2	1-1/4	2	4-1/2	6	5468639	222.68
2	1-1/4	2	4-1/2	8	5468661	313.90

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

TOLERANCES	DIAMETER	SHANK
ALL SIZES	+0.005, -0.005	+0.0000, -.0005

M42 Cobalt End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED



ALTIN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	2-5/16	2	5532142	18.04
3/16	3/8	9/32	2-5/16	2	5532164	18.04
1/4	3/8	1/2	2-5/16	2	5532186	18.04
5/16	3/8	9/16	2-5/16	2	5532208	18.04
3/8	3/8	9/16	2-5/16	2	5532219	18.04
7/16	3/8	13/16	2-1/2	2	5532230	24.92
1/2	3/8	13/16	2-1/2	2	5532241	24.92
1/2	1/2	1	3	2	5532252	26.35
9/16	1/2	1-1/8	3-1/8	2	5532263	29.66
5/8	1/2	1-1/8	3-1/8	2	5532274	33.21
5/8	5/8	1-5/16	3-7/16	2	5532285	33.74
3/4	1/2	1-5/16	3-5/16	2	5532296	38.57
3/4	5/8	1-5/16	3-7/16	2	5532307	38.57
3/4	3/4	1-5/16	3-9/16	2	5532318	38.57
13/16	5/8	1-1/2	3-5/8	2	5532329	47.41
13/16	3/4	1-1/2	3-3/4	2	5532340	47.69
7/8	3/4	1-1/2	3-3/4	2	5532362	52.85
7/8	7/8	1-1/2	3-3/4	2	5532373	52.85
15/16	5/8	1-1/2	3-5/8	2	5532384	57.43
15/16	3/4	1-1/2	3-3/4	2	5532395	60.83
1	3/4	1-1/2	3-3/4	2	5532428	53.76
1	1	1-5/8	4-1/8	2	5532450	61.22
1-1/8	1	1-5/8	4-1/8	2	5532472	89.53
1-1/4	1	1-5/8	4-1/8	2	5532494	99.82
1-1/2	1-1/4	1-5/8	4-1/8	2	5532538	119.38

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	2-5/16	2	5532549	22.55
3/16	3/8	9/32	2-5/16	2	5532571	22.55
1/4	3/8	1/2	2-5/16	2	5532593	22.55
5/16	3/8	9/16	2-5/16	2	5532615	22.55
3/8	3/8	9/16	2-5/16	2	5532626	22.55
7/16	3/8	13/16	2-1/2	2	5532637	31.15
1/2	3/8	13/16	2-1/2	2	5532648	31.15
1/2	1/2	1	3	2	5532659	32.95
9/16	1/2	1-1/8	3-1/8	2	5532670	37.08
5/8	1/2	1-1/8	3-1/8	2	5532681	41.52
5/8	5/8	1-5/16	3-7/16	2	5532692	42.17
3/4	1/2	1-5/16	3-5/16	2	5532703	48.26
3/4	5/8	1-5/16	3-7/16	2	5532714	48.26
3/4	3/4	1-5/16	3-9/16	2	5532725	48.26
13/16	5/8	1-1/2	3-5/8	2	5532736	59.26
13/16	3/4	1-1/2	3-3/4	2	5532747	59.47
7/8	3/4	1-1/2	3-3/4	2	5532769	66.05
7/8	7/8	1-1/2	3-3/4	2	5532780	66.05
15/16	5/8	1-1/2	3-5/8	2	5532791	71.78
15/16	3/4	1-1/2	3-3/4	2	5532802	76.05
1	3/4	1-1/2	3-3/4	2	5532835	67.21
1	1	1-5/8	4-1/8	2	5532857	76.53
1-1/8	1	1-5/8	4-1/8	2	5532879	111.92
1-1/4	1	1-5/8	4-1/8	2	5532901	124.77
1-1/2	1-1/4	1-5/8	4-1/8	2	5532945	149.23

COBALT END MILLS



For coating information, please see page 6.

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



M42 Cobalt End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



UNCOATED

ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM #	PRICE
1/8	3/8	3/8	2-5/16	4	5530382	18.41
5/32	3/8	3/8	2-5/16	4	5530393	25.22
3/16	3/8	1/2	2-3/8	4	5530404	18.41
7/32	3/8	1/2	2-3/8	4	5530415	25.22
1/4	3/8	5/8	2-7/16	4	5530426	18.41
9/32	3/8	11/16	2-1/2	4	5530437	25.22
5/16	3/8	3/4	2-1/2	4	5530448	18.41
11/32	3/8	3/4	2-1/2	4	5530459	25.75
3/8	3/8	3/4	2-1/2	4	5530470	18.41
13/32	3/8	1	2-11/16	4	5530481	37.62
7/16	3/8	1	2-11/16	4	5530492	24.87
15/32	3/8	1	2-11/16	4	5530503	44.12
1/2	3/8	1	2-11/16	4	5530514	24.87
1/2	1/2	1-1/4	3-1/4	4	5530525	24.87
17/32	1/2	1-3/8	3-3/8	4	5530536	46.61
9/16	1/2	1-3/8	3-3/8	4	5530547	29.84
5/8	1/2	1-3/8	3-3/8	4	5530558	32.49
5/8	5/8	1-5/8	3-3/4	4	5530569	36.09
11/16	1/2	1-5/8	3-5/8	4	5530580	37.65
11/16	5/8	1-5/8	3-3/4	4	5530591	38.37
3/4	1/2	1-5/8	3-5/8	4	5530602	44.15
3/4	5/8	1-5/8	3-3/4	4	5530613	44.15
3/4	3/4	1-5/8	3-7/8	4	5530624	45.62
13/16	3/4	1-7/8	4-1/8	4	5530635	51.56
7/8	3/4	1-7/8	4-1/8	4	5530646	51.38
7/8	7/8	1-7/8	4-1/8	4	5530657	51.38
15/16	3/4	1-7/8	4-1/8	4	5530668	65.98
1	3/4	1-7/8	4-1/8	4	5530679	58.48
1	1	2	4-1/2	4	5530701	61.94
1-1/8	3/4	1-5/8	3-7/8	6	5530712	88.36
1-1/4	1	2	4-1/2	6	5530723	94.71
1-1/4	1-1/4	2	4-1/2	6	5530734	96.54
1-3/8	3/4	2	4-1/4	6	5530745	158.97
1-1/2	1	2	4-1/2	6	5530756	170.03
1-1/2	1-1/4	2	4-1/2	4	5530767	137.25
1-5/8	1-1/4	2	4-1/2	6	5530778	213.00
2	1-1/4	2	4-1/2	6	5530789	219.95

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM #	PRICE
1/8	3/8	3/8	2-5/16	4	5530800	23.01
5/32	3/8	3/8	2-5/16	4	5530811	31.52
3/16	3/8	1/2	2-3/8	4	5530822	23.01
7/32	3/8	1/2	2-3/8	4	5530833	31.52
1/4	3/8	5/8	2-7/16	4	5530844	23.01
9/32	3/8	11/16	2-1/2	4	5530855	31.52
5/16	3/8	3/4	2-1/2	4	5530866	23.01
11/32	3/8	3/4	2-1/2	4	5530877	32.19
3/8	3/8	3/4	2-1/2	4	5530888	23.01
13/32	3/8	11/16	2-1/2	4	5530899	47.04
7/16	3/8	1	2-11/16	4	5530910	31.09
15/32	3/8	1	2-11/16	4	5530921	49.64
1/2	3/8	1	2-11/16	4	5530932	31.09
1/2	1/2	1-1/4	3-1/4	4	5530943	31.09
17/32	1/2	1-3/8	3-3/8	4	5530954	58.26
9/16	1/2	1-3/8	3-3/8	4	5530965	37.29
5/8	1/2	1-3/8	3-3/8	4	5530976	40.60
5/8	5/8	1-5/8	3-3/4	4	5530987	45.11
11/16	1/2	1-5/8	3-5/8	4	5530998	47.07
11/16	5/8	1-5/8	3-3/4	4	5531009	47.97
3/4	1/2	1-5/8	3-5/8	4	5531020	57.11
3/4	5/8	1-5/8	3-3/4	4	5531031	57.11
3/4	3/4	1-5/8	3-7/8	4	5531042	57.11
13/16	3/4	1-7/8	4-1/8	4	5531053	64.47
7/8	3/4	1-7/8	4-1/8	4	5531064	64.24
7/8	7/8	1-7/8	4-1/8	4	5531075	64.24
15/16	3/4	1-7/8	4-1/8	4	5531086	82.48
1	3/4	1-7/8	4-1/8	4	5531097	73.10
1	1	2	4-1/2	4	5531119	77.41
1-1/8	3/4	1-5/8	3-7/8	6	5531130	110.13
1-1/4	1	2	4-1/2	6	5531141	118.39
1-1/4	1-1/4	2	4-1/2	6	5531152	120.67
1-3/8	3/4	2	4-1/4	6	5531163	164.16
1-1/2	1	2	4-1/2	6	5531174	184.43
1-1/2	1-1/4	2	4-1/2	4	5531185	151.18
1-5/8	1-1/4	2	4-1/2	6	5531196	240.53
2	1-1/4	2	4-1/2	6	5531207	272.76

For coating information, please see page 6.

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

M42 Cobalt End Mills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



UNCOATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	3-1/16	2	5531218	27.59
5/32	3/8	7/16	3-1/8	2	5531229	29.29
3/16	3/8	7/16	3-1/8	2	5531240	27.63
7/32	3/8	1/2	3-1/8	2	5531251	29.31
1/4	3/8	1/2	3-1/8	2	5531262	27.63
9/32	3/8	9/16	3-1/8	2	5531273	29.31
5/16	3/8	9/16	3-1/8	2	5531284	27.63
11/32	3/8	9/16	3-1/8	2	5531295	29.31
3/8	3/8	9/16	3-1/8	2	5531306	27.63
13/32	1/2	13/16	3-3/4	2	5531317	44.65
7/16	1/2	13/16	3-3/4	2	5531328	42.00
1/2	1/2	13/16	3-3/4	2	5531350	42.00
9/16	5/8	1-1/8	4-1/2	2	5531361	52.70
5/8	5/8	1-1/8	4-1/2	2	5531372	52.70
3/4	3/4	1-5/16	5	2	5531394	66.36
7/8	7/8	1-9/16	5-1/2	2	5531416	83.50
1	1	1-5/8	5-7/8	2	5531438	102.70

ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	3-1/16	2	5531449	34.49
5/32	3/8	7/16	3-1/8	2	5531460	36.62
3/16	3/8	7/16	3-1/8	2	5531471	34.51
7/32	3/8	1/2	3-1/8	2	5531482	36.63
1/4	3/8	1/2	3-1/8	2	5531493	34.51
9/32	3/8	9/16	3-1/8	2	5531504	36.63
5/16	3/8	9/16	3-1/8	2	5531515	34.51
11/32	3/8	9/16	3-1/8	2	5531526	36.63
3/8	3/8	9/16	3-1/8	2	5531537	34.51
13/32	1/2	13/16	3-3/4	2	5531548	23.96
7/16	1/2	13/16	3-3/4	2	5531559	52.49
1/2	1/2	13/16	3-3/4	2	5531581	52.49
9/16	5/8	1-1/8	4-1/2	2	5531592	65.86
5/8	5/8	1-1/8	4-1/2	2	5531603	65.86
3/4	3/4	1-5/16	5	2	5531625	82.97
7/8	7/8	1-9/16	5-1/2	2	5531647	104.37
1	1	1-5/8	5-7/8	2	5531669	128.38

COBALT END MILLS

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



UNCOATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	3-1/16	4	5531680	27.87
5/32	3/8	7/16	3-1/8	4	5531691	29.43
3/16	3/8	1/2	3-1/8	4	5531702	27.87
7/32	3/8	9/16	3-1/4	4	5531713	29.43
1/4	3/8	5/8	3-3/8	4	5531724	27.87
9/32	3/8	11/16	3-3/8	4	5531735	29.43
5/16	3/8	3/4	3-1/2	4	5531746	27.87
11/32	3/8	3/4	3-1/2	4	5531757	29.43
3/8	3/8	3/4	3-1/2	4	5531768	27.87
13/32	1/2	1	4-1/8	4	5531779	43.27
7/16	1/2	1	4-1/8	4	5531790	42.08
1/2	1/2	1	4-1/8	4	5531812	42.08
9/16	5/8	1-3/8	5	4	5531823	51.80
5/8	5/8	1-3/8	5	4	5531834	51.80
3/4	3/4	1-5/8	5-5/8	4	5531856	65.25
7/8	7/8	1-7/8	6-1/8	4	5531878	87.12
1	1	1-7/8	6-3/8	4	5531900	101.15

ALTiN COATED

DIA	SHANK	LOC	OAL	# OF FLUTES	ITEM#	PRICE
1/8	3/8	3/8	3-1/16	4	5531911	34.85
5/32	3/8	7/16	3-1/8	4	5531922	36.79
3/16	3/8	1/2	3-1/8	4	5531933	34.85
7/32	3/8	9/16	3-1/4	4	5531944	36.79
1/4	3/8	5/8	3-3/8	4	5531955	34.85
9/32	3/8	11/16	3-3/8	4	5531966	36.79
5/16	3/8	3/4	3-1/2	4	5531977	34.85
11/32	3/8	3/4	3-1/2	4	5531988	36.79
3/8	3/8	3/4	3-1/2	4	5531999	34.85
13/32	1/2	1	4-1/8	4	5532010	54.08
7/16	1/2	1	4-1/8	4	5532021	52.61
1/2	1/2	1	4-1/8	4	5532043	52.61
9/16	5/8	1-3/8	5	4	5532054	64.76
5/8	5/8	1-3/8	5	4	5532065	64.76
3/4	3/4	1-5/8	5-5/8	4	5532087	81.57
7/8	7/8	1-7/8	6-1/8	4	5532109	108.91
1	1	1-7/8	6-3/8	4	5532131	126.37

For coating information, please see page 6.

TOLERANCES	DIAMETER		SHANK
ALL SIZES	IF SIZE & SHANK DIA. ARE NOT THE SAME	IF SIZE & SHANK DIA. ARE THE SAME	
	+0.000, -0.015	+0.000, -0.025	+0.001, -0.005



Carbide Countersinks

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

COUNTERSINKS

SINGLE FLUTE COUNTERSINKS



CARBIDE
60° 82° 90° 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM #	82° - ITEM #	90° - ITEM #	100° - ITEM #	PRICE
1/8	1/8	1-1/2	1	5418842	5418930	5419018	5516313	11.38
3/16	3/16	2	1	5418853	5418941	5419029	5516324	12.15
1/4	1/4	2	1	5418864	5418952	5419040	5516335	13.81
3/8	1/4	2-5/8	1	5418875	5418963	5419051	5516346	25.00
1/2	1/4	2-5/8	1	5418886	5418974	5419062	5516357	30.96
5/8	3/8	2-3/4	1	5418897	5418985	5419073	5516368	45.23
3/4	3/8	2-3/4	1	5418908	5418996	5419084	5516379	63.93
1	1/2	3	1	5418919	5419007	5419095	5516390	94.77

3 FLUTE COUNTERSINKS



CARBIDE
60° 82° 90° 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM #	82° - ITEM #	90° - ITEM #	100° - ITEM #	PRICE
1/8	1/8	1-1/2	1	5419106	5419194	5419282	5516401	11.38
3/16	3/16	2	1	5419117	5419205	5419293	5516412	12.15
1/4	1/4	2	1	5419128	5419216	5419304	5516423	13.81
3/8	1/4	2-5/8	1	5419139	5419227	5419315	5516434	25.00
1/2	1/4	2-5/8	1	5419150	5419238	5419326	5516445	30.96
5/8	3/8	2-3/4	1	5419161	5419249	5419337	5516456	45.23
3/4	3/8	2-3/4	1	5419172	5419260	5419348	5516467	63.93
1	1/2	3	1	5419183	5419271	5419359	5516478	94.77

6 FLUTE CHATTERLESS COUNTERSINKS



CARBIDE
60° 82° 90° 100°

SIZE	SHANK	OAL	PKG QTY	60° - ITEM #	82° - ITEM #	90° - ITEM #	100° - ITEM #	PRICE
1/8	1/8	1-1/2	1	5419480	5419568	5419656	5516489	11.38
3/16	3/16	2	1	5419491	5419579	5419667	5516500	12.15
1/4	1/4	2	1	5419502	5419590	5419678	5516511	13.81
3/8	1/4	2-5/8	1	5419513	5419601	5419689	5516522	25.00
1/2	1/4	2-5/8	1	5419524	5419612	5419700	5516533	30.96
5/8	3/8	2-3/4	1	5419535	5419623	5419711	5516544	45.23
3/4	3/8	2-3/4	1	5419546	5419634	5419722	5516555	63.93
1	1/2	3	1	5419557	5419645	5419733	5516566	94.77

HSS Countersinks

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



SINGLE FLUTE COUNTERSINKS



HIGH SPEED STEEL
60° 82° 90°

SIZE	SHANK	OAL	PKG QTY	60°-ITEM#	82°-ITEM#	90°-ITEM#	PRICE
1/4	3/16	1-7/16	1	5413408	5413463	5413518	12.49
3/8	1/4	1-21/32	1	5413419	5413474	5413529	14.21
1/2	1/4	1-13/32	1	5413430	5413485	5413540	18.17
3/4	1/2	1-27/32	1	5413441	5413496	5413551	25.09
1	1/2	2-13/16	1	5413452	5413507	5413562	38.98

COUNTERSINKS

4 FLUTE COUNTERSINKS



HIGH SPEED STEEL
60° 82°

SIZE	SHANK	OAL	PKG. QTY	60°-ITEM#	82°-ITEM#	PRICE
1/2	1/2	3-7/8	1	5413573	5413628	39.85
5/8	1/2	4	1	5413584	5413639	44.86
3/4	1/2	4-1/8	1	5413595	5413650	57.25
7/8	1/2	4-1/4	1	5413606	5413661	67.29
1	1/2	4-3/8	1	5413617	5413672	69.54





Combined Drill & Countersinks

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

COUNTERSINKS

CARBIDE



CARBIDE - REGULAR - 60°
UNCOATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
00	.025	1/8	1-1/2	1	5516302	15.44
0	1/32	1/8	1-1/2	1	5516291	14.76
1	3/64	1/8	1-1/2	1	5418776	13.44
2	5/64	3/16	2	1	5418787	19.99
3	7/64	1/4	2	1	5418798	22.55
4	1/8	5/16	2-1/8	1	5418809	29.11
5	3/16	7/16	2-3/4	1	5418820	46.14
6	7/32	1/2	3	1	5418831	57.43



CARBIDE - REGULAR - 60°
ALTiN COATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
00	.025	1/8	1-1/2	1	5418833	19.29
0	1/32	1/8	1-1/2	1	5418834	18.45
1	3/64	1/8	1-1/2	1	5418835	16.79
2	5/64	3/16	2	1	5418836	24.99
3	7/64	1/4	2	1	5418837	28.18
4	1/8	5/16	2-1/8	1	5418838	36.38
5	3/16	7/16	2-3/4	1	5418839	57.68
6	7/32	1/2	3	1	5418840	71.79

HIGH SPEED STEEL & COBALT



HIGH SPEED STEEL - REGULAR - 60°
UNCOATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
0	1/32	1/8	1-1/4	6	5418666	7.84
1	3/64	1/8	1-1/4	6	5418578	4.68
2	5/64	3/16	1-7/8	6	5418589	4.90
3	7/64	1/4	2	6	5418600	5.12
4	1/8	5/16	2-1/8	6	5418611	5.27
5	3/16	7/16	2-3/4	1	5418622	8.34
6	7/32	1/2	3	1	5418633	12.53
7	1/4	5/8	3-1/4	1	5418644	21.85
8	5/16	3/4	3-1/2	1	5418655	30.39



HIGH SPEED STEEL - REGULAR - 60°
TIN COATED

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
00	.025	1/8	1-1/4	6	5419469	9.83
0	1/32	1/8	1-1/4	6	5419458	9.83
1	3/64	1/8	1-1/4	6	5419370	7.44
2	5/64	3/16	1-7/8	6	5419381	7.64
3	7/64	1/4	2	6	5419392	10.40
4	1/8	5/16	2-1/8	6	5419403	10.72
5	3/16	7/16	2-3/4	1	5419414	14.93
6	7/32	1/2	3	1	5419425	23.83
7	1/4	5/8	3-1/4	1	5419436	34.25
8	5/16	3/4	3-1/2	1	5419447	55.11

HIGH SPEED STEEL - MINIATURE - 60°

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
00000	.010	1/8	1-1/4	6	5418567	8.47
0000	.015	1/8	1-1/4	6	5418556	7.77
000	.020	1/8	1-1/4	6	5418545	7.35
00	.025	1/8	1-1/4	6	5418534	7.35

M42 COBALT - REGULAR - 60°

SIZE	DRILL DIA.	BODY DIA.	OVERALL LENGTH	PKG. QTY	ITEM#	PRICE
1	3/64	1/8	1-1/4	6	5418732	13.90
2	5/64	3/16	1-7/8	6	5418743	15.03
3	7/64	1/4	2	6	5418754	15.54
4	1/8	5/16	2-1/8	6	5418765	16.16

For coating information, please see page 6.

Combined Drill & Countersinks

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL



HIGH SPEED STEEL - LONG LENGTH - 60°

SIZE	DRILL DIA.	BODY DIA.	PKG. QTY	ITEM#	PRICE
1 x 3	3/64	1/8	1	5419832	11.75
1 x 4	3/64	1/8	1	5419843	12.26
1 x 5	3/64	1/8	1	5419854	17.04
1 x 6	3/64	1/8	1	5419865	22.32
2 x 3	5/64	3/16	1	5419876	11.89
2 x 4	5/64	3/16	1	5419887	13.45
2 x 5	5/64	3/16	1	5419898	17.21
2 x 6	5/64	3/16	1	5419909	22.39
3 x 3	7/64	1/4	1	5419920	12.42
3 x 4	7/64	1/4	1	5419931	14.16
3 x 5	7/64	1/4	1	5419942	18.61
3 x 6	7/64	1/4	1	5419953	22.59
4 x 4	1/8	5/16	1	5419975	15.70
4 x 5	1/8	5/16	1	5419986	20.05
4 x 6	1/8	5/16	1	5419997	23.17
4-1/2 x 4	9/64	3/8	1	5419964	17.64
4-1/2 x 5	9/64	3/8	1	5420008	25.67
4-1/2 x 6	9/64	3/8	1	5420052	28.68
5 x 4	3/16	7/16	1	5420019	20.60
5 x 5	3/16	7/16	1	5420030	23.86
5 x 6	3/16	7/16	1	5420041	26.78
6 x 5	7/32	1/2	1	5420063	25.64
6 x 6	7/32	1/2	1	5420074	30.99
7 x 6	1/4	5/6	1	5420085	57.72
8 x 6	5/16	3/4	1	5420096	69.80

COUNTERSINKS



Spiral Point Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



Predator

PREMIUM POWDERED METAL



UNCOATED



ALTiN COATED



STEAM OXIDE



TiCN COATED

SIZE	H LIMIT	# OF FLUTES	UNCOATED	LIST PRICE	STM OXIDE	LIST PRICE	ALTiN	LIST PRICE	TiCN	LIST PRICE
2-56	H2	2	5563555	17.56	5563544	18.58	5563566	20.87	5563830	20.87
4-40	H2	3	5513002	13.56	5512793	15.60	5513211	20.87	5563841	20.87
6-32	H3	3	5513013	13.56	5512804	15.60	5513222	20.87	5563852	20.87
8-32	H3	3	5513024	13.56	5512815	15.60	5513233	20.87	5563863	20.87
10-24	H3	3	5513035	13.56	5512826	15.60	5513244	20.87	5563874	20.87
10-32	H3	3	5513046	13.56	5512837	15.60	5513255	20.87	5563885	20.87
1/4-20	H3	3	5573519	14.82	5573365	17.04	5573673	22.79	5574443	22.80
1/4-20	H5	3	5513057	14.82	5512848	17.04	5513266	22.79	5563896	22.80
1/4-28	H3	3	5573530	14.82	5573376	17.04	5573684	22.79	5574454	22.80
1/4-28	H4	3	5513068	14.82	5512859	17.04	5513277	22.79	5563907	22.80
5/16-18	H3	3	5573541	16.20	5573387	18.64	5573695	24.93	5574465	24.93
5/16-18	H5	3	5513079	16.20	5512870	18.64	5513288	24.93	5563918	24.93
5/16-24	H3	3	5573552	16.20	5573398	18.64	5573706	24.93	5574476	24.93
5/16-24	H4	3	5513090	16.20	5512881	18.64	5513299	24.93	5563929	24.93
3/8-16	H3	3	5573563	19.27	5573409	22.16	5573717	29.65	5574487	29.65
3/8-16	H5	3	5513101	19.27	5512892	22.16	5513310	29.65	5563940	29.65
3/8-24	H3	3	5573574	19.27	5573420	22.16	5573728	29.65	5574498	29.65
3/8-24	H4	3	5513112	19.27	5512903	22.16	5513321	29.65	5563951	29.65
7/16-14	H3	3	5573585	24.69	5573431	28.38	5573739	37.96	5574509	37.97
7/16-14	H5	3	5513123	24.69	5512914	28.38	5513332	37.96	5563962	37.97
7/16-20	H3	3	5573596	24.69	5573442	28.38	5573750	37.96	5574520	37.97
7/16-20	H5	3	5513134	24.69	5512925	28.38	5513343	37.96	5563973	37.97
1/2-13	H3	4	5573607	29.46	5573453	33.88	5573761	45.32	5574531	45.32
1/2-13	H5	4	5513145	29.46	5512936	33.88	5513354	45.32	5563984	45.32
1/2-20	H3	4	5573618	29.46	5573464	33.88	5573772	45.32	5574542	45.32
1/2-20	H5	4	5513156	29.46	5512947	33.88	5513365	45.32	5563995	45.32
5/8-11	H3	4	5573629	56.13	5573475	64.56	5573783	86.36	5574553	86.36
5/8-11	H6	4	5513167	56.13	5512958	64.56	5513376	86.36	5564006	86.36
5/8-18	H3	4	5573640	56.13	5573486	64.56	5573794	86.36	5574564	86.36
5/8-18	H5	4	5513178	56.13	5512969	64.56	5513387	86.36	5564017	86.36
3/4-10	H3	4	5573662	72.57	5573508	83.45	5573816	111.64	5574586	111.64
3/4-10	H6	4	5513189	72.57	5512980	83.45	5513398	111.64	5564028	111.64
3/4-16	H3	4	5573651	72.57	5573497	83.45	5573805	111.64	5574575	111.64
3/4-16	H5	4	5513200	72.57	5512991	83.45	5513409	111.64	5564039	111.64

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



Predator

PREMIUM POWDERED METAL
METRIC



UNCOATED



ALTiN COATED



STEAM OXIDE



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	5564050	15.39	5564072	17.70	5564094	23.08	5564303	23.08
M3 x 0.5	D3	3	5514311	15.39	5514388	17.70	5514465	23.07	5564314	23.08
M3.5 x 0.6	D3	3	5574597	15.39	5574696	17.70	5574795	23.08	5575290	23.08
M3.5 x 0.6	D4	3	5564061	15.39	5564083	17.70	5564105	23.08	5564325	23.08
M4 x 0.7	D3	3	5574608	15.39	5574707	17.70	5574806	23.07	5575301	23.08
M4 x 0.7	D4	3	5514322	15.39	5514399	17.70	5514476	23.07	5564336	23.08
M5 x 0.8	D3	3	5574619	15.39	5574718	17.70	5574817	23.07	5575312	23.08
M5 x 0.8	D4	3	5514333	15.39	5514410	17.70	5514487	23.07	5564347	23.08
M6 x 1.0	D3	3	5574630	16.91	5574729	19.44	5574828	25.36	5575323	25.36
M6 x 1.0	D5	3	5514344	16.91	5514421	19.44	5514498	25.36	5564358	25.36
M8 x 1.25	D3	3	5574641	18.40	5574740	21.16	5574839	27.62	5575334	27.62
M8 x 1.25	D5	3	5514355	18.40	5514432	21.16	5514509	27.62	5564369	27.62
M10 x 1.5	D3	3	5574652	21.85	5574751	25.11	5574850	32.51	5575345	32.51
M10 x 1.5	D6	3	5514366	21.85	5514443	25.11	5514520	32.51	5564380	32.51
M12 x 1.75	D3	4	5574663	33.49	5574762	38.49	5574861	50.06	5575356	50.06
M12 x 1.75	D6	4	5514377	33.49	5514454	38.49	5514531	50.06	5564391	50.06
M14 x 2.0	D3	4	5574674	51.05	5574773	58.70	5574872	68.86	5575367	68.86
M14 x 2.0	D7	4	5533858	51.05	5533880	58.70	5533902	68.86	5564402	68.86
M16 x 2.0	D3	4	5574685	59.96	5574784	68.95	5574883	80.90	5575378	80.90
M16 x 2.0	D7	4	5533869	59.96	5533891	68.95	5533913	80.90	5564413	80.90

- 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



Predator

HIGH VANADIUM POWDERED METAL

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



UNCOATED



ALTiN COATED



STEAM OXIDE



TiCN COATED

SIZE	H LIMIT	# OF FLUTES	UNCOATED LIST PRICE	STM OXIDE LIST PRICE	ALTiN LIST PRICE	TiCN LIST PRICE
2-56	H2	2	5563577 20.98	5563599 24.12	5563588 32.25	5563610 32.25
4-40	H2	2	5513420 20.98	5513838 24.12	5513629 32.25	5563621 32.25
6-32	H3	3	5513431 20.98	5513849 24.12	5513640 32.25	5563632 32.25
8-32	H3	3	5513442 20.98	5513860 24.12	5513651 32.25	5563643 32.25
10-24	H3	3	5513453 20.98	5513871 24.12	5513662 32.25	5563654 32.25
10-32	H3	3	5513464 20.98	5513882 24.12	5513673 32.25	5563665 32.25
1/4-20	H3	3	5573827 21.61	5574135 24.85	5573981 33.24	5574289 33.24
1/4-20	H5	3	5513475 21.61	5513893 24.85	5513684 33.24	5563676 33.24
1/4-28	H3	3	5573838 21.61	5574146 24.85	5573992 33.24	5574300 33.24
1/4-28	H4	3	5513486 21.61	5513904 24.85	5513695 33.24	5563687 33.24
5/16-18	H3	3	5573849 23.67	5574157 27.21	5574003 36.41	5574311 36.41
5/16-18	H5	3	5513497 23.67	5513915 27.21	5513706 36.41	5563698 36.41
5/16-24	H3	3	5573860 23.67	5574168 27.21	5574014 36.41	5574322 36.41
5/16-24	H4	3	5513508 23.67	5513926 27.21	5513717 36.41	5563709 36.41
3/8-16	H3	3	5573871 28.04	5574179 32.25	5574025 43.15	5574333 43.15
3/8-16	H5	3	5513519 28.04	5513937 32.25	5513728 43.15	5563720 43.15
3/8-24	H3	3	5573882 28.04	5574190 32.25	5574036 43.15	5574344 43.15
3/8-24	H4	3	5513530 28.04	5513948 32.25	5513739 43.15	5563731 43.15
7/16-14	H3	3	5573893 35.47	5574201 40.81	5574047 54.58	5574355 54.58
7/16-14	H5	3	5513541 35.47	5513959 40.81	5513750 54.58	5563742 54.58
7/16-20	H3	3	5573904 35.47	5574212 40.81	5574058 54.58	5574366 54.58
7/16-20	H5	3	5513552 35.47	5513970 40.81	5513761 54.58	5563753 54.58
1/2-13	H3	3	5573915 42.07	5574223 48.40	5574069 64.72	5574377 64.72
1/2-13	H5	3	5513563 42.07	5513981 48.40	5513772 64.72	5563764 64.72
1/2-20	H3	3	5573926 42.07	5574234 48.40	5574080 64.72	5574388 64.72
1/2-20	H5	3	5513574 42.07	5513992 48.40	5513783 64.72	5563775 64.72
5/8-11	H3	4	5573937 80.36	5574245 92.43	5574091 123.64	5574399 123.64
5/8-11	H6	4	5513585 80.36	5514003 92.43	5513794 123.64	5563786 123.64
5/8-18	H3	4	5573948 80.36	5574256 92.43	5574102 123.64	5574410 123.64
5/8-18	H5	4	5513596 80.36	5514014 92.43	5513805 123.64	5563797 123.64
3/4-10	H3	4	5573959 93.92	5574267 108.03	5574113 144.53	5574421 144.53
3/4-10	H6	4	5513607 93.92	5514025 108.03	5513816 144.53	5563808 144.53
3/4-16	H3	4	5573970 93.92	5574278 108.03	5574124 144.53	5574432 144.53
3/4-16	H5	4	5513618 93.92	5514036 108.03	5513827 144.53	5563819 144.53

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



Predator

HIGH VANADIUM POWDERED METAL
METRIC

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



UNCOATED



ALTiN COATED



STEAM OXIDE



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	5564116 23.80	5564138 27.36	5564160 35.11	5564182 35.11
M3 x 0.5	D3	3	5514542 23.80	5514619 27.36	5514696 35.11	5564193 35.11
M3.5 x 0.6	D3	3	5574894 23.80	5574993 27.36	5575092 35.11	5575191 35.11
M3.5 x 0.6	D4	3	5564127 23.80	5564149 27.36	5564171 35.11	5564204 35.11
M4 x 0.7	D3	3	5574905 23.80	5575004 27.36	5575103 35.11	5575202 35.11
M4 x 0.7	D4	3	5514553 23.80	5514630 27.36	5514707 35.11	5564215 35.11
M5 x 0.8	D3	3	5574916 23.80	5575015 27.36	5575114 35.11	5575213 35.11
M5 x 0.8	D4	3	5514564 23.80	5514641 27.36	5514718 35.11	5564226 35.11
M6 x 1.0	D3	3	5574927 24.51	5575026 28.19	5575125 36.41	5575224 36.41
M6 x 1.0	D5	3	5514575 24.51	5514652 28.19	5514729 36.41	5564237 36.41
M8 x 1.25	D3	3	5574938 26.92	5575037 30.95	5575136 40.30	5575235 40.30
M8 x 1.25	D5	3	5514586 26.92	5514663 30.95	5514740 40.30	5564248 40.30
M10 x 1.5	D3	3	5574949 31.82	5575048 36.60	5575147 47.46	5575246 47.45
M10 x 1.5	D6	3	5514597 31.82	5514674 36.60	5514751 47.46	5564259 47.45
M12 x 1.75	D3	3	5574960 47.76	5575059 54.91	5575158 71.52	5575257 71.52
M12 x 1.75	D6	3	5514608 47.76	5514685 54.91	5514762 71.52	5564270 71.52
M14 x 2.0	D3	4	5574971 67.68	5575070 77.84	5575169 91.37	5575268 91.37
M14 x 2.0	D7	4	5533924 67.68	5533946 77.84	5533968 91.37	5564281 91.37
M16 x 2.0	D3	4	5574982 79.19	5575081 91.07	5575180 106.90	5575279 106.90
M16 x 2.0	D7	4	5533935 79.19	5533957 91.07	5533979 106.90	5564292 106.90

- 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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



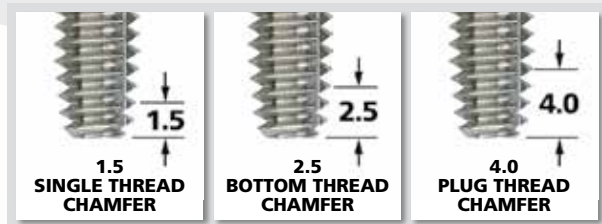
HIGH SPEED STEEL UNCOATED

SIZE	H LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	5562664	5557987	-	14.52
0-80	H3	0	5562675	5557998	-	14.52
1-64	H3	0	-	5558009	-	14.52
1-72	H3	0	5562686	5558020	-	14.52
2-56	H3	0	5562697	5558031	-	14.43
2-56	H4	0	5562708	5558042	-	14.43
2-64	H3	0	-	5558064	-	14.43
3-48	H3	0	-	5558086	-	14.43
3-56	H3	0	-	5558097	-	14.43
3-56	H5	0	-	5558108	-	14.43
4-40	H3	0	5562719	5558130	5558119	13.01
4-40	H5	0	5562730	5558152	5558141	13.01
4-48	H4	0	-	5558174	-	13.01
5-40	H4	0	-	5558218	5558207	13.01
5-44	H4	0	-	5558262	-	13.01
6-32	H3	1	5562741	5558306	5558295	10.72
6-32	H5	1	5562752	5558328	5558317	10.72
6-40	H4	1	-	5558372	5558361	10.72
8-32	H3	1	5562763	5558416	5558405	10.72
8-32	H5	1	5562774	5558438	5558427	10.72
8-32	H7	1	-	5558460	5558449	10.72
8-36	H4	1	-	5558482	5558471	10.72
10-24	H5	1	-	5558504	5558493	10.31
10-24	H7	1	-	5558526	5558515	10.31
10-32	H3	1	5562785	5558548	5558537	10.31
10-32	H5	1	5562796	5558570	5558559	10.31
12-24	H5	2	-	5558592	5558581	10.31
12-28	H4	2	-	5558636	5558625	10.31
1/4-20	H5	2	5562807	5558658	5558647	10.95
1/4-20	H8	2	5562818	5558680	5558669	10.95
1/4-28	H4	2	5562829	5558724	5558713	10.95
1/4-28	H6	2	5562840	5558746	5558735	10.95
5/16-18	H8	2	5562851	5558790	5558779	12.15
5/16-18	H5	2	-	5558768	5558757	12.15
5/16-24	H5	2	5562862	5558812	5558801	12.15
5/16-24	H7	2	5562873	5558834	5558823	12.15
3/8-16	H6	2	5562884	5558856	5558845	13.87
3/8-16	H8	2	5562895	5558878	5558867	13.87
3/8-24	H5	2	5562906	5558900	5558889	13.87
3/8-24	H7	2	5562917	5558922	5558911	13.87
7/16-14	H7	4	-	5558944	5558933	21.11
7/16-14	H9	4	-	5558966	5558955	21.11
7/16-20	H5	4	-	5558988	5558977	21.11
7/16-20	H8	4	-	5559010	5558999	21.11
1/2-13	H7	6	-	5559032	5559021	23.61
1/2-13	H10	6	-	5559054	5559043	23.61
1/2-20	H5	6	-	5559076	5559065	23.61
1/2-20	H8	6	-	5559098	5559087	23.61

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	-	5563412	-	11.95
M1.7 x 0.35	D5	0	-	5563423	-	11.95
M2 x 0.4	D5	0	5562928	5563434	-	11.95
M2.5 x 0.45	D6	0	5562939	5563445	-	11.95
M3 x 0.5	D6	0	5562950	5559120	-	11.95
M3.5 x 0.6	D7	1	5562961	5563467	5563456	10.78
M4 x 0.7	D7	1	5562972	5559142	5559131	10.78
M5 x 0.8	D8	1	5562983	5559164	5559153	10.78
M6 x 1.0	D9	2	5562994	5559186	5559175	11.44
M8 x 1.25	D10	2	5563005	5559208	5559197	13.09
M10 x 1.5	D11	2	5563016	5559230	5559219	14.72
M12 x 1.75	D12	4	5563027	5559252	5559241	25.40

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.

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

All taps sold individually

HP TAPS

TAPS

DIES

Thread Forming Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
TIN COATED

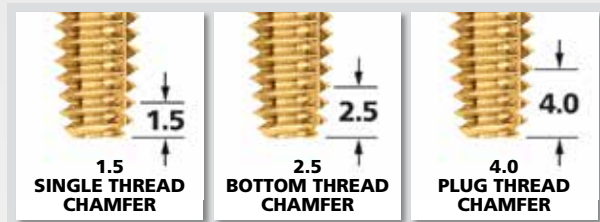
SIZE	H LIMIT	LUBE GROOVES	1.5 ITEM#	2.5 ITEM#	4.0 ITEM#	LIST PRICE
0-80	H2	0	5563038	5509669	-	18.15
0-80	H3	0	5563049	5509680	-	18.15
1-64	H3	0	-	5509691	-	18.15
1-72	H3	0	5563060	5509702	-	18.15
2-56	H3	0	5563071	5509713	-	18.03
2-56	H4	0	5563082	5509724	-	18.03
2-64	H3	0	-	5509746	-	18.03
3-48	H3	0	-	5509768	-	18.03
3-56	H3	0	-	5509779	-	18.03
3-56	H5	0	-	5509790	-	18.03
4-40	H3	0	5563093	5509812	5509801	16.26
4-40	H5	0	5563104	5509834	5509823	16.26
4-48	H4	0	-	5509856	-	16.26
5-40	H4	0	-	5509900	5509889	16.26
5-44	H4	0	-	5509944	-	16.26
6-32	H3	1	5563115	5509988	5509977	13.40
6-32	H5	1	5563126	5510010	5509999	13.40
6-40	H4	1	-	5510054	5510043	13.40
8-32	H3	1	5563137	5510098	5510087	13.40
8-32	H5	1	5563148	5510120	5510109	13.40
8-32	H7	1	-	5510142	5510131	13.40
8-36	H4	1	-	5510164	5510153	13.40
10-24	H5	1	-	5510186	5510175	12.89
10-24	H7	1	-	5510208	5510197	12.89
10-32	H3	1	5563159	5510230	5510219	12.89
10-32	H5	1	5563170	5510252	5510241	12.89
12-24	H5	2	-	5510274	5510263	12.89
12-28	H4	2	-	5510318	5510307	12.89
1/4-20	H5	2	5563181	5510340	5510329	13.68
1/4-20	H8	2	5563192	5510362	5510351	13.68
1/4-28	H4	2	5563203	5510406	5510395	13.68
1/4-28	H6	2	5563214	5510428	5510417	13.68
5/16-18	H8	2	5563225	5510472	5510461	15.19
5/16-18	H5	2	-	5510450	5510439	15.19
5/16-24	H5	2	5563236	5510494	5510483	15.19
5/16-24	H7	2	5563247	5510516	5510505	15.19
3/8-16	H6	2	5563258	5510538	5510527	17.34
3/8-16	H8	2	5563269	5510560	5510549	17.34
3/8-24	H5	2	5563280	5510582	5510571	17.34
3/8-24	H7	2	5563291	5510604	5510593	17.34
7/16-14	H7	4	-	5510626	5510615	26.38
7/16-14	H9	4	-	5510648	5510637	26.38
7/16-20	H5	4	-	5510670	5510659	26.38
7/16-20	H8	4	-	5510692	5510681	26.38
1/2-13	H7	6	-	5510714	5510703	29.51
1/2-13	H10	6	-	5510736	5510725	29.51
1/2-20	H5	6	-	5510758	5510747	29.51
1/2-20	H8	6	-	5510780	5510769	29.51

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

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	-	5563478	-	14.55
M1.7 x 0.35	D5	0	-	5563489	-	14.55
M2 x 0.4	D5	0	5563302	5563500	-	14.55
M2.5 x 0.45	D6	0	5563313	5563511	-	14.55
M3 x 0.5	D6	0	5563324	5499340	-	14.55
M3.5 x 0.6	D7	1	5563335	5563533	5563522	13.48
M4 x 0.7	D7	1	5563346	5499362	5499351	13.48
M5 x 0.8	D8	1	5563357	5499384	5499373	13.48
M6 x 1.0	D9	2	5563368	5499406	5499395	14.29
M8 x 1.25	D10	2	5563379	5499428	5499417	16.36
M10 x 1.5	D11	2	5563390	5499450	5499439	18.40
M12 x 1.75	D12	4	5563401	5499472	5499461	31.75

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

DIES

NPT HIGH SPEED STEEL



UNCOATED



STEAM OXIDE



TIN COATED

SIZE	# OF FLUTES	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
1/16-27	4	5512023	17.33	5533396	19.93	5533407	22.54
* 1/8-27	4	5512034	17.33	5533418	19.93	5533429	22.54
1/8-27	4	5512045	17.33	5533440	19.93	5533451	22.54
1/4-18	4	5512056	19.18	5533462	22.06	5533473	24.95
3/8-18	4	5512067	25.25	5533484	29.04	5533495	32.81
1/2-14	4	5512078	40.15	5533506	46.17	5533517	52.18
3/4-14	5	5512089	56.16	5533528	64.58	5533539	73.01
1-11-1/2	5	5512100	85.34	5533550	98.13	5533561	102.31
1-1/4-11-1/2	5	5512111	121.64	5533572	139.89	5533583	158.13
1-1/2-11-1/2	7	5512122	163.16	5533594	187.65	5533605	212.11
2-11-1/2	7	5512133	221.94	5533616	255.24	5533627	288.54

* SMALL SHANK

NPT - INTERRUPTED HIGH SPEED STEEL



UNCOATED



STEAM OXIDE



TIN COATED

SIZE	# OF FLUTES	UNCOATED	LIST PRICE	STEAM OXIDE	LIST PRICE	TIN	LIST PRICE
* 1/8-27	5	5512144	26.88	5533638	30.91	5533649	34.95
1/8-27	5	5512155	26.88	5533660	30.91	5533671	34.95
1/4-18	5	5512166	29.73	5533682	34.18	5533693	38.65
3/8-18	5	5512177	37.62	5533704	43.25	5533715	48.90
1/2-14	5	5512188	59.82	5533726	68.79	5533737	77.76
3/4-14	5	5512199	87.05	5533748	100.10	5533759	113.16
1-11-1/2	5	5512210	132.29	5533770	152.12	5533781	171.96
1-1/4-11-1/2	5	5512221	187.33	5533792	215.43	5533803	243.53
1-1/2-11-1/2	7	5512232	251.28	5533814	288.96	5533825	326.65
2-11-1/2	7	5512243	339.59	5533836	390.53	5533847	441.45

* SMALL SHANK

All taps sold individually.

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

Taper Pipe Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



NPTF DRYSEAL HIGH SPEED STEEL



UNCOATED

SIZE	# OF FLUTES	ITEM#	PRICE
1/16-27	4	5512254	19.07
* 1/8-27	4	5512265	19.07
1/8-27	4	5512276	19.07
1/4-18	4	5512287	21.10
3/8-18	4	5512298	27.76
1/2-14	4	5512309	44.17
3/4-14	5	5512320	61.77
1-11-1/2	5	5512331	93.87
1-1/4-11-1/2	5	5512342	133.81
1-1/2-11-1/2	7	5512353	179.47
2-11-1/2	7	5512364	244.15

* SMALL SHANK



TIN COATED

SIZE	# OF FLUTES	ITEM#	PRICE
1/16-27	4	5545700	28.57
* 1/8-27	4	5545711	28.57
1/8-27	4	5545722	28.57
1/4-18	4	5545733	31.61
3/8-18	4	5545744	41.59
1/2-14	4	5545755	66.14
3/4-14	5	5545766	92.53
1-11-1/2	5	5545777	140.62
1-1/4-11-1/2	5	5545788	200.43
1-1/2-11-1/2	7	5545799	268.87
2-11-1/2	7	5545810	365.73

* SMALL SHANK

HP TAPS

TAPS

DIES

NPTF DRYSEAL - INTERRUPTED HIGH SPEED STEEL



UNCOATED

SIZE	# OF FLUTES	ITEM#	PRICE
* 1/8-27	5	5512375	29.56
1/8-27	5	5512386	29.56
1/4-18	5	5512397	32.70
3/8-18	5	5512408	41.37
1/2-14	5	5512419	65.81
3/4-14	5	5512430	95.74
1-11-1/2	5	5512441	145.50
1-1/4-11-1/2	5	5512452	206.05
1-1/2-11-1/2	7	5512463	276.41
2-11-1/2	7	5512474	373.54

* SMALL SHANK



TIN COATED

SIZE	# OF FLUTES	ITEM#	PRICE
* 1/8-27	5	5512475	44.30
1/8-27	5	5512476	44.30
1/4-18	5	5512477	48.99
3/8-18	5	5512478	61.98
1/2-14	5	5512479	98.56
3/4-14	5	5512480	143.43
1-11-1/2	5	5512481	217.97
1-1/4-11-1/2	5	5512482	308.67
1-1/2-11-1/2	7	5512483	414.04
2-11-1/2	7	5512484	559.55

* SMALL SHANK

All taps sold individually.

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



Pipe Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

DIES

STRAIGHT PIPE - NPS HIGH SPEED STEEL



UNCOATED

SIZE	# OF FLUTES	ITEM#	PRICE
1/8-27	4	5512683	27.69
1/4-18	4	5512694	30.63
3/8-18	4	5512705	40.32
1/2-14	4	5512716	64.14
3/4-14	5	5512727	89.70
1-11-1/2	5	5512738	136.30

TIN COATED

SIZE	# OF FLUTES	ITEM#	PRICE
1/8-27	4	5512740	41.48
1/4-18	4	5512742	45.89
3/8-18	4	5512744	60.40
1/2-14	4	5512745	96.06
3/4-14	5	5512746	134.37
1-11-1/2	5	5512747	204.19

EXTENSION TAPER PIPE - NPT HIGH SPEED STEEL



UNCOATED

SIZE	OVERALL LENGTH	# OF FLUTES	ITEM#	PRICE
1/8-27	6	4	5512749	51.90
1/4-18	6	4	5512760	59.82
3/8-18	6	4	5512771	80.93
1/2-14	6	4	5512782	129.88



TIN COATED

SIZE	OVERALL LENGTH	# OF FLUTES	ITEM#	PRICE
1/8-27	6	4	5512784	77.74
1/4-18	6	4	5512786	89.62
3/8-18	6	4	5512788	121.25
1/2-14	6	4	5512790	194.56

All taps sold individually.

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

Spiral Flute Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
3 -48	H2	2	5498504	18.43
3-56	H2	2	5498515	18.43
4-40	H2	2	5498526	15.17
4-48	H2	2	5498537	15.17
5-40	H3	2	5498548	15.17
5-44	H3	2	5498559	15.17
6-32	H3	2	5498570	12.31
6-40	H3	2	5498581	12.31
8-32	H3	3	5498592	12.31
8-36	H3	3	5498603	12.31
10-24	H3	3	5498614	12.31
10-32	H3	3	5498625	12.31
12-24	H3	3	5498636	13.37
12-28	H3	3	5498647	13.37
1/4-20	H3	3	5498658	13.37
1/4-28	H3	3	5498669	13.37
5/16-18	H3	3	5498680	16.46
5/16-24	H3	3	5498691	16.46
3/8-16	H3	3	5498702	19.00
3/8-24	H3	3	5498713	19.00
7/16-14	H3	3	5498724	28.47
7/16-20	H3	3	5498735	28.47
1/2-13	H3	3	5498746	34.27
1/2-20	H3	3	5498757	34.27
9/16-12	H3	4	5498768	57.17
9/16-18	H3	4	5498779	57.17
5/8-11	H3	4	5498790	74.61
5/8-18	H3	4	5498801	74.61
3/4-10	H3	4	5498812	95.50
3/4-16	H3	4	5498823	95.50



HIGH SPEED STEEL - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
M3 x 0.5	D3	2	5498834	15.60
M3.5 x 0.6	D4	3	5498845	12.63
M4 x 0.7	D4	3	5498856	12.63
M4.5 x 0.75	D4	3	5498867	12.63
M5 x 0.8	D4	3	5498878	12.63
M6 x 1.0	D5	3	5498889	13.80
M8 x 1.25	D5	3	5498900	17.01
M10 x 1.5	D6	3	5498911	29.39
M12 x 1.75	D6	3	5498922	35.38

- 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

HP TAPS

TAPS

DIES



All taps sold individually.



Hand Tap Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HP TAPS

TAPS

DIES

HIGH SPEED STEEL - HAND TAP SETS

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
0-80	H1	2	5499549	26.54
1-72	H1	2	5499703	24.69
2-56	H1	3	5499769	22.83
* 2-56	H2	3	5499868	21.25
2-64	H2	3	5499945	22.83
3-48	H2	3	5500055	16.35
3-56	H2	3	5500099	18.36
4-40	H1	3	5500154	14.42
* 4-40	H2	3	5500275	13.42
4-48	H2	3	5500385	14.42
5-40	H2	3	5500627	13.42
5-44	H2	3	5500737	14.47
6-32	H1	3	5500792	12.68
* 6-32	H2	3	5500913	10.93
6-32	H3	3	5500979	10.29
6-40	H2	3	5501122	10.93
8-32	H1	4	5501199	12.68
8-32	H2	4	5501287	10.93
* 8-32	H3	4	5501430	10.54
8-36	H2	4	5501584	10.93
10-24	H1	4	5501639	11.25
10-24	H2	4	5501716	11.25
* 10-24	H3	4	5501859	10.93
10-32	H1	4	5501980	11.25
10-32	H2	4	5502068	11.25
* 10-32	H3	4	5502211	10.93
12-24	H3	4	5502354	11.53
12-28	H3	4	5502464	12.68

SIZE	H LIMIT	# OF FLUTES	ITEM#	LIST PRICE
1/4-20	H1	4	5502519	14.66
1/4-20	H2	4	5502574	13.97
* 1/4-20	H3	4	5502717	11.74
1/4-28	H3	4	5502948	11.74
5/16-18	H2	4	5503047	16.26
* 5/16-18	H3	4	5503190	14.45
5/16-24	H3	4	5503410	14.45
3/8-16	H2	4	5503509	18.29
* 3/8-16	H3	4	5503630	16.31
3/8-24	H3	4	5503850	16.31
7/16-14	H3	4	5504026	28.03
7/16-20	H3	4	5504202	28.03
1/2-13	H3	4	5504389	29.24
1/2-20	H3	4	5504576	33.04
9/16-12	H3	4	5504708	49.05
9/16-18	H3	4	5504840	49.05
5/8-11	H3	4	5504983	58.84
5/8-18	H3	4	5505137	58.84
11/16-11	H3	4	5505258	73.09
11/16-16	H3	4	5505357	73.09
3/4-10	H3	4	5505478	82.34
3/4-16	H3	4	5505621	82.34
7/8-9	H4	4	5505753	114.79
7/8-14	H4	4	5505874	114.79
1-8	H4	4	5505995	152.63
1-12	H4	4	5506105	152.63
1-14	H4	4	5506215	152.63

* popular size when multiple options available

For technical information, please see page 237.

Hand Tap Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HP TAPS

TAPS

DIES

HIGH SPEED STEEL - HAND TAP SETS - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	LIST PRICE
M2 x 0.4	D3	3	5511594	35.47
M3 x 0.5	D3	3	5511605	18.18
M4 x 0.7	D4	4	5511616	15.04
M5 x 0.8	D4	4	5511627	15.04
M6 x 1.0	D5	4	5511638	15.87
M7 x 1.0	D5	4	5511649	15.89
M8 x 1.25	D5	4	5511660	15.89
M10 x 1.25	D5	4	5511671	32.60
M10 x 1.50	D6	4	5511682	32.60
M12 x 1.25	D5	4	5511693	38.23
M12 x 1.75	D6	4	5511704	38.23
M14 x 1.5	D6	4	5511715	57.16
M14 x 2.0	D7	4	5511726	57.16
M16 x 1.5	D6	4	5511737	69.64
M16 x 2.0	D7	4	5511748	69.64
M18 x 1.5	D6	4	5511759	93.79
M18 x 2.5	D7	4	5511770	93.79
M20 x 2.5	D7	4	5511781	121.31
M24 x 3.0	D8	4	5511792	177.51

For technical information, please see page 237.



Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL

	SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
*	0-80	H1	2	5499483	5499505	5499527	8.86
	0-80	H2	2	-	5499560	5499571	8.86
	1-64	H1	2	-	5499604	5499626	8.24
*	1-72	H1	2	5499670	5499681	5499692	8.24
	1-72	H2	2	-	5499714	5499725	8.24
	2-56	H1	3	5499736	5499747	5499758	7.62
	2-56	H2	2	-	5499780	5499791	7.62
*	2-56	H2	3	5499802	5499824	5499846	7.09
	2-64	H2	3	5499879	5499901	5499923	7.62
	3-48	H2	2	-	5499967	-	6.20
*	3-48	H2	3	5499989	5500011	5500033	5.46
	3-56	H2	3	5500066	5500077	5500088	6.13
	4-40	H1	2	-	5500110	-	5.01
	4-40	H1	3	5500121	5500132	5500143	4.82
	4-40	H2	2	-	5500165	5500176	4.82
*	4-40	H2	3	5500187	5500209	5500242	4.48
	4-48	H2	3	5500297	5500319	5500352	4.82
	4-36	H2	3	-	5500418	-	4.82
	5-40	H1	3	-	5500495	5500506	4.82
	5-40	H2	2	-	5500517	5500528	4.82
*	5-40	H2	3	5500539	5500561	5500594	4.48
	5-44	H2	3	5500649	5500671	5500704	4.82
	6-32	H1	3	5500759	5500770	5500781	4.23
	6-32	H2	2	-	5500803	5500814	4.23
*	6-32	H2	3	5500825	5500847	5500880	3.63
	6-32	H3	2	-	5500924	5500935	3.63
	6-32	H3	3	5500946	5500957	5500968	3.44
	6-32	H7	3	-	5500990	5501001	4.23
	6-40	H2	2	-	5501023	-	4.23
*	6-40	H2	3	5501034	5501056	5501089	3.63
	8-32	H1	3	-	5501144	5501155	4.23
	8-32	H1	4	5501166	5501177	5501188	4.23
	8-32	H2	2	-	5501210	5501221	4.23
	8-32	H2	3	-	5501232	5501243	4.23
	8-32	H2	4	5501254	5501265	5501276	3.63
	8-32	H3	2	-	5501298	5501309	3.63
	8-32	H3	3	-	5501320	5501331	3.63
*	8-32	H3	4	5501342	5501364	5501397	3.51

* popular size when multiple options available

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

HP TAPS

TAPS

DIES

Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
8-32	H7	3	-	5501441	5501452	4.23
8-36	H1	4	-	5501485	-	4.23
* 8-36	H2	4	5501496	5501518	5501551	3.63
10-24	H1	3	-	5501595	-	4.23
10-24	H1	4	5501606	5501617	5501628	3.76
10-24	H2	2	-	5501650	5501661	4.23
10-24	H2	3	-	5501672	-	4.23
10-24	H2	4	5501683	5501694	5501705	3.76
10-24	H3	2	-	5501727	5501738	3.76
10-24	H3	3	-	5501749	5501760	3.76
* 10-24	H3	4	5501771	5501793	5501826	3.63
10-24	H7	3	-	5501870	5501881	4.23
10-24	H7	4	-	5501892	5501903	4.23
10-32	H1	2	-	5501914	5501925	4.23
10-32	H1	3	-	5501936	-	4.23
10-32	H1	4	5501947	5501958	5501969	3.76
10-32	H2	2	-	5501991	5502002	4.23
10-32	H2	3	-	5502013	5502024	4.23
10-32	H2	4	5502035	5502046	5502057	3.76
10-32	H3	2	-	5502079	5502090	3.76
10-32	H3	3	-	5502101	5502112	3.76
* 10-32	H3	4	5502123	5502145	5502178	3.63
12-24	H3	4	5502266	5502288	5502321	3.84
12-28	H3	4	5502376	5502398	5502431	4.23
1/4-20	H1	3	-	5502475	-	4.89
1/4-20	H1	4	5502486	5502497	5502508	4.89
1/4-20	H2	3	-	5502530	-	4.89
1/4-20	H2	4	5502541	5502552	5502563	4.66
1/4-20	H3	2	-	5502585	5502596	4.89
1/4-20	H3	3	-	5502607	5502618	4.66
* 1/4-20	H3	4	5502629	5502651	5502684	3.92
1/4-20	H5	3	-	5502728	5502739	4.89
1/4-20	H5	4	-	5502750	5502761	4.66
1/4-28	H1	4	-	5502772	5502783	4.66
1/4-28	H2	4	-	5502794	5502805	4.89
1/4-28	H3	2	-	5502816	5502827	4.89
1/4-28	H3	3	-	5502838	5502849	4.89
* 1/4-28	H3	4	5502860	5502882	5502915	3.92

* popular size when multiple options available

HP TAPS

TAPS

DIES

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



Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
1/4-28	H4	4	-	5502959	5502970	4.89
5/16-18	H1	4	5502981	5502992	5503003	5.42
5/16-18	H2	4	5503014	5503025	5503036	5.42
5/16-18	H3	2	-	5503058	5503069	6.09
5/16-18	H3	3	-	5503080	5503091	5.42
* 5/16-18	H3	4	5503102	5503124	5503157	4.82
5/16-18	H5	3	-	5503201	5503212	6.09
5/16-18	H5	4	-	5503223	5503234	5.42
5/16-24	H1	4	-	5503256	5503267	5.42
5/16-24	H2	4	-	5503278	-	5.42
5/16-24	H3	3	-	5503300	5503311	5.42
* 5/16-24	H3	4	5503322	5503344	5503377	4.82
5/16-24	H4	4	-	5503421	5503432	5.42
3/8-16	H1	3	-	5503443	-	6.94
3/8-16	H2	4	5503476	5503487	5503498	6.09
3/8-16	H3	3	-	5503520	5503531	6.09
* 3/8-16	H3	4	5503542	5503564	5503597	5.44
3/8-16	H5	3	-	5503641	5503652	6.94
3/8-16	H5	4	-	5503663	5503674	6.09
3/8-24	H3	3	-	5503740	5503751	6.94
* 3/8-24	H3	4	5503762	5503784	5503817	5.44
3/8-24	H4	4	-	5503861	5503872	6.09
7/16-14	H2	4	-	5503905	5503916	10.27
7/16-14	H3	3	-	5503927	-	10.27
* 7/16-14	H3	4	5503938	5503960	5503993	9.35
7/16-14	H5	4	-	5504037	5504048	10.27
7/16-20	H2	4	-	5504081	5504092	10.27
7/16-20	H3	3	-	5504103	-	10.27
* 7/16-20	H3	4	5504114	5504136	5504169	9.35
7/16-20	H5	4	-	5504213	5504224	10.27
1/2-13	H1	4	-	5504235	5504246	11.99
1/2-13	H2	4	-	5504257	5504268	11.99
1/2-13	H3	3	-	5504279	5504290	11.99
* 1/2-13	H3	4	5504301	5504323	5504356	9.74
1/2-13	H5	4	-	5504400	5504411	12.17
1/2-20	H1	4	5504422	5504433	5504444	11.99
1/2-20	H3	3	-	5504477	-	11.99
* 1/2-20	H3	4	5504488	5504510	5504543	11.02
1/2-20	H5	4	-	5504587	5504598	11.99

* popular size when multiple options available

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

HP TAPS

TAPS

DIES

Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
9/16-12	H2	4	-	5504609	-	17.82
* 9/16-12	H3	4	5504620	5504642	5504675	16.35
9/16-12	H5	4	-	5504719	5504730	17.82
9/16-18	H2	4	-	5504741	-	17.82
* 9/16-18	H3	4	5504752	5504774	5504807	16.35
9/16-18	H5	4	-	5504851	5504862	17.82
* 5/8-11	H3	4	5504895	5504917	5504950	19.62
5/8-11	H5	4	-	5504994	5505005	22.56
5/8-18	H2	4	-	5505027	5505038	22.56
* 5/8-18	H3	4	5505049	5505071	5505104	19.62
11/16-11	H3	4	5505170	5505192	5505225	24.37
11/16-16	H3	4	5505269	5505291	5505324	24.37
3/4-10	H2	4	-	5505379	-	29.66
* 3/4-10	H3	4	5505390	5505412	5505445	27.47
3/4-10	H5	4	-	5505489	5505500	29.66
3/4-16	H2	4	-	5505522	-	29.66
* 3/4-16	H3	4	5505533	5505555	5505588	27.47
3/4-16	H5	4	-	5505632	5505643	29.66
* 7/8-9	H4	4	5505665	5505687	5505720	38.27
7/8-9	H6	4	-	5505764	-	40.17
7/8-14	H2	4	-	5505775	-	40.17
* 7/8-14	H4	4	5505786	5505808	5505841	38.27
7/8-14	H6	4	-	5505885	-	40.17
1-8	H2	4	-	5505896	-	52.40
* 1-8	H4	4	5505907	5505929	5505962	50.87
1-8	H6	4	-	5506006	-	52.40
1-12	H4	4	5506017	5506039	5506072	50.87
1-14	H2	4	-	5506116	-	52.40
* 1-14	H4	4	5506127	5506149	5506182	50.87
1-14	H6	4	5506226	5506237	5506248	52.40
1-1/8-7	H4	4	5506259	5506281	5506314	82.34
1-1/8-12	H4	4	5506358	5506380	5506413	87.21
1-1/4-7	H4	4	5506457	5506479	5506512	108.08
1-1/4-12	H4	6	5506556	5506578	5506611	109.96
1-3/8-6	H4	4	5506655	5506677	5506710	135.79
1-3/8-12	H4	6	5506754	5506776	5506809	136.75
1-1/2-6	H4	4	5506853	5506875	5506908	156.81
1-1/2-12	H4	6	5506952	5506974	5507007	159.70

* popular size when multiple options available

HP TAPS

TAPS

DIES

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



Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
0-80	H1	2	5499494	5499516	5499538	10.18
2-56	H2	3	5499813	5499835	5499857	8.16
3-48	H2	3	5500000	5500022	5500044	6.29
4-40	H2	3	5500198	5500231	5500264	5.16
4-48	H2	3	5500308	5500341	5500374	5.54
5-40	H2	3	5500550	5500583	5500616	5.16
6-32	H2	3	5500836	5500869	5500902	4.20
6-40	H2	3	5501045	5501078	5501111	4.20
8-32	H3	4	5501353	5501386	5501419	4.06
8-36	H2	4	5501507	5501540	5501573	4.20
10-24	H3	4	5501782	5501815	5501848	4.20
10-32	H3	4	5502134	5502167	5502200	4.20
12-24	H3	4	5502277	5502310	5502343	4.43
12-28	H3	4	5502387	5502420	5502453	4.87
1/4-20	H3	4	5502640	5502673	5502706	4.50
1/4-28	H3	4	5502871	5502904	5502937	4.50
5/16-18	H3	4	5503113	5503146	5503179	5.54
5/16-24	H3	4	5503333	5503366	5503399	5.54
3/8-16	H3	4	5503553	5503586	5503619	6.25
3/8-24	H3	4	5503773	5503806	5503839	6.25
7/16-14	H3	4	5503949	5503982	5504015	10.77
7/16-20	H3	4	5504125	5504158	5504191	10.77
1/2-13	H3	4	5504312	5504345	5504378	11.21
1/2-20	H3	4	5504499	5504532	5504565	12.68
9/16-12	H3	4	5504631	5504664	5504697	18.79
9/16-18	H3	4	5504763	5504796	5504829	18.79
5/8-11	H3	4	5504906	5504939	5504972	22.56
5/8-18	H3	4	5505060	5505093	5505126	22.56
3/4-10	H3	4	5505401	5505434	5505467	31.57
3/4-16	H3	4	5505544	5505577	5505610	31.57
7/8-9	H4	4	5505676	5505709	5505742	44.02
7/8-14	H4	4	5505797	5505830	5505863	44.02
1-8	H4	4	5505918	5505951	5505984	58.47
1-12	H4	4	5506028	5506061	5506094	58.47
1-14	H4	4	5506138	5506171	5506204	58.47
1-1/8-7	H4	4	5506270	5506303	5506336	94.68
1-1/8-12	H4	4	5506369	5506402	5506435	100.29
1-1/4-7	H4	4	5506468	5506501	5506534	124.28
1-1/4-12	H4	6	5506567	5506600	5506633	126.44
1-3/8-6	H4	4	5506666	5506699	5506732	156.16
1-3/8-12	H4	6	5506765	5506798	5506831	157.25
1-1/2-6	H4	4	5506864	5506897	5506930	180.32
1-1/2-12	H4	6	5506963	5506996	5507029	183.65

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

Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
NITRIDE & STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4-40	H2	3	5500220	5500253	5.16
6-32	H2	3	5500858	5500891	4.20
6-40	H2	3	5501067	5501100	4.20
8-32	H3	4	5501375	5501408	4.06
10-24	H3	4	5501804	5501837	4.20
10-32	H3	4	5502156	5502189	4.20
1/4-20	H3	4	5502662	5502695	4.50
1/4-28	H3	4	5502893	5502926	4.50
5/16-18	H3	4	5503135	5503168	5.54
3/8-16	H3	4	5503575	5503608	6.25
3/8-24	H3	4	5503795	5503828	6.25
7/16-14	H3	4	5503971	5504004	10.77
7/16-20	H3	4	5504147	5504180	10.77
1/2-13	H3	4	5504334	5504367	11.21
1/2-20	H3	4	5504521	5504554	12.68
9/16-12	H3	4	5504653	5504686	18.79
9/16-18	H3	4	5504785	5504818	18.79
5/8-11	H3	4	5504928	5504961	22.56
5/8-18	H3	4	5505082	5505115	22.56
3/4-10	H3	4	5505423	5505456	31.57
3/4-16	H3	4	5505566	5505599	31.57
7/8-9	H4	4	5505698	5505731	44.02
7/8-14	H4	4	5505819	5505852	44.02
1-8	H4	4	5505940	5505973	58.47
1-1/8-7	H4	4	5506292	5506325	94.68
1-1/4-7	H4	4	5506490	5506523	124.28
1-1/4-12	H4	6	5506589	5506622	126.44
1-1/2-6	H4	4	5506886	5506919	180.32
1-1/2-12	H4	6	5506985	5507018	183.65

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).

HP TAPS

TAPS

DIES

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



Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
TIN COATED

SIZE	D LIMIT	# OF FLUTES	TAPER ITEM#	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
0 - 80	H1	2	5540494	5540505	5540516	15.94
2 - 56	H2	3	5540538	5540549	5540560	12.77
4 - 40	H2	3	5540582	5540593	5540604	8.05
5 - 40	H2	3	5540626	5540637	5540648	8.05
6 - 32	H3	3	5540670	5540681	5540692	6.18
8 - 32	H3	4	5540714	5540725	5540736	6.33
10 - 24	H3	4	5540758	5540769	5540780	6.55
10 - 32	H3	4	5540802	5540813	5540824	6.55
12 - 24	H3	4	5540846	5540857	5540868	6.93
12 - 28	H3	4	5540890	5540901	5540912	7.62
1/4 - 20	H3	4	5540934	5540945	5540956	7.04
1/4 - 28	H3	4	5540978	5540989	5541000	7.04
5/16 - 18	H3	4	5541022	5541033	5541044	8.69
5/16 - 24	H3	4	5541066	5541077	5541088	8.69
3/8 - 16	H3	4	5541110	5541121	5541132	9.80
3/8 - 24	H3	4	5541154	5541165	5541176	9.80
7/16 - 14	H3	4	5541198	5541209	5541220	16.84
7/16 - 20	H3	4	5541242	5541253	5541264	16.84
1/2 - 13	H3	4	5541286	5541297	5541308	17.55
1/2 - 20	H3	4	5541330	5541341	5541352	19.84
9/16 - 18	H3	4	5554709	5554720	5554731	26.95
5/8 - 11	H3	4	5541374	5541385	5541396	35.36
5/8 - 18	H3	4	5541418	5541429	5541440	35.36
3/4 - 10	H3	4	5541462	5541473	5541484	49.48
3/4 - 16	H3	4	5541506	5541517	5541528	49.48
1 - 8	H4	4	5554753	5554764	5554775	83.96

All taps sold individually.

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

HP TAPS

TAPS

DIES

Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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	-	5510791	-	11.83
M2 x 0.4	D3	3	5510802	5510813	5510824	11.83
M2.5 x 0.45	D3	3	-	5510835	-	7.28
M3 x 0.5	D3	3	5510846	5510857	5510868	6.06
M3.5 x 0.6	D4	3	-	5510879	-	5.01
M4 x 0.7	D4	4	5510890	5510901	5510912	5.01
M4.5 x 0.75	D4	4	-	5510923	-	5.01
M5 x 0.8	D4	4	5510934	5510945	5510956	5.01
M6 x 1.0	D5	4	5510967	5510978	5510989	5.30
M7 x 1.0	D5	4	5511000	5511011	5511022	5.30
M8 x 1.25	D5	4	5511033	5511044	5511055	5.30
M10 x 1.25	D5	4	5511066	5511077	5511088	10.87
M10 x 1.50	D6	4	5511099	5511110	5511121	10.87
M12 x 1.25	D5	4	5511132	5511143	5511154	12.75
M12 x 1.75	D6	4	5511165	5511176	5511187	12.75
M14 x 1.5	D6	4	5511198	5511209	5511220	19.05
M14 x 2.0	D7	4	5511231	5511242	5511253	19.05
M16 x 1.5	D6	4	5511264	5511275	5511286	23.22
M16 x 2.0	D7	4	5511297	5511308	5511319	23.22
M18 x 1.5	D6	4	5511330	5511341	5511352	31.27
M18 x 2.5	D7	4	5511363	5511374	5511385	31.27
M20 x 2.5	D7	4	5511396	5511407	5511418	40.44
M24 x 3.0	D8	4	5511429	5511440	5511451	59.18
M27 x 3.0	D8	4	5511462	5511473	5511484	102.27
M30 x 3.5	D9	4	5511495	5511506	5511517	130.62
M33 x 3.5	D9	4	5511528	5511539	5511550	130.26
M36 x 4.0	D9	4	5511561	5511572	5511583	165.20

HP TAPS

TAPS

DIES

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



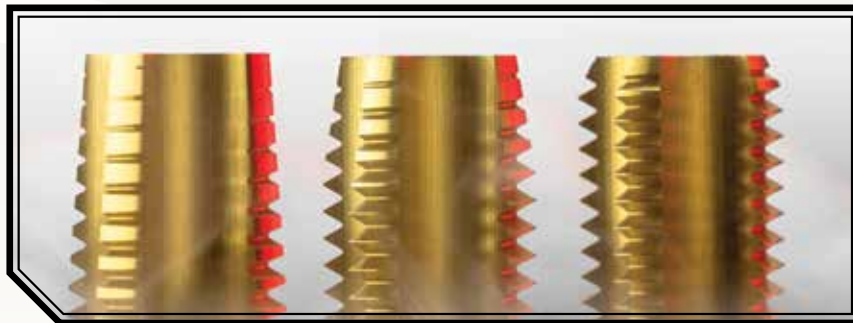
Hand Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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	-	5543486	-	21.31
M2 x 0.4	D3	3	5543497	5543508	5543519	21.31
M2.5 x 0.45	D3	3	-	5543530	-	13.10
M3 x 0.5	D3	3	5543541	5543552	5543563	10.93
M3.5 x 0.6	D4	3	-	5543574	-	9.03
M4 x 0.7	D4	4	5543585	5543596	5543607	9.03
M4.5 x 0.75	D4	4	-	5543618	-	9.03
M5 x 0.8	D4	4	5543629	5543640	5543651	9.03
M6 x 1.0	D5	4	5543662	5543673	5543684	9.54
M7 x 1.0	D5	4	5543695	5543706	5543717	9.56
M8 x 1.25	D5	4	5543728	5543739	5543750	9.56
M10 x 1.25	D5	4	5543761	5543772	5543783	19.58
M10 x 1.50	D6	4	5543794	5543805	5543816	19.58
M12 x 1.25	D5	4	5543827	5543838	5543849	22.96
M12 x 1.75	D6	4	5543860	5543871	5543882	22.96
M14 x 1.5	D6	4	5543893	5543904	5543915	34.33
M14 x 2.0	D7	4	5543926	5543937	5543948	34.33
M16 x 1.5	D6	4	5543959	5543970	5543981	41.84
M16 x 2.0	D7	4	5543992	5544003	5544014	41.84
M18 x 1.5	D6	4	5544025	5544036	5544047	56.33
M18 x 2.5	D7	4	5544058	5544069	5544080	56.33
M20 x 2.5	D7	4	5544091	5544102	5544113	72.86
M24 x 3.0	D8	4	5544124	5544135	5544146	106.63
M27 x 3.0	D8	4	5544157	5544168	5544179	184.29
M30 x 3.5	D9	4	5544190	5544201	5544212	235.36
M33 x 3.5	D9	4	5544223	5544234	5544245	234.74
M36 x 4.0	D9	4	5544256	5544267	5544278	297.71



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
UNCOATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H1	2	5507161	10.91
* 0-80	H2	2	5507172	10.91
1-64	H1	2	5507194	9.85
* 1-64	H2	2	5507205	9.85
1-72	H1	2	5507227	9.85
* 1-72	H2	2	5507238	9.85
2-56	H1	2	5507260	9.37
* 2-56	H2	2	5507271	8.36
2-64	H1	2	5507293	9.37
* 2-64	H2	2	5507304	9.37
3-48	H1	2	5507326	6.71
* 3-48	H2	2	5507337	6.71
3-56	H1	2	5507359	8.22
* 3-56	H2	2	5507370	7.47
4-40	H1	2	5507392	6.13
* 4-40	H2	2	5507403	5.39
4-48	H1	2	5507436	6.24
* 4-48	H2	2	5507447	6.13
4-36	H2	2	5507480	6.13
5-40	H1	2	5507513	6.13
* 5-40	H2	2	5507524	5.39
5-44	H2	2	5507557	6.13
6-32	H1	2	5507590	5.39
6-32	H2	2	5507601	4.54
* 6-32	H3	2	5507612	4.54
6-32	H7	2	5507645	5.14
6-40	H1	2	5507656	5.14
* 6-40	H2	2	5507667	5.14
8-32	H1	2	5507700	5.14
8-32	H2	2	5507711	4.54
* 8-32	H3	2	5507722	4.54
8-32	H7	2	5507755	5.14
8-36	H1	2	5507766	5.14

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
* 8-36	H2	2	5507777	5.14
10-24	H1	2	5507810	5.62
10-24	H2	2	5507821	5.14
* 10-24	H3	2	5507832	4.54
10-24	H7	2	5507865	5.62
10-32	H1	2	5507876	5.14
10-32	H2	2	5507887	4.54
* 10-32	H3	2	5507898	4.54
10-32	H7	2	5507931	5.62
12-24	H1	2	5507942	5.14
* 12-24	H3	2	5507953	5.14
12-28	H3	2	5507986	5.14
1/4-20	H1	2	5507997	5.14
1/4-20	H2	2	5508008	5.14
* 1/4-20	H3	2	5508019	4.54
1/4-20	H3	3	5508052	5.62
1/4-20	H5	2	5508063	5.12
1/4-28	H5	3	5508074	5.62
1/4-28	H1	2	5508085	5.62
1/4-28	H2	2	5508096	5.12
1/4-28	H2	3	5508107	5.62
1/4-28	H3	2	5508118	4.54
* 1/4-28	H4	2	5508151	5.62
1/4-28	H4	3	5508162	5.62
5/16-18	H1	2	5508173	6.47
5/16-18	H2	2	5508184	5.62
* 5/16-18	H3	2	5508195	4.89
5/16-18	H3	3	5508228	6.47
5/16-18	H5	2	5508239	5.62
5/16-18	H5	3	5508250	6.47
5/16-24	H1	2	5508261	6.47
5/16-24	H2	2	5508272	6.47
5/16-24	H2	3	5508283	6.47

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
* 5/16-24	H3	2	5508294	5.71
5/16-24	H4	2	5508327	6.47
5/16-24	H4	3	5508338	6.47
3/8-16	H1	3	5508349	7.24
3/8-16	H2	3	5508360	6.73
* 3/8-16	H3	3	5508371	5.79
3/8-16	H5	3	5508404	7.30
3/8-24	H1	3	5508415	7.35
3/8-24	H2	3	5508426	7.35
* 3/8-24	H3	3	5508437	6.24
3/8-24	H4	3	5508470	7.35
7/16-14	H2	3	5508481	10.75
* 7/16-14	H3	3	5508492	9.85
7/16-14	H5	3	5508525	10.75
7/16-20	H2	3	5508536	10.75
* 7/16-20	H3	3	5508547	9.85
7/16-20	H5	3	5508580	10.75
1/2-13	H1	3	5508591	13.16
1/2-13	H2	3	5508602	13.16
* 1/2-13	H3	3	5508613	10.04
1/2-13	H5	3	5508646	11.85
1/2-20	H1	3	5508657	13.16
1/2-20	H2	3	5508668	13.16
* 1/2-20	H3	3	5508679	11.80
1/2-20	H5	3	5508712	13.16
9/16-12	H3	3	5508723	16.40
9/16-18	H3	3	5508756	16.40
* 5/8-11	H3	3	5508789	22.38
5/8-11	H5	3	5508822	22.38
5/8-18	H3	3	5508833	22.38
* 3/4-10	H3	3	5508866	31.57
3/4-10	H5	3	5508899	31.57
3/4-16	H3	3	5508910	31.57

* popular size when multiple options available

HP TAPS

TAPS

DIES

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



Spiral Point Plug Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

DIES



HIGH SPEED STEEL
STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H2	2	5507183	12.56
1-64	H2	2	5507216	11.35
1-72	H2	2	5507249	11.35
2-56	H2	2	5507282	9.63
2-64	H2	2	5507315	10.79
3-48	H2	2	5507348	7.72
3-56	H2	2	5507381	8.61
4-40	H2	2	5507425	6.20
4-48	H2	2	5507469	7.07
4-36	H2	2	5507502	7.07
5-40	H2	2	5507546	6.20
5-44	H2	2	5507579	7.07
6-32	H3	2	5507634	5.21
6-40	H2	2	5507689	5.92
8-32	H3	2	5507744	5.21
8-36	H2	2	5507799	5.92
10-24	H3	2	5507854	5.21
10-32	H3	2	5507920	5.21
12-24	H3	2	5507975	5.92
1/4-20	H3	2	5508041	5.21
1/4-28	H3	2	5508140	5.21
5/16-18	H3	2	5508217	5.63
5/16-24	H3	2	5508316	6.00
3/8-16	H3	3	5508393	6.68
3/8-24	H3	3	5508459	7.17
7/16-14	H3	3	5508514	11.35
7/16-20	H3	3	5508569	11.35
1/2-13	H3	3	5508635	11.56
1/2-20	H3	3	5508701	13.57
9/16-12	H3	3	5508745	18.86
9/16-18	H3	3	5508778	18.86
5/8-11	H3	3	5508811	25.75
5/8-18	H3	3	5508855	25.75
3/4-10	H3	3	5508888	36.32
3/4-16	H3	3	5508932	36.32



HIGH SPEED STEEL
NITRIDE & STEAM OXIDE

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
4-40	H2	2	5507414	6.20
4-48	H2	2	5507458	7.07
4-36	H2	2	5507491	7.07
5-40	H2	2	5507535	6.20
5-44	H2	2	5507568	7.07
6-32	H3	2	5507623	5.21
6-40	H2	2	5507678	5.92
8-32	H3	2	5507733	5.21
8-36	H2	2	5507788	5.92
10-24	H3	2	5507843	5.21
10-32	H3	2	5507909	5.21
12-24	H3	2	5507964	5.92
1/4-20	H3	2	5508030	5.21
1/4-28	H3	2	5508129	5.21
5/16-18	H3	2	5508206	5.63
5/16-24	H3	2	5508305	5.63
3/8-16	H3	3	5508382	6.68
3/8-24	H3	3	5508448	7.17
7/16-14	H3	3	5508503	11.35
7/16-20	H3	3	5508558	11.35
1/2-13	H3	3	5508624	11.56
1/2-20	H3	3	5508690	13.57
9/16-12	H3	3	5508734	18.86
9/16-18	H3	3	5508767	18.86
5/8-11	H3	3	5508800	25.75
5/8-18	H3	3	5508844	25.75
3/4-10	H3	3	5508877	36.32
3/4-16	H3	3	5508921	36.32

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.

Spiral Point Plug Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



HIGH SPEED STEEL
TIN COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H2	2	5514773	16.14
2-56	H2	2	5514784	12.95
4-40	H2	2	5514795	9.16
5-40	H2	2	5514806	9.16
6-32	H3	2	5514817	8.56
8-32	H3	2	5514828	8.56
10-24	H3	2	5514839	8.56
10-32	H3	2	5514850	8.56
12-24	H3	2	5514861	9.35
12-28	H3	2	5514872	9.35
1/4-20	H3	2	5514883	8.56
1/4-28	H3	2	5514894	8.56
5/16-18	H3	2	5514905	9.89
5/16-24	H3	2	5514916	9.89
3/8-16	H3	3	5514927	11.00
3/8-24	H3	3	5514938	11.56
7/16-14	H3	3	5514949	18.18
7/16-20	H3	3	5514960	18.18
1/2-13	H3	3	5514971	18.43
1/2-20	H3	3	5514982	20.59
5/8-11	H3	3	5514993	42.61
5/8-18	H3	3	5515004	42.61
3/4-10	H3	3	5515015	55.63
3/4-16	H3	3	5515026	55.63

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



HIGH SPEED STEEL
ALTIM COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H2	2	5514047	16.14
2-56	H2	2	5514058	12.95
4-40	H2	2	5514069	9.16
5-40	H2	2	5514080	9.16
6-32	H3	2	5514091	8.56
8-32	H3	2	5514102	8.56
10-24	H3	2	5514113	8.56
10-32	H3	2	5514124	8.56
12-24	H3	2	5514135	9.35
12-28	H3	2	5514146	9.35
1/4-20	H3	2	5514157	8.56
1/4-28	H3	2	5514168	8.56
5/16-18	H3	2	5514179	9.89
5/16-24	H3	2	5514190	9.89
3/8-16	H3	3	5514201	11.00
3/8-24	H3	3	5514212	11.56
7/16-14	H3	3	5514223	18.18
7/16-20	H3	3	5514234	18.18
1/2-13	H3	3	5514245	18.43
1/2-20	H3	3	5514256	20.59
5/8-11	H3	3	5514267	42.61
5/8-18	H3	3	5514278	42.61
3/4-10	H3	3	5514289	55.63
3/4-16	H3	3	5514300	55.63

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.



Spiral Point Plug & Bottoming Taps

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

SPIRAL POINT PLUG TAPS



HIGH SPEED STEEL - METRIC
UNCOATED

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
M2 x 0.4	D3	2	5511847	12.08
M2.5 x 0.45	D3	2	5511858	8.66
M3 x 0.5	D3	2	5511869	6.96
M3.5 x 0.6	D4	2	5511880	6.00
M4 x 0.7	D4	2	5511891	6.00
M4.5 x 0.75	D4	2	5511902	6.00
M5 x 0.8	D4	2	5511913	6.00
M6 x 1.0	D5	2	5511924	6.00
M7 x 1.0	D5	2	5511935	6.94
M8 x 1.25	D5	2	5511946	6.94
M10 x 1.50	D6	3	5511957	11.53
M12 x 1.75	D6	3	5511968	14.43
M14 x 2.0	D7	3	5511979	22.40
M16 x 2.0	D7	3	5511990	25.38
M18 x 2.5	D7	3	5512001	37.33
M20 x 2.5	D7	3	5512012	49.26



HIGH SPEED STEEL - METRIC
TIN COATED

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
M2 x 0.4	D3	2	5533220	16.65
M2.5 x 0.45	D3	2	5533231	11.94
M3 x 0.5	D3	2	5533242	9.61
M3.5 x 0.6	D4	2	5533253	8.28
M4 x 0.7	D4	2	5533264	8.28
M4.5 x 0.75	D4	2	5533275	8.28
M5 x 0.8	D4	2	5533286	8.28
M6 x 1.0	D5	2	5533297	8.28
M7 x 1.0	D5	2	5533308	9.56
M8 x 1.25	D5	2	5533319	9.56
M10 x 1.50	D6	3	5533330	15.88
M12 x 1.75	D6	3	5533341	19.90
M14 x 2.0	D7	3	5533352	30.86
M16 x 2.0	D7	3	5533363	34.97
M18 x 2.5	D7	3	5533374	51.43
M20 x 2.5	D7	3	5533385	67.89

HP TAPS

TAPS

DIES

SPIRAL POINT BOTTOMING TAPS



HIGH SPEED STEEL
UNCOATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H2	2	5508943	20.09
2-56	H2	2	5508954	15.39
3-48	H2	2	5508965	12.35
4-40	H2	2	5508976	9.91
5-40	H2	2	5508987	9.91
6-32	H2	2	5508998	8.34
6-32	H3	2	5509009	8.34
6-40	H2	2	5509020	9.48
8-32	H2	2	5509031	8.34
8-32	H3	2	5509042	8.34
10-24	H2	2	5509053	9.48
10-24	H3	2	5509064	8.34
10-32	H2	2	5509075	8.34
10-32	H3	2	5509086	8.34
12-24	H3	2	5509097	9.48
1/4-20	H3	2	5509108	8.34
1/4-28	H3	2	5509119	8.34
5/16-18	H3	2	5509130	8.99
5/16-24	H3	2	5509141	8.99



HIGH SPEED STEEL
TIN COATED

SIZE	H LIMIT	# OF FLUTES	ITEM#	PRICE
0-80	H2	2	5559263	27.11
2-56	H2	2	5559274	20.78
3-48	H2	2	5559285	16.67
4-40	H2	2	5559296	13.38
5-40	H2	2	5559307	13.38
6-32	H2	2	5559318	11.25
6-32	H3	2	5559329	11.25
6-40	H2	2	5559340	12.80
8-32	H2	2	5559351	11.25
8-32	H3	2	5559362	11.25
10-24	H2	2	5559373	12.80
10-24	H3	2	5559384	11.25
10-32	H2	2	5559395	11.25
10-32	H3	2	5559406	11.25
12-24	H3	2	5559417	12.80
1/4-20	H3	2	5559428	11.25
1/4-28	H3	2	5559439	11.25
5/16-18	H3	2	5559450	12.14
5/16-24	H3	2	5559461	12.14

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



STI - SPIRAL POINT PLUG



HIGH SPEED STEEL - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
4-40	H1	2	5509262	13.14
5-40	H1	2	5509273	13.14
6-32	H2	2	5509284	13.23
6-40	H2	2	5509295	13.23
8-32	H2	2	5509306	13.37
10-24	H2	2	5509317	13.61
10-32	H2	2	5509328	13.85
12-24	H2	2	5509339	13.85
1/4-20	H2	2	5509350	13.85
1/4-28	H2	2	5509361	14.08
5/16-18	H3	3	5509372	17.80
5/16-24	H2	3	5509383	18.02
3/8-16	H3	3	5509394	21.91
3/8-24	H2	3	5509405	22.17
7/16-14	H3	3	5509416	24.03
7/16-20	H3	3	5509427	24.03
1/2-13	H3	3	5509438	26.75
1/2-20	H3	3	5509449	26.75

STI - HAND PLUG & BOTTOMING



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	PLUG ITEM#	BOTTOM ITEM#	LIST PRICE
4-40	H1	3	5498933	5498944	11.71
5-40	H1	3	5498955	5498966	11.71
6-32	H2	3	5498977	5498988	11.92
6-40	H1	3	5498999	5499010	11.92
8-32	H2	3	5499021	5499032	12.20
10-24	H2	3	5499043	5499054	12.20
10-32	H2	3	5499065	5499076	12.69
12-24	H2	3	5499087	5499098	12.69
1/4-20	H2	3	5499109	5499120	12.75
1/4-28	H2	3	5499131	5499142	12.75
5/16-18	H3	4	5499153	5499164	13.76
5/16-24	H2	4	5499175	5499186	13.76
3/8-16	H3	4	5499197	5499208	14.94
3/8-24	H2	4	5499219	5499230	14.94
7/16-14	H3	4	5499241	5499252	20.55
7/16-20	H3	4	5499263	5499274	20.55
1/2-13	H3	4	5499285	5499296	23.07
1/2-20	H3	4	5499307	5499318	23.07

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

+ .005 OVERSIZE SPIRAL POINT PLUG



HIGH SPEED STEEL - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
6-32	H11	2	5509152	6.80
8-32	H11	2	5509163	6.80
10-24	H11	2	5509174	7.40
10-32	H11	2	5509185	7.40
1/4-20	H11	2	5509196	8.43
5/16-18	H11	2	5509207	9.69
3/8-16	H11	3	5509218	11.00
7/16-14	H11	3	5509229	16.52
1/2-13	H11	3	5509240	20.10
5/8-11	H11	3	5509251	34.26

+ .005 OVERSIZE HAND PLUG



HIGH SPEED STEEL - METRIC

SIZE	D LIMIT	# OF FLUTES	ITEM#	PRICE
6-32	H11	3	5507051	5.65
8-32	H11	4	5507062	5.65
10-24	H11	4	5507073	6.25
10-32	H11	4	5507084	6.25
1/4-20	H11	4	5507095	7.45
5/16-18	H11	4	5507106	9.39
3/8-16	H11	4	5507117	10.78
7/16-14	H11	4	5507128	16.23
1/2-13	H11	4	5507139	18.30
5/8-11	H11	4	5507150	34.46

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

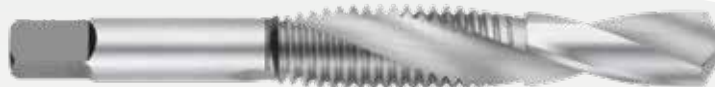
DIES



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	5498251	20.20
5-40	.141	1-15/16	9/32	0.1015	13/32	2	5498262	20.20
6-32	.141	2	5/16	0.1110	7/16	2	5498273	20.20
8-32	.168	2-5/32	13/32	0.1360	1/2	2	5498284	20.20
10-24	.194	2-13/32	7/16	0.1540	5/8	2	5498295	20.20
10-32	.194	2-13/32	7/16	0.1610	5/8	2	5498306	20.20
12-24	.220	2-13/32	1/2	0.1800	21/32	2	5498317	21.83
1/4-20	.255	2-9/16	9/16	0.2055	25/32	2	5498328	20.20
1/4-28	.255	2-9/16	9/16	0.2188	25/32	2	5498339	20.20
5/16-18	.318	2-29/32	3/4	0.2660	15/16	2	5498350	29.83
5/16-24	.318	2-29/32	3/4	0.2770	15/16	2	5498361	29.83
3/8-16	.381	3-15/32	29/32	0.3230	1-1/16	2	5498372	36.24
3/8-24	.381	3-15/32	29/32	0.3390	1-1/16	2	5498383	36.24
7/16-14	.323	3-27/32	1-3/32	0.3770	1-1/4	2	5498394	43.38
7/16-20	.323	3-27/32	1-3/32	0.3937	1-1/4	2	5498405	43.38
1/2-13	.367	4-3/16	1-1/4	0.4331	1-3/8	2	5498416	48.95
1/2-20	.367	4-3/16	1-1/4	0.4531	1-3/8	2	5498427	48.95

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



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	5498438	22.22
M5 x 0.8	.194	2-13/32	7/16	0.1660	5/8	2	5498449	22.22
M6 x 1.0	.255	2-17/32	9/16	0.1980	25/32	2	5498460	22.22
M8 x 1.25	.318	2-29/32	3/4	0.2670	15/16	2	5498471	40.26
M10 x 1.50	.381	3-15/32	29/32	0.3360	1-1/16	2	5498482	46.00
M12 x 1.75	.367	4-3/16	1-1/4	0.4050	1-3/8	2	5498493	46.00

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



PULLEY - PLUG



HIGH SPEED STEEL

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	ITEM#	LIST PRICE
1/4-20	H3	4	6	5509460	39.87
1/4-20	H3	4	8	5509471	49.29
5/16-18	H3	4	6	5509482	42.04
5/16-18	H3	4	8	5509493	50.75
3/8-16	H3	4	6	5509504	47.11
3/8-16	H3	4	8	5509515	56.53
3/8-16	H3	4	10	5509526	71.04
7/16-14	H3	4	6	5509537	50.02
7/16-14	H3	4	8	5509548	65.24
1/2-13	H3	4	6	5509559	50.75

SIZE	H LIMIT	# OF FLUTES	OVERALL LENGTH	ITEM#	LIST PRICE
1/2-13	H3	4	8	5509570	66.69
1/2-13	H3	4	10	5509581	81.91
1/2-13	H3	4	12	5509592	100.75
5/8-11	H3	4	6	5509603	67.42
5/8-11	H3	4	8	5509614	87.71
5/8-11	H3	4	10	5509625	110.19
5/8-11	H3	4	12	5509636	129.04
3/4-10	H3	4	10	5509647	129.04
3/4-10	H3	4	12	5509658	153.68

HP TAPS

TAPS

DIES

SMALL SHANK EXTENSION - SPIRAL POINT PLUG



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	5512485	40.45
8-32	H3	6	NC	3/4	1/4	0.123	0.092	2	5512496	39.62
10-24	H3	6	NC	7/8	1/4	0.136	0.102	2	5512507	37.15
10-32	H3	6	NF	7/8	1/4	0.136	0.102	2	5512518	37.15
1/4-20	H3	6	NC	1	5/16	0.185	0.139	2	5512529	50.68
1/4-28	H3	6	NF	1	5/16	0.185	0.139	2	5512540	50.68
5/16-18	H3	6	NC	1-1/8	3/8	0.240	0.180	2	5512551	53.19
5/16-24	H3	6	NF	1-1/8	3/8	0.240	0.180	2	5512562	53.19
3/8-16	H3	6	NC	1-1/4	7/16	0.275	0.206	3	5512573	57.30
3/8-24	H3	6	NF	1-1/4	7/16	0.275	0.206	3	5512584	57.30
7/16-14	H3	6	NC	1-7/16	13/32	0.323	0.242	3	5512595	65.69
7/16-20	H3	6	NF	1-7/16	13/32	0.323	0.242	3	5512606	65.69
1/2-13	H3	6	NC	1-21/32	7/16	0.367	0.275	3	5512617	68.96
1/2-20	H3	6	NF	1-21/32	7/16	0.367	0.275	3	5512628	68.96
5/8-11	H3	6	NC	1-13/16	9/16	0.480	0.360	3	5512639	89.10
5/8-18	H3	6	NF	1-13/16	9/16	0.480	0.360	3	5512650	89.10
3/4-10	H3	6	NC	2	11/16	0.590	0.442	3	5512661	115.71
3/4-16	H3	6	NF	2	11/16	0.590	0.442	3	5512672	115.71

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

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



Carbon Steel Dies

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

DIES



HEXAGON RETHREADING

CARBON STEEL

SIZE	ACROSS FLATS	THICKNESS	ITEM#	PRICE
1/4-20	19/32	1/4	5471037	12.27
1/4-28	19/32	1/4	5471048	12.27
5/16-18	11/16	5/16	5471059	14.31
5/16-24	11/16	5/16	5471070	14.31
3/8-16	25/32	3/8	5471081	15.84
3/8-24	25/32	3/8	5471092	15.84
7/16-14	7/8	7/16	5471103	19.42
7/16-20	7/8	7/16	5471114	19.42
1/2-13	1-1/16	1/2	5471125	21.47
1/2-20	1-1/16	1/2	5471136	21.47
9/16-12	1-1/16	1/2	5471147	22.99
9/16-18	1-1/16	1/2	5471158	22.99
5/8-11	1-1/4	5/8	5471169	24.02
5/8-18	1-1/4	5/8	5471180	24.02
11/16-11	1-7/16	3/4	5471191	26.58
11/16-16	1-7/16	3/4	5471202	26.58

SIZE	ACROSS FLATS	THICKNESS	ITEM#	PRICE
3/4-10	1-7/16	3/4	5471213	29.65
3/4-16	1-7/16	3/4	5471224	29.65
7/8-9	1-5/8	7/8	5471235	32.19
7/8-14	1-5/8	7/8	5471246	32.19
1-8	1-13/16	1	5471257	36.28
1-12	1-13/16	1	5471268	36.28
1-14	1-13/16	1	5471279	36.28
1-1/8-7	2	1	5471290	41.90
1-1/8-12	2	1	5471301	41.90
1-1/4-7	2-3/16	1	5471312	46.00
1-1/4-12	2-3/16	1	5471323	46.00
1-3/8-6	2-3/8	1	5471334	86.88
1-3/8-12	2-3/8	1	5471345	86.88
1-1/2-6	2-9/16	1	5471356	97.10
1-1/2-12	2-9/16	1	5471367	97.10



HEXAGON RETHREADING METRIC

CARBON STEEL

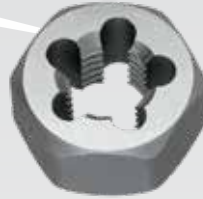
SIZE	ACROSS FLATS	ITEM#	PRICE
M3 x 0.5	1	5471378	9.35
M4 x 0.7	1	5471389	9.10
M5 x 0.8	1	5471400	9.10
M6 x 1.0	1	5471411	9.10
M7 x 1.0	1	5471422	9.35
M8 x 1.25	1	5471433	9.10
M10 x 1.25	1	5471444	9.10
M10 x 1.50	1	5471455	9.10
M12 x 1.25	1	5471466	9.10

SIZE	ACROSS FLATS	ITEM#	PRICE
M12 x 1.75	1	5471477	9.10
M14 x 1.50	1-7/16	5471488	14.11
M14 x 2.0	1-7/16	5471499	14.11
M16 x 1.50	1-7/16	5471510	14.11
M16 x 2.0	1-7/16	5471521	14.11
M18 x 1.50	1-7/16	5471532	14.11
M18 x 2.50	1-7/16	5471543	14.11
M20 x 2.5	1-13/16	5471554	29.47
M24 x 3.0	1-13/16	5471565	29.47

Dies sold individually.

Carbon Steel Dies

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



NPT HEXAGON RETHREADING

CARBON STEEL

SIZE	ACROSS FLATS	THICKNESS	ITEM#	PRICE
1/8-27 NPT	1-1/16	3/8	5471576	16.96
1/4 - 18 NPT	1-1/4	5/8	5471587	18.80
3/8 - 18 NPT	1-7/16	5/8	5471598	26.00

SIZE	ACROSS FLATS	THICKNESS	ITEM#	PRICE
1/2 - 14 NPT	1-5/8	3/4	5471609	37.57
3/4 - 14 NPT	2	13/16	5471620	46.45
1 - 11-1/2 NPT	2-3/8	1	5471631	89.91

HP TAPS

TAPS

DIES



ADJUSTABLE ROUND SPLIT

CARBON STEEL

SIZE	OUTSIDE DIAMETER	ITEM#	PRICE
6 - 32	1	5470377	20.93
8 - 32	1	5470410	20.93
10 - 24	1	5470443	20.93
10 - 32	1	5470465	20.93
1/4 - 20	1	5470531	20.93
1/4 - 20	1-1/2	5470542	34.24
1/4 - 28	1	5470553	20.93
1/4 - 32	1	5470586	20.93
5/16 - 18	1	5470597	20.93
5/16 - 18	1-1/2	5470608	34.24
5/16 - 24	1	5470619	20.93
5/16 - 24	1-1/2	5470630	34.24
5/16 - 32	1	5470641	20.93

SIZE	OUTSIDE DIAMETER	ITEM#	PRICE
3/8 - 16	1	5470652	20.93
3/8 - 16	1-1/2	5470663	34.24
3/8 - 24	1	5470674	20.93
3/8 - 24	1-1/2	5470685	34.24
7/16 - 14	1	5470696	20.93
7/16 - 14	1-1/2	5470707	34.24
7/16 - 20	1	5470718	20.93
1/2 - 13	1-1/2	5470740	34.24
1/2 - 20	1-1/2	5470751	34.24
9/16 - 12	1-1/2	5470762	34.24
9/16 - 18	1-1/2	5470773	34.24
5/8 - 11	1-1/2	5470784	34.24
5/8 - 18	1-1/2	5470806	34.24

Dies sold individually.



High Speed Steel Dies

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HP TAPS

TAPS

DIES

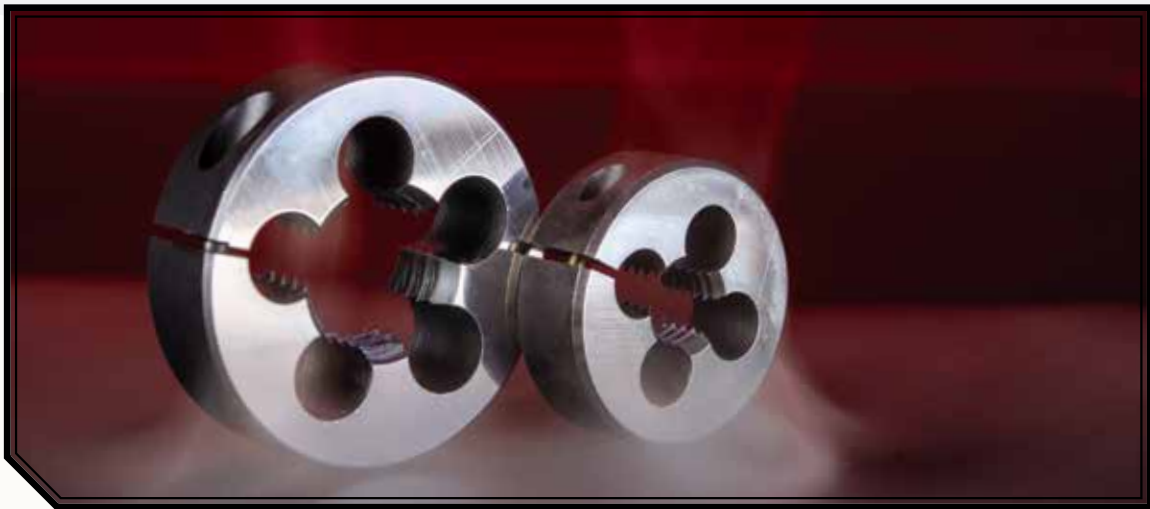


ADJUSTABLE ROUND SPLIT

HIGH SPEED STEEL

SIZE	OUTSIDE DIAMETER	ITEM#	PRICE
4-40	1	5471708	39.17
5-40	13/16	5471719	26.58
5-44	13/16	5471730	26.58
6-32	13/16	5471741	26.58
6-32	1	5471752	32.19
6-40	13/16	5471763	26.58
8-32	13/16	5471774	26.58
8-32	1	5471785	32.19
10-24	13/16	5471796	26.58
10-24	1	5471807	32.19
10-32	13/16	5471818	26.58
10-32	1	5471829	32.19
12-24	13/16	5471840	26.58
12-24	1	5471851	32.19
12-28	13/16	5471862	26.58
1/4-20	13/16	5471873	26.58
1/4-20	1	5471884	32.19
1/4-20	1-1/2	5471895	52.64
1/4-28	13/16	5471906	26.58
1/4-28	1	5471917	32.19
1/4-28	1-1/2	5471928	52.64
5/16-18	13/16	5471939	26.58
5/16-18	1	5471950	32.19
5/16-18	1-1/2	5471961	52.64
5/16-24	13/16	5471972	26.58
5/16-24	1	5471983	32.19

SIZE	OUTSIDE DIAMETER	ITEM#	PRICE
5/16-24	1-1/2	5471994	52.64
3/8-16	1	5472005	32.19
3/8-16	1-1/2	5472016	52.64
3/8-24	1	5472027	32.19
3/8-24	1-1/2	5472038	52.64
7/16-14	1	5472049	32.19
7/16-14	1-1/2	5472060	52.64
7/16-20	1	5472071	32.19
7/16-20	1-1/2	5472082	52.64
1/2-13	1	5472093	32.19
1/2-13	1-1/2	5472104	52.64
1/2-20	1	5472115	32.19
1/2-20	1-1/2	5472126	52.64
9/16-12	1-1/2	5472137	52.64
9/16-18	1-1/2	5472148	52.64
5/8-11	1-1/2	5472159	52.64
5/8-11	2	5472170	71.55
5/8-18	1-1/2	5472181	52.64
5/8-18	2	5472192	71.55
3/4-10	1-1/2	5472203	52.64
3/4-10	2	5472214	71.55
3/4-16	1-1/2	5472225	52.64
3/4-16	2	5472236	71.55
7/8-9	2	5472247	71.55
7/8-14	2	5472258	71.55



Dies sold individually.

Tap Handles & Die Stocks

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



T - HANDLE TAP WRENCHES



SIZE	ITEM#	PRICE
0 - 1/4	5470146	7.76
1/4-1/2	5470157	11.62

HP TAPS

TAPS

DIES

DIE STOCKS



SIZE	ITEM#	PRICE
1 OD	5470201	23.96
1-1/2 OD	5470212	39.24
2 OD	5470223	69.09

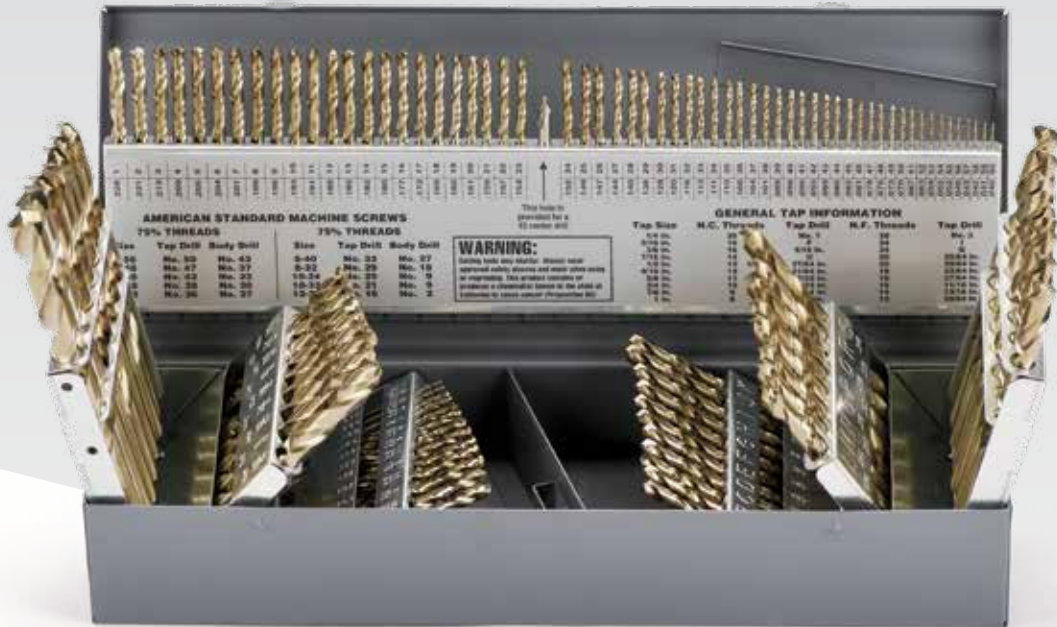
Tools sold individually.



Drill Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HSS & COBALT DRILLS



ITEM# 5420426

115 PC. JOBBER DRILL SET - M42 COBALT

M42 COBALT - JOBBER DRILL SETS

DESCRIPTION	ITEM#	PRICE
13Pc. • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT	5420360	27.63
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT	5420371	93.23
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT	5420382	101.54
26Pc. • A - Z • Heavy Duty • 135° SP/PT	5420393	154.62
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT	5420404	151.35
60Pc. • #1 - #60 • Heavy Duty • 135° SP/PT	5420415	132.10
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	5420426	557.10

M42 COBALT - SCREW MACHINE DRILL SETS

DESCRIPTION	ITEM#	PRICE
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • H.D. • 135° SP/PT	5559472	461.83

HIGH SPEED STEEL - TAP & DRILL SETS

DESCRIPTION	ITEM#	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)	5420437	105.45

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

For technical information, please see pages 238 & 239.

Drill Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



ITEM# 5420448
8 PC. SILVER & DEMING DRILL SET
HIGH SPEED STEEL

HSS & COBALT DRILLS

SILVER & DEMING SETS - 1/2" SHANK

DESCRIPTION	ITEM#	PRICE
8Pc. • HSS • 9/16", 5/8", 11/16", 3/4", 13/16", 7/8", 15/16", 1" • 118° Point • In Plastic Case	5420448	191.13
8Pc. • HSS • Black & Gold • 118° Split Point • In Plastic Case	5420481	242.72
8Pc. • M42 Cobalt • 118° Split Point • In Plastic Case	5420470	394.30
33Pc. • HSS • 1/2" - 1" by 64ths • 118° Point • Metal Stand	5420459	859.84

ITEM# 5420580
29 PC. MECHANICS LENGTH DRILL SET
HIGH SPEED STEEL - BLACK/GOLD



HIGH SPEED STEEL - MECHANICS LENGTH SETS

DESCRIPTION	ITEM#	PRICE
15Pc. • 1/16" - 1/2" by 32ths • Black/Gold • Heavy Duty • 135° SP/PT • Metal Case	5420558	69.69
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Metal Case	5420547	128.61
29Pc. • 1/16" - 1/2" by 64ths • Black/Gold • Heavy Duty • 135° SP/PT • Plastic Case	5420580	128.61

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

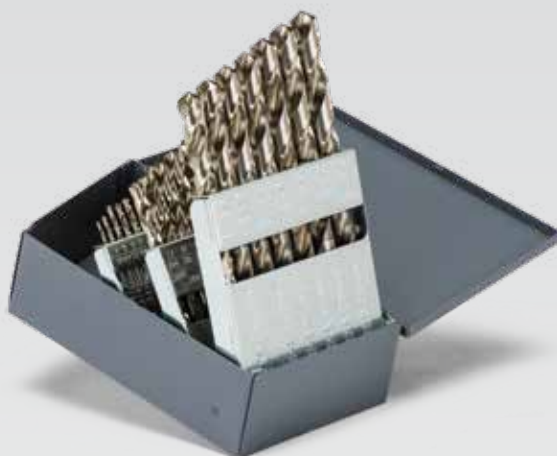
For technical information, please see pages 238 & 239.



Drill Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HSS & COBALT DRILLS



ITEM# 5420250

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



ITEM# 5420261

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

HIGH SPEED STEEL - JOBBER DRILL SETS

DESCRIPTION	ITEM#	PRICE
13Pc. • 1/16" - 1/4" by 64ths • 118° Point • Oxided	5420107	20.50
13Pc. • 1/16" - 1/4" by 64ths • 118° Point • Bright	5420118	20.50
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Oxided	5420140	57.23
15Pc. • 1/16" - 1/2" by 32nds • 118° Point • Bright	5420162	57.23
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Oxided	5420173	63.12
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Oxided	5420184	48.37
21Pc. • 1/16" - 3/8" by 64ths • 118° Point • Bright	5420195	48.37
25Pc. • 1.0mm - 13.0mm by 0.5mm • 118° Point • Oxided	5420203	110.46
26Pc. • A-Z • 118° Point • Oxided	5420217	80.95
26Pc. • A-Z • 118° Point • Bright	5420228	80.95
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Oxided	5420239	78.64
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • Bright	5420250	78.64
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Oxided	5420272	97.88
29Pc. • 1/16" - 1/2" by 64ths • 118° Point • TIN Coated	5420294	194.49
60Pc. • #1 - #60 • 118° Point • Oxided	5420305	71.14
60Pc. • #1 - #60 • 118° Point • Bright	5420316	71.14
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Oxided	5420327	226.04
115Pc. • 1/16" - 1/2" by 64ths • #1 - #60 • A - Z • 118° Point • Bright	5420338	226.04

HIGH SPEED STEEL - BLACK & GOLD SETS

DESCRIPTION	ITEM#	PRICE
13Pc. • 1/16" - 1/4" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	5420129	25.57
15Pc. • 1/16" - 1/2" by 32nds • Heavy Duty • 135° SP/PT • Black/Gold	5420151	74.05
21Pc. • 1/16" - 3/8" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	5420206	72.53
29Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	5420261	118.47
29Pc. • 1/16" - 1/2" by 64ths • H.D. • 135° SP/PT • Black/Gold • Plastic Case	5420569	118.47
115Pc. • 1/16" - 1/2" by 64ths • Heavy Duty • 135° SP/PT • Black/Gold	5420349	326.77

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



BLACK & GOLD

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PACKAGE QUANTITY	ITEM#	PRICE	SIZE	FLUTE LENGTH	OAL	PACKAGE QUANTITY	ITEM#	PRICE
1/16	7/8	1-7/8	12	5410328	1.14	19/64	2-3/8	3-7/8	6	5410493	3.83
5/64	1	2	12	5410339	1.22	5/16	2-1/2	4	6	5410504	4.09
3/32	1-1/4	2-1/4	12	5410350	1.22	21/64	2-9/16	4-1/16	6	5410515	4.36
7/64	1-5/16	2-3/8	12	5410361	1.25	11/32	2-5/8	4-1/8	6	5410526	4.75
1/8	1-7/16	2-1/2	12	5410372	1.31	23/64	2-11/16	4-3/16	6	5410537	5.05
9/64	1-9/16	2-5/8	12	5410383	1.35	3/8	2-11/16	4-1/4	6	5410548	5.35
5/32	1-11/16	2-3/4	12	5410394	1.61	25/64	2-3/4	4-5/16	6	5410559	5.69
11/64	1-13/16	2-7/8	12	5410405	1.65	13/32	2-13/16	4-3/8	6	5410570	6.13
3/16	1-7/8	3	12	5410416	1.88	27/64	2-7/8	4-7/16	6	5410581	6.91
13/64	1-15/16	3-1/8	12	5410427	2.04	7/16	2-15/16	4-1/2	6	5410592	7.30
7/32	2	3-1/4	12	5410438	2.27	29/64	3	4-5/8	6	5410603	7.95
15/64	2-1/16	3-3/8	12	5410449	2.42	15/32	3-1/8	4-3/4	6	5410614	8.52
1/4	2	3-1/2	12	5410460	2.57	31/64	3-1/4	4-7/8	6	5410625	8.70
17/64	2-1/8	3-5/8	6	5410471	3.23	1/2	3-3/8	5	6	5410636	8.93
9/32	2-1/4	3-3/4	6	5410482	3.23						

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



For technical information, please see pages 238 & 239.



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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



OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
1/16	5/8	1-5/8	12	5402100	0.98
5/64	11/16	1-11/16	12	5402111	0.99
3/32	3/4	1-3/4	12	5402122	0.99
7/64	13/16	1-13/16	12	5402133	0.99
1/8	7/8	1-7/8	12	5402144	0.99
9/64	15/16	1-15/16	12	5402155	0.99
5/32	1	2-1/16	12	5402166	1.08
11/64	1-1/16	2-1/8	12	5402177	1.08
3/16	1-1/8	2-3/16	12	5402188	1.25
13/64	1-3/16	2-1/4	12	5402199	1.30
7/32	1-1/4	2-3/8	12	5402210	1.47
15/64	1-5/16	2-7/16	12	5402221	1.70
1/4	1-3/8	2-1/2	12	5402232	1.88
17/64	1-7/16	2-5/8	6	5402243	1.93
9/32	1-1/2	2-11/16	6	5402254	2.04

FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
19/64	1-9/16	2-3/4	6	5402265	2.22
5/16	1-5/8	2-13/16	6	5402276	2.36
21/64	1-11/16	2-15/16	6	5402287	2.64
11/32	1-11/16	3	6	5402298	2.82
23/64	1-3/4	3-1/16	6	5402309	2.99
3/8	1-13/16	3-1/8	6	5402320	3.26
25/64	1-7/8	3-1/4	6	5402331	3.46
13/32	1-15/16	3-5/16	6	5402342	3.79
27/64	2	3-3/8	6	5402353	4.00
7/16	1-1/16	3-7/16	6	5402364	4.38
29/64	2-1/8	3-9/16	6	5402375	4.64
15/32	2-1/8	3-5/8	6	5402386	5.10
31/64	2-3/16	3-11/16	6	5402397	5.30
1/2	2-1/4	3-3/4	6	5402408	5.58

LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
A	1-5/16	2-7/16	12	5403079	2.04
B	1-3/8	2-1/2	12	5403090	2.14
C	1-3/8	2-1/2	12	5403101	2.14
D	1-3/8	2-1/2	12	5403112	2.16
E	1-3/8	2-1/2	12	5403123	2.16
F	1-7/16	2-5/8	6	5403134	2.78
G	1-7/16	2-5/8	6	5403145	2.98
H	1-1/2	2-11/16	6	5403156	3.07
I	1-1/2	2-11/16	6	5403167	3.08
J	1-1/2	2-11/16	6	5403178	3.15
K	1-1/2	2-11/16	6	5403189	3.21
L	1-9/16	2-3/4	6	5403200	3.28
M	1-9/16	2-3/4	6	5403211	3.44

LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
N	1-5/8	2-13/16	6	5403222	3.58
O	1-11/16	2-15/16	6	5403233	4.02
P	1-11/16	2-15/16	6	5403244	4.13
Q	1-11/16	3	6	5403255	4.31
R	1-11/16	3	6	5403266	4.43
S	1-3/4	3-1/16	6	5403277	4.61
T	1-3/4	3-1/16	6	5403288	4.71
U	1-13/16	3-1/8	6	5403299	5.08
V	1-7/8	3-1/4	6	5403310	5.40
W	1-7/8	3-1/4	6	5403321	5.60
X	1-15/16	3-5/16	6	5403332	5.93
Y	1-15/16	3-5/16	6	5403343	6.06
Z	2	3-3/8	6	5403354	6.27

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

For technical information, please see pages 238 & 239.

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



OXIDE FINISH

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
1	1-5/16	2-7/16	12	5402419	1.70	31	7/8	1-7/8	12	5402749	1.10
2	1-5/16	2-7/16	12	5402430	1.70	32	7/8	1-7/8	12	5402760	1.10
3	1-1/4	2-3/8	12	5402441	1.76	33	7/8	1-7/8	12	5402771	1.10
4	1-1/4	2-3/8	12	5402452	1.76	34	7/8	1-7/8	12	5402782	1.10
5	1-1/4	2-3/8	12	5402463	1.76	35	7/8	1-7/8	12	5402793	1.10
6	1-1/4	2-3/8	12	5402474	1.76	36	13/16	1-13/16	12	5402804	1.10
7	1-3/16	2-1/4	12	5402485	1.51	37	13/16	1-13/16	12	5402815	1.10
8	1-3/16	2-1/4	12	5402496	1.51	38	13/16	1-13/16	12	5402826	1.10
9	1-3/16	2-1/4	12	5402507	1.51	39	13/16	1-13/16	12	5402837	1.10
10	1-3/16	2-1/4	12	5402518	1.51	40	13/16	1-13/16	12	5402848	1.10
11	1-3/16	2-1/4	12	5402529	1.51	41	13/16	1-13/16	12	5402859	1.10
12	1-3/16	2-1/4	12	5402540	1.51	42	3/4	1-3/4	12	5402870	1.10
13	1-1/8	2-3/16	12	5402551	1.51	43	3/4	1-3/4	12	5402881	1.10
14	1-1/8	2-3/16	12	5402562	1.51	44	3/4	1-3/4	12	5402892	1.10
15	1-1/8	2-3/16	12	5402573	1.51	45	3/4	1-3/4	12	5402903	1.10
16	1-1/8	2-3/16	12	5402584	1.51	46	3/4	1-3/4	12	5402914	1.10
17	1-1/8	2-3/16	12	5402595	1.51	47	11/16	1-11/16	12	5402925	1.10
18	1-1/16	2-1/8	12	5402606	1.44	48	11/16	1-11/16	12	5402936	1.10
19	1-1/16	2-1/8	12	5402617	1.44	49	11/16	1-11/16	12	5402947	1.10
20	1-1/16	2-1/8	12	5402628	1.44	50	11/16	1-11/16	12	5402958	1.10
21	1-1/16	2-1/8	12	5402639	1.44	51	11/16	1-11/16	12	5402969	1.10
22	1-1/16	2-1/8	12	5402650	1.40	52	11/16	1-11/16	12	5402980	1.10
23	1	2-1/16	12	5402661	1.40	53	5/8	1-5/8	12	5402991	1.10
24	1	2-1/16	12	5402672	1.40	54	5/8	1-5/8	12	5403002	1.10
25	1	2-1/16	12	5402683	1.40	55	5/8	1-5/8	12	5403013	1.10
26	1	2-1/16	12	5402694	1.40	56	1/2	1-3/8	12	5403024	1.10
27	1	2-1/16	12	5402705	1.40	57	1/2	1-3/8	12	5403035	1.10
28	15/16	1-15/16	12	5402716	1.40	58	1/2	1-3/8	12	5403046	1.10
29	15/16	1-15/16	12	5402727	1.40	59	1/2	1-3/8	12	5403057	1.10
30	15/16	1-15/16	12	5402738	1.10	60	1/2	1-3/8	12	5403068	1.10

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

For technical information, please see pages 238 & 239.



M42 Cobalt Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

NAS 907 - M42 COBALT



NAS 907 - M42 COBALT
ALTIN COATED



HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
1/16	5/8	1-5/8	12	5403365 1.21	5533990 2.19
5/64	11/16	1-11/16	12	5403376 1.21	5534001 2.19
3/32	3/4	1-3/4	12	5403387 1.21	5534012 2.19
7/64	13/16	1-13/16	12	5403398 1.37	5534023 2.47
1/8	7/8	1-7/8	12	5403409 1.58	5534034 2.87
9/64	15/16	1-15/16	12	5403420 1.58	5534045 2.87
5/32	1	2-1/16	12	5403431 1.74	5534056 3.14
11/64	1-1/16	2-1/8	12	5403442 1.97	5534067 3.54
3/16	1-1/8	2-3/16	12	5403453 2.30	5534078 4.17
13/64	1-3/16	2-1/4	12	5403464 2.64	5534089 4.75
7/32	1-1/4	2-3/8	12	5403475 2.91	5534100 5.25
15/64	1-5/16	2-7/16	12	5403486 3.12	5534111 5.65
1/4	1-3/8	2-1/2	12	5403497 3.24	5534122 5.87
17/64	1-7/16	2-5/8	6	5403508 3.70	5534133 6.68
9/32	1-1/2	2-11/16	6	5403519 4.02	5534144 7.28

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
19/64	1-9/16	2-3/4	6	5403530 4.66	5534155 8.41
5/16	1-5/8	2-13/16	6	5403541 5.00	5534166 9.03
21/64	1-11/16	2-15/16	6	5403552 5.54	5534177 10.02
11/32	1-11/16	3	6	5403563 5.99	5534188 10.83
23/64	1-3/4	3-1/16	6	5403574 6.89	5534199 12.45
3/8	1-13/16	3-1/8	6	5403585 6.89	5534210 12.45
25/64	1-7/8	3-1/4	6	5403596 7.88	5534221 14.26
13/32	1-15/16	3-5/16	6	5403607 8.15	5534232 14.71
27/64	2	3-3/8	6	5403618 9.03	5534243 16.30
7/16	1-1/16	3-7/16	6	5403629 9.28	5534254 16.77
29/64	2-1/8	3-9/16	6	5403640 11.14	5534265 20.11
15/32	2-1/8	3-5/8	6	5403651 11.14	5534276 20.11
31/64	2-3/16	3-11/16	6	5403662 11.14	5534287 20.11
1/2	2-1/4	3-3/4	6	5403673 11.14	5534298 20.11

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
A	1-5/16	2-7/16	12	5404344 3.72	5534969 6.72
B	1-3/8	2-1/2	12	5404355 3.95	5534980 7.13
C	1-3/8	2-1/2	12	5404366 3.95	5534991 7.13
D	1-3/8	2-1/2	12	5404377 3.95	5535002 7.13
E	1-3/8	2-1/2	12	5404388 3.60	5535013 6.52
F	1-7/16	2-5/8	6	5404399 4.18	5535024 7.55
G	1-7/16	2-5/8	6	5404410 4.18	5535035 7.55
H	1-1/2	2-11/16	6	5404421 4.43	5535046 8.02
I	1-1/2	2-11/16	6	5404432 4.43	5535057 8.02
J	1-1/2	2-11/16	6	5404443 4.43	5535068 8.02
K	1-1/2	2-11/16	6	5404454 4.43	5535079 8.02
L	1-9/16	2-3/4	6	5404465 5.26	5535090 9.49
M	1-9/16	2-3/4	6	5404476 5.26	5535101 9.49

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
N	1-5/8	2-13/16	6	5404487 5.65	5535112 10.20
O	1-11/16	2-15/16	6	5404498 6.25	5535123 11.30
P	1-11/16	2-15/16	6	5404509 6.25	5535134 11.30
Q	1-11/16	3	6	5404520 6.77	5535145 12.22
R	1-11/16	3	6	5404531 6.77	5535156 12.22
S	1-3/4	3-1/16	6	5404542 8.41	5535167 15.22
T	1-3/4	3-1/16	6	5404553 8.41	5535178 15.22
U	1-13/16	3-1/8	6	5404564 8.41	5535189 15.22
V	1-7/8	3-1/4	6	5404575 9.35	5535200 16.88
W	1-7/8	3-1/4	6	5404586 9.35	5535211 16.88
X	1-15/16	3-5/16	6	5404597 9.35	5535222 16.88
Y	1-15/16	3-5/16	6	5404608 9.35	5535233 16.88
Z	2	3-3/8	6	5404619 10.71	5535244 19.36

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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

NAS 907 - M42 COBALT



NAS 907 - M42 COBALT
ALTIN COATED



HSS & COBALT DRILLS

WIRE SIZES							WIRE SIZES						
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE		SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE	
1	1-5/16	2-7/16	12	5403684	3.58	5534309	31	7/8	1-7/8	12	5404014	1.49	5534639
2	1-5/16	2-7/16	12	5403695	3.58	5534320	32	7/8	1-7/8	12	5404025	1.49	5534650
3	1-1/4	2-3/8	12	5403706	3.58	5534331	33	7/8	1-7/8	12	5404036	1.44	5534661
4	1-1/4	2-3/8	12	5403717	3.19	5534342	34	7/8	1-7/8	12	5404047	1.44	5534672
5	1-1/4	2-3/8	12	5403728	3.19	5534353	35	7/8	1-7/8	12	5404058	1.44	5534683
6	1-1/4	2-3/8	12	5403739	3.19	5534364	36	13/16	1-13/16	12	5404069	1.44	5534694
7	1-3/16	2-1/4	12	5403750	2.52	5534375	37	13/16	1-13/16	12	5404080	1.44	5534705
8	1-3/16	2-1/4	12	5403761	2.52	5534386	38	13/16	1-13/16	12	5404091	1.31	5534716
9	1-3/16	2-1/4	12	5403772	2.52	5534397	39	13/16	1-13/16	12	5404102	1.31	5534727
10	1-3/16	2-1/4	12	5403783	2.52	5534408	40	13/16	1-13/16	12	5404113	1.31	5534738
11	1-3/16	2-1/4	12	5403794	2.44	5534419	41	13/16	1-13/16	12	5404124	1.25	5534749
12	1-3/16	2-1/4	12	5403805	2.44	5534430	42	3/4	1-3/4	12	5404135	1.24	5534760
13	1-1/8	2-3/16	12	5403816	2.39	5534441	43	3/4	1-3/4	12	5404146	1.24	5534771
14	1-1/8	2-3/16	12	5403827	2.39	5534452	44	3/4	1-3/4	12	5404157	1.24	5534782
15	1-1/8	2-3/16	12	5403838	2.39	5534463	45	3/4	1-3/4	12	5404168	1.24	5534793
16	1-1/8	2-3/16	12	5403849	2.39	5534474	46	3/4	1-3/4	12	5404179	1.24	5534804
17	1-1/8	2-3/16	12	5403860	2.30	5534485	47	11/16	1-11/16	12	5404190	1.24	5534815
18	1-1/16	2-1/8	12	5403871	1.97	5534496	48	11/16	1-11/16	12	5404201	1.24	5534826
19	1-1/16	2-1/8	12	5403882	1.86	5534507	49	11/16	1-11/16	12	5404212	1.24	5534837
20	1-1/16	2-1/8	12	5403893	1.86	5534518	50	11/16	1-11/16	12	5404223	1.24	5534848
21	1-1/16	2-1/8	12	5403904	1.86	5534529	51	11/16	1-11/16	12	5404234	1.24	5534859
22	1-1/16	2-1/8	12	5403915	1.86	5534540	52	11/16	1-11/16	12	5404245	1.24	5534870
23	1	2-1/16	12	5403926	1.86	5534551	53	5/8	1-5/8	12	5404256	1.40	5534881
24	1	2-1/16	12	5403937	1.86	5534562	54	5/8	1-5/8	12	5404267	1.40	5534892
25	1	2-1/16	12	5403948	1.74	5534573	55	5/8	1-5/8	12	5404278	1.40	5534903
26	1	2-1/16	12	5403959	1.74	5534584	56	1/2	1-3/8	12	5404289	1.40	5534914
27	1	2-1/16	12	5403970	1.74	5534595	57	1/2	1-3/8	12	5404300	1.40	5534925
28	15/16	1-15/16	12	5403981	1.58	5534606	58	1/2	1-3/8	12	5404311	1.49	5534936
29	15/16	1-15/16	12	5403992	1.58	5534617	59	1/2	1-3/8	12	5404322	1.49	5534947
30	15/16	1-15/16	12	5404003	1.49	5534628	60	1/2	1-3/8	12	5404333	1.49	5534958

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.



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

JOBBER LENGTH - 118° POINT

BRIGHT FINISH



TIN COATED



HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE
1/16	7/8	1-7/8	12	5406313	0.83	5410647	2.36
5/64	1	2	12	5406324	0.83	5410658	2.36
3/32	1-1/4	2-1/4	12	5406335	0.83	5410669	2.36
7/64	1-1/2	2-5/8	12	5406346	0.83	5410680	2.39
1/8	1-5/8	2-3/4	12	5406357	0.83	5410691	2.39
9/64	1-3/4	2-7/8	12	5406368	0.89	5410702	2.51
5/32	2	3-1/8	12	5406379	0.92	5410713	2.80
11/64	2-1/8	3-1/4	12	5406390	0.99	5410724	2.83
3/16	2-5/16	3-1/2	12	5406401	1.08	5410735	2.99
13/64	2-7/16	3-5/8	12	5406412	1.22	5410746	4.25
7/32	2-1/2	3-3/4	12	5406423	1.35	5410757	4.36
15/64	2-5/8	3-7/8	12	5406434	1.51	5410768	4.56
1/4	2-3/4	4	12	5406445	1.54	5410779	4.67
17/64	2-7/8	4-1/8	6	5406456	2.22	5410790	6.64
9/32	2-15/16	4-1/4	6	5406467	2.36	5410801	7.37

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE
19/64	3-1/16	4-3/8	6	5406478	2.59	5410812	7.52
5/16	3-3/16	4-1/2	6	5406489	2.69	5410823	7.94
21/64	3-5/16	4-5/8	6	5406500	3.01	5410834	9.05
11/32	3-7/16	4-3/4	6	5406511	3.23	5410845	9.53
23/64	3-1/2	4-7/8	6	5406522	3.54	5410856	10.75
3/8	3-5/8	5	6	5406533	3.72	5410867	10.87
25/64	3-3/4	5-1/8	6	5406544	4.02	5410878	13.45
13/32	3-7/8	5-1/4	6	5406555	4.39	5410889	13.76
27/64	3-15/16	5-3/8	6	5406566	4.68	5410900	14.24
7/16	4-1/16	5-1/2	6	5406577	5.10	5410911	14.54
29/64	4-3/16	5-5/8	6	5406588	5.44	5410922	15.98
15/32	4-5/16	5-3/4	6	5406599	5.92	5410933	16.43
31/64	4-3/8	5-7/8	6	5406610	6.25	5410944	16.57
1/2	4-1/2	6	6	5406621	6.52	5410955	16.91

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE
A	2-5/8	3-7/8	12	5407512	1.51	5410966	4.75
B	2-3/4	4	12	5407523	1.54	5410977	4.86
C	2-3/4	4	12	5407534	1.54	5410988	4.86
D	2-3/4	4	12	5407545	1.60	5410999	4.86
E	2-3/4	4	12	5407556	1.61	5411010	4.67
F	2-7/8	4-1/8	6	5407567	2.23	5411021	8.02
G	2-7/8	4-1/8	6	5407578	2.14	5411032	8.02
H	2-7/8	4-1/8	6	5407589	2.18	5411043	8.02
I	2-7/8	4-1/8	6	5407600	2.23	5411054	8.02
J	2-7/8	4-1/8	6	5407611	2.30	5411065	8.07
K	2-15/16	4-1/4	6	5407622	2.36	5411076	8.69
L	2-15/16	4-1/4	6	5407633	2.46	5411087	8.69
M	3-1/16	4-3/8	6	5407644	2.61	5411098	8.84

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE
N	3-1/16	4-3/8	6	5407655	2.69	5411109	8.99
O	3-3/16	4-1/2	6	5407666	2.92	5411120	8.99
P	3-5/16	4-5/8	6	5407677	3.14	5411131	9.38
Q	3-7/16	4-3/4	6	5407688	3.26	5411142	9.38
R	3-7/16	4-3/4	6	5407699	3.38	5411153	9.62
S	3-1/2	4-7/8	6	5407710	3.54	5411164	12.13
T	3-1/2	4-7/8	6	5407721	3.72	5411175	12.70
U	3-5/8	5	6	5407732	4.02	5411186	12.70
V	3-5/8	5	6	5407743	4.16	5411197	12.88
W	3-3/4	5-1/8	6	5407754	4.43	5411208	14.90
X	3-3/4	5-1/8	6	5407765	4.69	5411219	16.05
Y	3-7/8	5-1/4	6	5407776	4.92	5411230	17.10
Z	3-7/8	5-1/4	6	5407787	5.03	5411241	17.30

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

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



JOBBER LENGTH - 118° POINT

BRIGHT FINISH



TIN COATED



HSS & COBALT DRILLS

WIRE SIZES							WIRE SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BRIGHT	PRICE	TIN	PRICE
1	2-5/8	3-7/8	12	5406632	1.65	5411252	4.75	31	1-5/8	2-3/4	12	5406962	0.76	5411582	2.39
2	2-5/8	3-7/8	12	5406643	1.65	5411263	4.75	32	1-5/8	2-3/4	12	5406973	0.76	5411593	2.39
3	2-1/2	3-3/4	12	5406654	1.51	5411274	4.56	33	1-1/2	2-5/8	12	5406984	0.76	5411604	2.39
4	2-1/2	3-3/4	12	5406665	1.51	5411285	4.56	34	1-1/2	2-5/8	12	5406995	0.76	5411615	2.39
5	2-1/2	3-3/4	12	5406676	1.49	5411296	4.56	35	1-1/2	2-5/8	12	5407006	0.76	5411626	2.39
6	2-1/2	3-3/4	12	5406687	1.49	5411307	4.56	36	1-7/16	2-1/2	12	5407017	0.76	5411637	2.36
7	2-7/16	3-5/8	12	5406698	1.44	5411318	4.33	37	1-7/16	2-1/2	12	5407028	0.76	5411648	2.36
8	2-7/16	3-5/8	12	5406709	1.44	5411329	4.33	38	1-7/16	2-1/2	12	5407039	0.76	5411659	2.36
9	2-7/16	3-5/8	12	5406720	1.42	5411340	4.33	39	1-3/8	2-3/8	12	5407050	0.76	5411670	2.36
10	2-7/16	3-5/8	12	5406731	1.30	5411351	4.33	40	1-3/8	2-3/8	12	5407061	0.76	5411681	2.36
11	2-5/16	3-1/2	12	5406742	1.30	5411362	4.33	41	1-3/8	2-3/8	12	5407072	0.76	5411692	2.36
12	2-5/16	3-1/2	12	5406753	1.30	5411373	3.54	42	1-1/4	2-1/4	12	5407083	0.76	5411703	2.36
13	2-5/16	3-1/2	12	5406764	1.30	5411384	3.48	43	1-1/4	2-1/4	12	5407094	0.76	5411714	2.36
14	2-3/16	3-3/8	12	5406775	1.22	5411395	3.48	44	1-1/8	2-1/8	12	5407105	0.76	5411725	2.36
15	2-3/16	3-3/8	12	5406786	1.22	5411406	3.48	45	1-1/8	2-1/8	12	5407116	0.80	5411736	2.36
16	2-3/16	3-3/8	12	5406797	1.22	5411417	3.48	46	1-1/8	2-1/8	12	5407127	0.80	5411747	2.36
17	2-3/16	3-3/8	12	5406808	1.17	5411428	3.48	47	1	2	12	5407138	0.80	5411758	2.36
18	2-1/8	3-1/4	12	5406819	1.17	5411439	3.10	48	1	2	12	5407149	0.80	5411769	2.36
19	2-1/8	3-1/4	12	5406830	1.17	5411450	3.10	49	1	2	12	5407160	0.80	5411780	2.36
20	2-1/8	3-1/4	12	5406841	1.05	5411461	3.10	50	1	2	12	5407171	0.80	5411791	2.36
21	2-1/8	3-1/4	12	5406852	1.05	5411472	3.06	51	1	2	12	5407182	0.80	5411802	2.36
22	2	3-1/8	12	5406863	0.99	5411483	3.06	52	7/8	1-7/8	12	5407193	0.80	5411813	2.36
23	2	3-1/8	12	5406874	0.99	5411494	3.03	53	7/8	1-7/8	12	5407204	0.80	5411824	2.36
24	2	3-1/8	12	5406885	0.99	5411505	3.03	54	7/8	1-7/8	12	5407215	0.85	5411835	2.36
25	1-7/8	3	12	5406896	0.87	5411516	2.97	55	7/8	1-7/8	12	5407226	0.85	5411846	2.36
26	1-7/8	3	12	5406907	0.87	5411527	2.97	56	3/4	1-3/4	12	5407237	0.85	5411857	2.36
27	1-7/8	3	12	5406918	0.87	5411538	2.97	57	3/4	1-3/4	12	5407248	0.94	5411868	2.36
28	1-3/4	2-7/8	12	5406929	0.80	5411549	2.87	58	11/16	1-5/8	12	5407259	0.94	5411879	2.36
29	1-3/4	2-7/8	12	5406940	0.80	5411560	2.87	59	11/16	1-5/8	12	5407270	0.94	5411890	2.36
30	1-5/8	2-3/4	12	5406951	0.78	5411571	2.39	60	11/16	1-5/8	12	5407281	0.94	5411901	2.36

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



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

JOBBER LENGTH - 118° POINT



OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
1/16	7/8	1-7/8	12	5404663	0.83
5/64	1	2	12	5404674	0.83
3/32	1-1/4	2-1/4	12	5404685	0.83
7/64	1-1/2	2-5/8	12	5404696	0.83
1/8	1-5/8	2-3/4	12	5404707	0.83
9/64	1-3/4	2-7/8	12	5404718	0.89
5/32	2	3-1/8	12	5404729	0.92
11/64	2-1/8	3-1/4	12	5404740	0.99
3/16	2-5/16	3-1/2	12	5404751	1.08
13/64	2-7/16	3-5/8	12	5404762	1.22
7/32	2-1/2	3-3/4	12	5404773	1.35
15/64	2-5/8	3-7/8	12	5404784	1.51
1/4	2-3/4	4	12	5404795	1.54
17/64	2-7/8	4-1/8	6	5404806	2.22
9/32	2-15/16	4-1/4	6	5404817	2.36
19/64	3-1/16	4-3/8	6	5404828	2.59
5/16	3-3/16	4-1/2	6	5404839	2.69
21/64	3-5/16	4-5/8	6	5404850	3.01
11/32	3-7/16	4-3/4	6	5404861	3.23
23/64	3-1/2	4-7/8	6	5404872	3.54
3/8	3-5/8	5	6	5404883	3.72

FRACTIONAL SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
25/64	3-3/4	5-1/8	6	5404894	4.02
13/32	3-7/8	5-1/4	6	5404905	4.39
27/64	3-15/16	5-3/8	6	5404916	4.68
7/16	4-1/16	5-1/2	6	5404927	5.10
29/64	4-3/16	5-5/8	6	5404938	5.44
15/32	4-5/16	5-3/4	6	5404949	5.92
31/64	4-3/8	5-7/8	6	5404960	6.25
1/2	4-1/2	6	6	5404971	6.52
33/64	4-13/16	6-5/8	1	5404982	15.57
17/32	4-13/16	6-5/8	1	5404993	16.31
35/64	4-13/16	6-5/8	1	5405004	17.66
9/16	4-13/16	6-5/8	1	5405015	18.49
37/64	4-13/16	6-5/8	1	5405026	18.54
19/32	5-3/16	7-1/8	1	5405037	19.05
39/64	5-3/16	7-1/8	1	5405048	20.93
5/8	5-3/16	7-1/8	1	5405059	20.43
41/64	5-3/16	7-1/8	1	5405070	22.35
21/32	5-3/16	7-1/8	1	5405081	21.59
43/64	5-5/8	7-5/8	1	5405092	25.38
11/16	5-5/8	7-5/8	1	5405103	24.83

METRIC SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
1.00	17	41	12	5515037	1.09
1.05	17	41	12	5515048	1.20
1.10	19	44	12	5515059	1.15
1.15	19	44	12	5515070	1.17
1.20	22	48	12	5515081	1.15
1.25	22	48	12	5515092	1.17
1.30	22	48	12	5515103	1.15
1.35	22	48	12	5515114	1.20
1.40	22	48	12	5515125	1.15
1.50	22	48	12	5515147	1.15
1.60	22	48	12	5515169	1.15
1.70	25	51	12	5515191	1.17
1.80	25	51	12	5515213	1.17
1.90	25	51	12	5515235	1.17
2.00	25	51	12	5515257	1.17
2.50	35	60	12	5515367	1.22
3.00	41	70	12	5515422	1.27
3.50	45	73	12	5515477	1.34
4.00	54	83	12	5515532	1.39

METRIC SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
4.50	56	86	12	5515587	1.56
5.00	62	92	12	5515642	1.77
5.50	64	95	12	5515697	1.99
6.00	70	102	12	5515752	2.16
6.50	73	105	6	5515807	2.76
7.00	73	105	6	5515862	2.87
7.50	78	111	6	5515917	3.42
8.00	81	114	6	5515972	3.76
8.50	87	121	6	5516027	4.30
9.00	89	124	6	5516082	4.84
9.50	92	127	6	5516137	5.07
10.00	95	130	6	5516192	6.19
10.50	98	133	6	5516214	6.20
11.00	103	140	6	5516225	6.37
11.50	106	143	6	5516247	7.15
12.00	111	149	6	5516258	7.89
12.50	114	152	6	5516269	8.05
13.00	114	152	6	5516280	13.35

For technical information, please see pages 238 & 239.

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



JOBBER LENGTH - 118° POINT



OXIDE FINISH

HSS & COBALT DRILLS

LETTER SIZES						LETTER SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
A	2-5/8	3-7/8	12	5405994	1.51	N	3-1/16	4-3/8	6	5406137	2.69
B	2-3/4	4	12	5406005	1.54	O	3-3/16	4-1/2	6	5406148	2.92
C	2-3/4	4	12	5406016	1.54	P	3-5/16	4-5/8	6	5406159	3.14
D	2-3/4	4	12	5406027	1.60	Q	3-7/16	4-3/4	6	5406170	3.26
E	2-3/4	4	12	5406038	1.61	R	3-7/16	4-3/4	6	5406181	3.38
F	2-7/8	4-1/8	6	5406049	2.23	S	3-1/2	4-7/8	6	5406192	3.54
G	2-7/8	4-1/8	6	5406060	2.14	T	3-1/2	4-7/8	6	5406203	3.72
H	2-7/8	4-1/8	6	5406071	2.18	U	3-5/8	5	6	5406214	4.02
I	2-7/8	4-1/8	6	5406082	2.23	V	3-5/8	5	6	5406225	4.16
J	2-7/8	4-1/8	6	5406093	2.30	W	3-3/4	5-1/8	6	5406236	4.43
K	2-15/16	4-1/4	6	5406104	2.36	X	3-3/4	5-1/8	6	5406247	4.69
L	2-15/16	4-1/4	6	5406115	2.46	Y	3-7/8	5-1/4	6	5406258	4.92
M	3-1/16	4-3/8	6	5406126	2.61	Z	3-7/8	5-1/4	6	5406269	5.03

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE
1	2-5/8	3-7/8	12	5405114	1.65	31	1-5/8	2-3/4	12	5405444	0.76
2	2-5/8	3-7/8	12	5405125	1.65	32	1-5/8	2-3/4	12	5405455	0.76
3	2-1/2	3-3/4	12	5405136	1.51	33	1-1/2	2-5/8	12	5405466	0.76
4	2-1/2	3-3/4	12	5405147	1.51	34	1-1/2	2-5/8	12	5405477	0.76
5	2-1/2	3-3/4	12	5405158	1.49	35	1-1/2	2-5/8	12	5405488	0.76
6	2-1/2	3-3/4	12	5405169	1.49	36	1-7/16	2-1/2	12	5405499	0.76
7	2-7/16	3-5/8	12	5405180	1.44	37	1-7/16	2-1/2	12	5405510	0.76
8	2-7/16	3-5/8	12	5405191	1.44	38	1-7/16	2-1/2	12	5405521	0.76
9	2-7/16	3-5/8	12	5405202	1.42	39	1-3/8	2-3/8	12	5405532	0.76
10	2-7/16	3-5/8	12	5405213	1.30	40	1-3/8	2-3/8	12	5405543	0.76
11	2-5/16	3-1/2	12	5405224	1.30	41	1-3/8	2-3/8	12	5405554	0.76
12	2-5/16	3-1/2	12	5405235	1.30	42	1-1/4	2-1/4	12	5405565	0.76
13	2-5/16	3-1/2	12	5405246	1.30	43	1-1/4	2-1/4	12	5405576	0.76
14	2-3/16	3-3/8	12	5405257	1.22	44	1-1/8	2-1/8	12	5405587	0.76
15	2-3/16	3-3/8	12	5405268	1.22	45	1-1/8	2-1/8	12	5405598	0.80
16	2-3/16	3-3/8	12	5405279	1.22	46	1-1/8	2-1/8	12	5405609	0.80
17	2-3/16	3-3/8	12	5405290	1.17	47	1	2	12	5405620	0.80
18	2-1/8	3-1/4	12	5405301	1.17	48	1	2	12	5405631	0.80
19	2-1/8	3-1/4	12	5405312	1.17	49	1	2	12	5405642	0.80
20	2-1/8	3-1/4	12	5405323	1.05	50	1	2	12	5405653	0.80
21	2-1/8	3-1/4	12	5405334	1.05	51	1	2	12	5405664	0.80
22	2	3-1/8	12	5405345	1.01	52	7/8	1-7/8	12	5405675	0.80
23	2	3-1/8	12	5405356	1.01	53	7/8	1-7/8	12	5405686	0.80
24	2	3-1/8	12	5405367	1.01	54	7/8	1-7/8	12	5405697	0.85
25	1-7/8	3	12	5405378	0.87	55	7/8	1-7/8	12	5405708	0.85
26	1-7/8	3	12	5405389	0.87	56	3/4	1-3/4	12	5405719	0.85
27	1-7/8	3	12	5405400	0.87	57	3/4	1-3/4	12	5405730	0.94
28	1-3/4	2-7/8	12	5405411	0.80	58	11/16	1-5/8	12	5405741	0.94
29	1-3/4	2-7/8	12	5405422	0.80	59	11/16	1-5/8	12	5405752	0.94
30	1-5/8	2-3/4	12	5405433	0.78	60	11/16	1-5/8	12	5405763	0.94

For technical information, please see pages 238 & 239.



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

HIGH SPEED STEEL
OXIDE FINISH



HIGH SPEED STEEL
BLACK & GOLD



HSS & COBALT DRILLS

FRACTIONAL SIZES								FRACTIONAL SIZES							
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE
1/16	7/8	1-7/8	12	5407798	0.83	5409063	0.96	19/64	3-1/16	4-3/8	6	5407963	3.01	5409228	3.53
5/64	1	2	12	5407809	0.83	5409074	0.96	5/16	3-3/16	4-1/2	6	5407974	3.10	5409239	3.65
3/32	1-1/4	2-1/4	12	5407820	0.83	5409085	0.96	21/64	3-5/16	4-5/8	6	5407985	3.51	5409250	4.02
7/64	1-1/2	2-5/8	12	5407831	0.83	5409096	0.99	11/32	3-7/16	4-3/4	6	5407996	3.72	5409261	4.31
1/8	1-5/8	2-3/4	12	5407842	0.83	5409107	1.10	23/64	3-1/2	4-7/8	6	5408007	3.92	5409272	4.66
9/64	1-3/4	2-7/8	12	5407853	0.91	5409118	1.15	3/8	3-5/8	5	6	5408018	4.26	5409283	4.87
5/32	2	3-1/8	12	5407864	1.10	5409129	1.38	25/64	3-3/4	5-1/8	6	5408029	4.64	5409294	5.30
11/64	2-1/8	3-1/4	12	5407875	1.17	5409140	1.45	13/32	3-7/8	5-1/4	6	5408040	5.03	5409305	5.83
3/16	2-5/16	3-1/2	12	5407886	1.33	5409151	1.61	27/64	3-15/16	5-3/8	6	5408051	5.42	5409316	6.22
13/64	2-7/16	3-5/8	12	5407897	1.44	5409162	1.76	7/16	4-1/16	5-1/2	6	5408062	5.88	5409327	6.70
7/32	2-1/2	3-3/4	12	5407908	1.58	5409173	1.91	29/64	4-3/16	5-5/8	6	5408073	6.27	5409338	7.12
15/64	2-5/8	3-7/8	12	5407919	1.72	5409184	2.11	15/32	4-5/16	5-3/4	6	5408084	6.82	5409349	7.74
1/4	2-3/4	4	12	5407930	1.83	5409195	2.22	31/64	4-3/8	5-7/8	6	5408095	7.21	5409360	8.16
17/64	2-7/8	4-1/8	6	5407941	2.52	5409206	2.98	1/2	4-1/2	6	6	5408106	7.58	5409371	8.54
9/32	2-15/16	4-1/4	6	5407952	2.73	5409217	3.21								

LETTER SIZES								LETTER SIZES							
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE
A	2-5/8	3-7/8	12	5408777	1.97	5410042	3.11	N	3-1/16	4-3/8	6	5408920	3.72	5410185	4.66
B	2-3/4	4	12	5408788	1.97	5410053	3.11	O	3-3/16	4-1/2	6	5408931	3.72	5410196	4.66
C	2-3/4	4	12	5408799	1.97	5410064	3.11	P	3-5/16	4-5/8	6	5408942	4.20	5410207	5.21
D	2-3/4	4	12	5408810	1.97	5410075	3.01	Q	3-7/16	4-3/4	6	5408953	4.20	5410218	5.36
E	2-3/4	4	12	5408821	1.97	5410086	2.51	R	3-7/16	4-3/4	6	5408964	4.20	5410229	5.58
F	2-7/8	4-1/8	6	5408832	2.50	5410097	3.36	S	3-1/2	4-7/8	6	5408975	4.78	5410240	6.03
G	2-7/8	4-1/8	6	5408843	2.50	5410108	3.63	T	3-1/2	4-7/8	6	5408986	4.78	5410251	6.78
H	2-7/8	4-1/8	6	5408854	2.50	5410119	3.71	U	3-5/8	5	6	5408997	5.08	5410262	6.78
I	2-7/8	4-1/8	6	5408865	2.50	5410130	3.71	V	3-5/8	5	6	5409008	5.08	5410273	6.91
J	2-7/8	4-1/8	6	5408876	3.03	5410141	3.93	W	3-3/4	5-1/8	6	5409019	5.77	5410284	8.46
K	2-15/16	4-1/4	6	5408887	3.03	5410152	4.38	X	3-3/4	5-1/8	6	5409030	5.77	5410295	9.99
L	2-15/16	4-1/4	6	5408898	3.03	5410163	4.23	Y	3-7/8	5-1/4	6	5409041	6.29	5410306	10.11
M	3-1/16	4-3/8	6	5408909	3.72	5410174	4.66	Z	3-7/8	5-1/4	6	5409052	6.29	5410317	10.34

For technical information, please see pages 238 & 239.

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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

HIGH SPEED STEEL
OXIDE FINISH



HIGH SPEED STEEL
BLACK & GOLD



HSS & COBALT DRILLS

WIRE SIZES						WIRE SIZES									
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	BLACK OXIDE	PRICE	BLACK & GOLD	PRICE
1	2-5/8	3-7/8	12	5408117	1.70	5409382	2.88	31	1-5/8	2-3/4	12	5408447	1.19	5409712	1.44
2	2-5/8	3-7/8	12	5408128	1.70	5409393	2.88	32	1-5/8	2-3/4	12	5408458	1.19	5409723	1.44
3	2-1/2	3-3/4	12	5408139	1.58	5409404	2.68	33	1-1/2	2-5/8	12	5408469	1.19	5409734	1.44
4	2-1/2	3-3/4	12	5408150	1.58	5409415	2.68	34	1-1/2	2-5/8	12	5408480	1.19	5409745	1.44
5	2-1/2	3-3/4	12	5408161	1.58	5409426	2.68	35	1-1/2	2-5/8	12	5408491	1.19	5409756	1.44
6	2-1/2	3-3/4	12	5408172	1.58	5409437	2.68	36	1-7/16	2-1/2	12	5408502	1.19	5409767	1.38
7	2-7/16	3-5/8	12	5408183	1.49	5409448	2.36	37	1-7/16	2-1/2	12	5408513	1.19	5409778	1.38
8	2-7/16	3-5/8	12	5408194	1.51	5409459	2.36	38	1-7/16	2-1/2	12	5408524	1.19	5409789	1.38
9	2-7/16	3-5/8	12	5408205	1.51	5409470	2.36	39	1-3/8	2-3/8	12	5408535	1.19	5409800	1.38
10	2-7/16	3-5/8	12	5408216	1.37	5409481	2.31	40	1-3/8	2-3/8	12	5408546	1.19	5409811	1.38
11	2-5/16	3-1/2	12	5408227	1.37	5409492	2.13	41	1-3/8	2-3/8	12	5408557	1.14	5409822	1.38
12	2-5/16	3-1/2	12	5408238	1.37	5409503	2.13	42	1-1/4	2-1/4	12	5408568	1.14	5409833	1.38
13	2-5/16	3-1/2	12	5408249	1.51	5409514	2.05	43	1-1/4	2-1/4	12	5408579	1.14	5409844	1.38
14	2-3/16	3-3/8	12	5408260	1.51	5409525	2.05	44	1-1/8	2-1/8	12	5408590	1.14	5409855	1.38
15	2-3/16	3-3/8	12	5408271	1.51	5409536	2.05	45	1-1/8	2-1/8	12	5408601	1.14	5409866	1.38
16	2-3/16	3-3/8	12	5408282	1.51	5409547	2.05	46	1-1/8	2-1/8	12	5408612	1.14	5409877	1.38
17	2-3/16	3-3/8	12	5408293	1.51	5409558	2.05	47	1	2	12	5408623	1.14	5409888	1.38
18	2-1/8	3-1/4	12	5408304	1.51	5409569	1.80	48	1	2	12	5408634	1.14	5409899	1.38
19	2-1/8	3-1/4	12	5408315	1.44	5409580	1.80	49	1	2	12	5408645	1.14	5409910	1.38
20	2-1/8	3-1/4	12	5408326	1.44	5409591	1.80	50	1	2	12	5408656	1.14	5409921	1.38
21	2-1/8	3-1/4	12	5408337	1.35	5409602	1.79	51	1	2	12	5408667	1.14	5409932	1.38
22	2	3-1/8	12	5408348	1.35	5409613	1.79	52	7/8	1-7/8	12	5408678	1.14	5409943	1.30
23	2	3-1/8	12	5408359	1.35	5409624	1.74	53	7/8	1-7/8	12	5408689	1.14	5409954	1.30
24	2	3-1/8	12	5408370	1.35	5409635	1.74	54	7/8	1-7/8	12	5408700	1.14	5409965	1.30
25	1-7/8	3	12	5408381	1.35	5409646	1.74	55	7/8	1-7/8	12	5408711	1.14	5409976	1.30
26	1-7/8	3	12	5408392	1.35	5409657	1.74	56	3/4	1-3/4	12	5408722	1.14	5409987	1.30
27	1-7/8	3	12	5408403	1.35	5409668	1.68	57	3/4	1-3/4	12	5408733	1.14	5409998	1.30
28	1-3/4	2-7/8	12	5408414	1.35	5409679	1.68	58	11/16	1-5/8	12	5408744	1.14	5410009	1.30
29	1-3/4	2-7/8	12	5408425	1.08	5409690	1.65	59	11/16	1-5/8	12	5408755	1.14	5410020	1.30
30	1-5/8	2-3/4	12	5408436	1.08	5409701	1.44	60	11/16	1-5/8	12	5408766	1.14	5410031	1.30

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

For technical information, please see pages 238 & 239.



M42 Cobalt Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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

NAS 907 - M42 COBALT



NAS 907 - M42 COBALT
ALTIN COATED



HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
1/16	7/8	1-7/8	12	5411923 1.40	5535266 2.51
5/64	1	2	12	5411934 1.40	5535277 2.51
3/32	1-1/4	2-1/4	12	5411945 1.40	5535288 2.51
7/64	1-1/2	2-5/8	12	5411956 1.47	5535299 2.66
1/8	1-5/8	2-3/4	12	5411967 1.81	5535310 3.25
9/64	1-3/4	2-7/8	12	5411978 1.81	5535321 3.25
5/32	2	3-1/8	12	5411989 2.02	5535332 3.65
11/64	2-1/8	3-1/4	12	5412000 2.13	5535343 3.85
3/16	2-5/16	3-1/2	12	5412011 2.39	5535354 4.32
13/64	2-7/16	3-5/8	12	5412022 2.87	5535365 5.18
7/32	2-1/2	3-3/4	12	5412033 3.14	5535376 5.67
15/64	2-5/8	3-7/8	12	5412044 3.33	5535387 6.01
1/4	2-3/4	4	12	5412055 3.56	5535398 6.45
17/64	2-7/8	4-1/8	6	5412066 4.04	5535409 7.29
9/32	2-15/16	4-1/4	6	5412077 4.23	5535420 7.65

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
19/64	3-1/16	4-3/8	6	5412088 5.16	5535431 9.31
5/16	3-3/16	4-1/2	6	5412099 5.49	5535442 9.91
21/64	3-5/16	4-5/8	6	5412110 6.08	5535453 10.98
11/32	3-7/16	4-3/4	6	5412121 6.68	5535464 12.06
23/64	3-1/2	4-7/8	6	5412132 7.65	5535475 13.81
3/8	3-5/8	5	6	5412143 7.65	5535486 13.81
25/64	3-3/4	5-1/8	6	5412154 8.70	5535497 15.70
13/32	3-7/8	5-1/4	6	5412165 9.07	5535508 16.39
27/64	3-15/16	5-3/8	6	5412176 10.02	5535519 18.12
7/16	4-1/16	5-1/2	6	5412187 10.25	5535530 18.54
29/64	4-3/16	5-5/8	6	5412198 12.31	5535541 22.24
15/32	4-5/16	5-3/4	6	5412209 12.54	5535552 22.65
31/64	4-3/8	5-7/8	6	5412220 12.61	5535563 22.78
1/2	4-1/2	6	6	5412231 12.61	5535574 22.78

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
A	2-5/8	3-7/8	12	5413122 3.77	5536245 6.81
B	2-3/4	4	12	5413133 4.36	5536256 7.85
C	2-3/4	4	12	5413144 4.36	5536267 7.85
D	2-3/4	4	12	5413155 4.91	5536278 8.85
E	2-3/4	4	12	5413166 3.56	5536289 6.45
F	2-7/8	4-1/8	6	5413177 4.36	5536300 7.85
G	2-7/8	4-1/8	6	5413188 4.36	5536311 7.85
H	2-7/8	4-1/8	6	5413199 4.91	5536322 8.85
I	2-7/8	4-1/8	6	5413210 4.91	5536333 8.85
J	2-7/8	4-1/8	6	5413221 4.91	5536344 8.85
K	2-15/16	4-1/4	6	5413232 4.91	5536355 8.85
L	2-15/16	4-1/4	6	5413243 5.56	5536366 10.05
M	3-1/16	4-3/8	6	5413254 5.90	5536377 10.67

LETTER SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE
N	3-1/16	4-3/8	6	5413265 5.90	5536388 10.67
O	3-3/16	4-1/2	6	5413276 6.52	5536399 11.79
P	3-5/16	4-5/8	6	5413287 6.93	5536410 12.53
Q	3-7/16	4-3/4	6	5413298 7.19	5536421 12.98
R	3-7/16	4-3/4	6	5413309 7.19	5536432 12.98
S	3-1/2	4-7/8	6	5413320 8.80	5536443 15.92
T	3-1/2	4-7/8	6	5413331 8.80	5536454 15.92
U	3-5/8	5	6	5413342 8.80	5536465 15.92
V	3-5/8	5	6	5413353 9.71	5536476 17.54
W	3-3/4	5-1/8	6	5413364 9.71	5536487 17.54
X	3-3/4	5-1/8	6	5413375 9.71	5536498 17.54
Y	3-7/8	5-1/4	6	5413386 10.29	5536509 18.59
Z	3-7/8	5-1/4	6	5413397 11.19	5536520 20.22

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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

NAS 907 - M42 COBALT



NAS 907 - M42 COBALT
ALTIN COATED



HSS & COBALT DRILLS

WIRE SIZES							WIRE SIZES								
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE		SIZE	FLUTE LENGTH	OAL	PKG. QTY.	UNCOATED PRICE	ALTIN PRICE			
1	2-5/8	3-7/8	12	5412242	3.81	5535585	3.81	31	1-5/8	2-3/4	12	5412572	1.61	5535915	2.93
2	2-5/8	3-7/8	12	5412253	3.81	5535596	3.81	32	1-5/8	2-3/4	12	5412583	1.60	5535926	2.89
3	2-1/2	3-3/4	12	5412264	3.56	5535607	3.56	33	1-1/2	2-5/8	12	5412594	1.54	5535937	2.78
4	2-1/2	3-3/4	12	5412275	3.56	5535618	3.56	34	1-1/2	2-5/8	12	5412605	1.54	5535948	2.78
5	2-1/2	3-3/4	12	5412286	3.56	5535629	3.56	35	1-1/2	2-5/8	12	5412616	1.54	5535959	2.78
6	2-1/2	3-3/4	12	5412297	3.56	5535640	3.56	36	1-7/16	2-1/2	12	5412627	1.53	5535970	2.75
7	2-7/16	3-5/8	12	5412308	2.78	5535651	2.78	37	1-7/16	2-1/2	12	5412638	1.53	5535981	2.75
8	2-7/16	3-5/8	12	5412319	2.78	5535662	2.78	38	1-7/16	2-1/2	12	5412649	1.42	5535992	2.63
9	2-7/16	3-5/8	12	5412330	2.78	5535673	2.78	39	1-3/8	2-3/8	12	5412660	1.42	5536003	2.63
10	2-7/16	3-5/8	12	5412341	2.78	5535684	2.78	40	1-3/8	2-3/8	12	5412671	1.42	5536014	2.63
11	2-5/16	3-1/2	12	5412352	2.78	5535695	2.78	41	1-3/8	2-3/8	12	5412682	1.40	5536025	2.63
12	2-5/16	3-1/2	12	5412363	2.78	5535706	2.78	42	1-1/4	2-1/4	12	5412693	1.38	5536036	2.63
13	2-5/16	3-1/2	12	5412374	2.73	5535717	2.73	43	1-1/4	2-1/4	12	5412704	1.38	5536047	2.63
14	2-3/16	3-3/8	12	5412385	2.73	5535728	2.73	44	1-1/8	2-1/8	12	5412715	1.38	5536058	2.63
15	2-3/16	3-3/8	12	5412396	2.73	5535739	2.73	45	1-1/8	2-1/8	12	5412726	1.38	5536069	2.63
16	2-3/16	3-3/8	12	5412407	2.48	5535750	2.48	46	1-1/8	2-1/8	12	5412737	1.38	5536080	2.63
17	2-3/16	3-3/8	12	5412418	2.42	5535761	2.42	47	1	2	12	5412748	1.38	5536091	2.63
18	2-1/8	3-1/4	12	5412429	2.22	5535772	2.22	48	1	2	12	5412759	1.38	5536102	2.63
19	2-1/8	3-1/4	12	5412440	2.16	5535783	2.16	49	1	2	12	5412770	1.38	5536113	2.63
20	2-1/8	3-1/4	12	5412451	2.16	5535794	2.16	50	1	2	12	5412781	1.38	5536124	2.63
21	2-1/8	3-1/4	12	5412462	2.14	5535805	2.14	51	1	2	12	5412792	1.38	5536135	2.63
22	2	3-1/8	12	5412473	2.14	5535816	2.14	52	7/8	1-7/8	12	5412803	1.38	5536146	2.63
23	2	3-1/8	12	5412484	2.14	5535827	2.14	53	7/8	1-7/8	12	5412814	1.54	5536157	2.80
24	2	3-1/8	12	5412495	2.14	5535838	2.14	54	7/8	1-7/8	12	5412825	1.54	5536168	2.80
25	1-7/8	3	12	5412506	1.97	5535849	1.97	55	7/8	1-7/8	12	5412836	1.54	5536179	2.80
26	1-7/8	3	12	5412517	1.93	5535860	1.93	56	3/4	1-3/4	12	5412847	1.74	5536190	3.16
27	1-7/8	3	12	5412528	1.93	5535871	1.93	57	3/4	1-3/4	12	5412858	1.74	5536201	3.16
28	1-3/4	2-7/8	12	5412539	1.81	5535882	1.81	58	11/16	1-5/8	12	5412869	1.74	5536212	3.16
29	1-3/4	2-7/8	12	5412550	1.76	5535893	1.76	59	11/16	1-5/8	12	5412880	1.74	5536223	3.16
30	1-5/8	2-3/4	12	5412561	1.67	5535904	1.67	60	11/16	1-5/8	12	5412891	1.74	5536234	3.16

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.



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

TAPER LENGTH - 118° POINT



OXIDE FINISH

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	PRICE
3/64	1-1/8	2-1/4	12	5413683	5.47
1/16	1-3/4	3	12	5413694	5.47
5/64	2	3-3/4	12	5413705	5.47
3/32	2-1/4	4-1/4	12	5413716	5.09
7/64	2-1/2	4-5/8	12	5413727	5.32
1/8	2-3/4	5-1/8	12	5413738	5.47
9/64	3	5-3/8	12	5413749	7.31
5/32	3	5-3/8	12	5413760	7.39
11/64	3-3/8	5-3/4	12	5413771	7.75
3/16	3-3/8	5-3/4	12	5413782	7.21
13/64	3-5/8	6	12	5413793	8.80
7/32	3-5/8	6	12	5413804	9.49
15/64	3-3/4	6-1/8	12	5413815	9.49
1/4	3-3/4	6-1/8	12	5413826	8.19
17/64	3-7/8	6-1/4	6	5413837	9.93
9/32	3-7/8	6-1/4	6	5413848	9.93
19/64	4	6-3/8	6	5413859	10.81
5/16	4	6-3/8	6	5413870	10.81
21/64	4-1/8	6-1/2	6	5413881	10.81
11/32	4-1/8	6-1/2	6	5413892	10.81
23/64	4-1/4	6-3/4	6	5413903	12.74
3/8	4-1/4	6-3/4	6	5413914	12.74
25/64	4-3/8	6-3/4	6	5413925	14.50
13/32	4-3/8	7	6	5413936	14.50
27/64	4-5/8	7-1/4	6	5413947	15.38
7/16	4-5/8	7-1/4	6	5413958	15.38
29/64	4-3/4	7-1/2	6	5413969	17.51
15/32	4-3/4	7-1/2	6	5413980	17.51
31/64	4-3/4	7-3/4	6	5413991	18.52
1/2	4-3/4	7-3/4	6	5414002	18.52
33/64	4-3/4	8	1	5414013	24.60
17/32	4-3/4	8	1	5414024	24.60
35/64	4-7/8	8-1/4	1	5414035	25.85
9/16	4-7/8	8-1/4	1	5414046	25.85

FRACTIONAL SIZES

SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	PRICE
37/64	4-7/8	8-3/4	1	5414057	30.25
19/32	4-7/8	8-3/4	1	5414068	30.25
39/64	4-7/8	8-3/4	1	5414079	31.34
5/8	4-7/8	8-3/4	1	5414090	31.34
41/64	5-1/8	9	1	5414101	35.67
21/32	5-1/8	9	1	5414112	35.67
43/64	5-3/8	9-1/4	1	5414123	42.20
11/16	5-3/8	9-1/4	1	5414134	42.20
45/64	5-5/8	9-1/2	1	5414145	44.13
23/32	5-5/8	9-1/2	1	5414156	44.13
47/64	5-7/8	9-3/4	1	5414167	47.46
3/4	5-7/8	9-3/4	1	5414178	47.46
49/64	6	9-7/8	1	5414189	51.42
25/32	6	9-7/8	1	5414200	51.42
51/64	6-1/8	10	1	5414211	55.52
13/16	6-1/8	10	1	5414222	55.52
53/64	6-1/8	10	1	5414233	58.46
27/32	6-1/8	10	1	5414244	58.46
55/64	6-1/8	10	1	5414255	61.35
7/8	6-1/8	10	1	5414266	61.35
57/64	6-1/8	10	1	5414277	63.95
29/32	6-1/8	10	1	5414288	63.95
59/64	6-1/8	10-3/4	1	5414299	69.52
15/16	6-1/8	10-3/4	1	5414310	69.52
61/64	6-3/8	11	1	5414321	76.73
31/32	6-3/8	11	1	5414332	76.73
63/64	6-3/8	11	1	5414343	79.98
1	6-3/8	11	1	5414354	79.98
1-1/16	6-5/8	11-1/4	1	5414376	99.11
1-1/8	7-1/8	11-3/4	1	5414398	110.32
1-3/16	7-3/8	12	1	5414420	129.30
1-1/4	7-7/8	12-1/2	1	5414442	138.48
1-5/16	8-5/8	14-1/4	1	5414464	165.25
1-3/8	8-7/8	14-1/2	1	5414486	177.22

For technical information, please see pages 238 & 239.

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



TAPER LENGTH - 118° POINT



OXIDE FINISH

WIRE SIZES						WIRE SIZES					
SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	PRICE	SIZE	FLUTE LENGTH	OAL	PKG. QTY.	OXIDE	PRICE
1	3-3/4	6-1/8	12	5414574	9.95	21	3-3/8	5-3/4	12	5414794	8.74
2	3-3/4	6-1/8	12	5414585	9.95	22	3-3/8	5-3/4	12	5414805	8.74
3	3-5/8	6	12	5414596	9.62	23	3	5-3/8	12	5414816	8.74
4	3-5/8	6	12	5414607	9.62	24	3	5-3/8	12	5414827	8.74
5	3-5/8	6	12	5414618	9.62	25	3	5-3/8	12	5414838	8.74
6	3-5/8	6	12	5414629	9.62	26	3	5-3/8	12	5414849	8.74
7	3-5/8	6	12	5414640	9.62	27	3	5-3/8	12	5414860	8.74
8	3-5/8	6	12	5414651	9.62	28	3	5-3/8	12	5414871	8.74
9	3-5/8	6	12	5414662	9.62	29	3	5-3/8	12	5414882	8.74
10	3-5/8	6	12	5414673	9.62	30	3	5-3/8	12	5414893	8.74
11	3-5/8	6	12	5414684	9.62	31	2-3/4	5-1/8	12	5414904	8.57
12	3-5/8	6	12	5414695	9.62	32	2-3/4	5-1/8	12	5414915	8.57
13	3-3/8	5-3/4	12	5414706	8.74	33	2-3/4	5-1/8	12	5414926	8.57
14	3-3/8	5-3/4	12	5414717	8.74	34	2-3/4	5-1/8	12	5414937	8.57
15	3-3/8	5-3/4	12	5414728	8.74	35	2-3/4	5-1/8	12	5414948	8.57
16	3-3/8	5-3/4	12	5414739	8.74	36	2-1/2	4-5/8	12	5414959	6.41
17	3-3/8	5-3/4	12	5414750	8.74	37	2-1/2	4-5/8	12	5414970	6.41
18	3-3/8	5-3/4	12	5414761	8.74	38	2-1/2	4-5/8	12	5414981	6.41
19	3-3/8	5-3/4	12	5414772	8.74	39	2-1/2	4-5/8	12	5414992	5.63
20	3-3/8	5-3/4	12	5414783	8.74	40	2-1/2	4-5/8	12	5415003	5.63



HSS & COBALT DRILLS

For technical information, please see pages 238 & 239.



HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

TAPER SHANK - 118° POINT



OXIDE FINISH

HSS & COBALT DRILLS

FRACTIONAL SIZES						FRACTIONAL SIZES					
SIZE	MORSE TAPER	FLUTE LENGTH	OAL	OXIDE	PRICE	SIZE	MORSE TAPER	FLUTE LENGTH	OAL	OXIDE	PRICE
3/16	1	2-1/2	5-3/4	5415201	19.34	13/16	3	6-1/8	10-3/4	5415641	64.83
13/64	1	2-3/4	6	5415212	19.34	53/64	3	6-1/8	10-3/4	5415652	71.82
7/32	1	2-3/4	6	5415223	19.34	27/32	3	6-1/8	10-3/4	5415663	69.88
15/64	1	2-7/8	6-1/8	5415234	19.34	55/64	3	6-1/8	10-3/4	5415674	78.86
1/4	1	2-7/8	6-1/8	5415245	19.34	7/8	3	6-1/8	10-3/4	5415685	72.01
17/64	1	3	6-1/4	5415256	19.34	57/64	3	6-1/8	10-3/4	5415696	76.04
9/32	1	3	6-1/4	5415267	19.34	29/32	3	6-1/8	10-3/4	5415707	76.04
19/64	1	3-1/8	6-3/8	5415278	20.49	59/64	3	6-1/8	10-3/4	5415718	77.10
5/16	1	3-1/8	6-3/8	5415289	21.54	15/16	3	6-1/8	10-3/4	5415729	72.26
21/64	1	3-1/4	6-1/2	5415300	21.54	61/64	3	6-3/8	11	5415740	79.19
11/32	1	3-1/4	6-1/2	5415311	21.54	31/32	3	6-3/8	11	5415751	78.66
23/64	1	3-1/2	6-3/4	5415322	21.98	63/64	3	6-3/8	11	5415762	84.04
3/8	1	3-1/2	6-3/4	5415333	21.98	1	3	6-3/8	11	5415773	79.98
25/64	1	3-5/8	7	5415344	26.11	1-1/64	3	6-1/2	11-1/8	5415784	92.99
13/32	1	3-5/8	7	5415355	26.11	1-1/32	3	6-1/2	11-1/8	5415795	92.30
27/64	1	3-7/8	7-1/4	5415366	28.12	1-3/64	3	6-5/8	11-1/4	5415806	96.70
7/16	1	3-7/8	7-1/4	5415377	28.12	1-1/16	3	6-5/8	11-1/4	5415817	92.30
29/64	1	4-1/8	7-1/2	5415388	28.12	1-5/64	4	6-7/8	12-1/2	5415828	109.86
15/32	1	4-1/8	7-1/2	5415399	28.12	1-3/32	4	6-7/8	12-1/2	5415839	109.86
31/64	2	4-3/8	8-1/4	5415410	30.76	1-7/64	4	7-1/8	12-3/4	5415850	114.26
1/2	2	4-3/8	8-1/4	5415421	28.79	1-1/8	4	7-1/8	12-3/4	5415861	114.26
33/64	2	4-5/8	8-1/2	5415432	33.19	1-9/64	4	7-1/4	12-7/8	5415872	123.06
17/32	2	4-5/8	8-1/2	5415443	34.28	1-5/32	4	7-1/4	12-7/8	5415883	118.66
35/64	2	4-7/8	8-3/4	5415454	36.12	1-11/64	4	7-3/8	13	5415894	123.06
9/16	2	4-7/8	8-3/4	5415465	35.16	1-3/16	4	7-3/8	13	5415905	123.06
37/64	2	4-7/8	8-3/4	5415476	38.45	1-13/64	4	7-1/2	13-1/8	5415916	131.84
19/32	2	4-7/8	8-3/4	5415487	37.80	1-7/32	4	7-1/2	13-1/8	5415927	131.84
39/64	2	4-7/8	8-3/4	5415498	40.00	1-1/4	4	7-7/8	13-1/2	5415949	138.00
5/8	2	4-7/8	8-3/4	5415509	38.24	1-5/16	4	8-5/8	14-1/4	5415982	169.65
41/64	2	5-1/8	9	5415520	43.96	1-3/8	4	8-7/8	14-1/2	5416004	181.07
21/32	2	5-1/8	9	5415531	43.08	1-7/16	4	9-1/8	14-3/4	5416026	198.65
43/64	2	5-3/8	9-1/4	5415542	47.46	1-1/2	4	9-3/8	15	5416048	208.33
11/16	2	5-3/8	9-1/4	5415553	44.82	1-9/16	5	9-5/8	16-5/8	5416070	254.03
45/64	2	5-5/8	9-1/2	5415564	49.22	1-5/8	5	10	17	5416092	274.25
23/32	2	5-5/8	9-1/2	5415575	47.56	1-11/16	5	10-1/8	17-1/8	5416114	302.39
47/64	2	5-7/8	9-3/4	5415586	52.74	1-3/4	5	10-1/8	17-1/8	5416136	321.73
3/4	2	5-7/8	9-3/4	5415597	52.30	1-13/16	5	10-1/8	17-1/8	5416158	345.45
49/64	2	6	9-7/8	5415608	63.04	1-7/8	5	10-3/8	17-3/8	5416180	360.39
25/32	2	6	9-7/8	5415619	62.67	1-15/16	5	10-3/8	17-3/8	5416202	388.53
51/64	3	6-1/8	10-3/4	5415630	69.00	2	5	10-3/8	17-3/8	5416224	402.59

Taper shank drills sold individually.

For technical information, please see pages 238 & 239.

HSS Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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



BRIGHT FINISH

FRACTIONAL SIZES					FRACTIONAL SIZES				
SIZE	FLUTE LENGTH	OAL	BRIGHT	PRICE	SIZE	FLUTE LENGTH	OAL	BRIGHT	PRICE
1/8	9	12	5417863	21.60	3/8	9	12	5418039	28.85
9/64	9	12	5417874	31.31	25/64	9	12	5418050	43.66
5/32	9	12	5417885	28.47	13/32	9	12	5418061	43.66
11/64	9	12	5417896	24.28	27/64	9	12	5418072	43.66
3/16	9	12	5417907	24.28	7/16	9	12	5418083	37.28
13/64	9	12	5417918	29.42	29/64	9	12	5418094	45.56
7/32	9	12	5417929	26.35	15/32	9	12	5418105	41.00
15/64	9	12	5417940	26.35	31/64	9	12	5418116	41.95
1/4	9	12	5417951	27.24	1/2	9	12	5418127	41.95
17/64	9	12	5417962	28.19	17/32	9	12	5418149	53.15
9/32	9	12	5417973	28.19	9/16	9	12	5418171	53.15
19/64	9	12	5417984	29.22	19/32	9	12	5418193	66.43
5/16	9	12	5417995	29.22	5/8	9	12	5418215	64.54
21/64	9	12	5418006	31.31	11/16	9	12	5418259	68.33
11/32	9	12	5418017	31.31	3/4	9	12	5418303	76.97
23/64	9	12	5418028	31.31					

HSS & COBALT DRILLS

SCREW EXTRACTORS



SIZE	FOR SCREW & BOLT SIZES	PIPE SIZE	PKG. QTY.	ITEM#	PRICE
1	3/16 - 1/4	-	1	5415014	3.60
2	1/4 - 5/16	-	1	5415025	3.83
3	5/16 - 7/16	-	1	5415036	4.64
4	7/16 - 9/16	1/8	1	5415047	4.93
5	9/16 - 3/4	1/4	1	5415058	6.16
6	3/4-1	3/8	1	5415069	13.52
7	1 - 1-3/8	1/2	1	5415080	21.76
8	1-3/8 - 1-3/4	3/4	1	5415091	29.60
9	1-3/4 - 2-1/8	1	1	5415102	51.48
10	2-1/8 - 2-1/2	1-1/4	1	5415113	133.58
SET	SIZES 1-5	-	1	5415146	23.13

All tools sold individually.
For technical information, please see pages 238 & 239.



Aircraft Extension Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

6" OVERALL LENGTH - 135° SPLIT POINT



HIGH SPEED STEEL - NAS 907 - TYPE "B"
OXIDE FINISH



M42 COBALT - NAS 907 - TYPE "J"

HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	PRICE	COBALT	PRICE
3/32	6	1-1/4	12	5416433	3.54	5416741	5.85
7/64	6	1-1/2	12	5416444	3.52	5416752	6.63
1/8	6	1-5/8	12	5416455	3.47	5416763	5.44
9/64	6	1-3/4	12	5416466	4.13	5416774	7.43
5/32	6	2	12	5416477	4.57	5416785	7.43
11/64	6	2-1/8	12	5416488	5.04	5416796	8.18
3/16	6	2-5/16	12	5416499	4.99	5416807	6.89
13/64	6	2-7/16	12	5416510	6.08	5416818	10.13
7/32	6	2-1/2	12	5416521	6.08	5416829	10.39
15/64	6	2-5/8	12	5416532	6.76	5416840	11.04
1/4	6	2-3/4	12	5416543	6.01	5416851	10.78
17/64	6	2-7/8	6	5416554	15.33	-	-
9/32	6	2-15/16	6	5416565	15.85	-	-
19/64	6	3-1/16	6	5416576	18.70	-	-
5/16	6	3-3/16	6	5416587	20.26	-	-
21/64	6	3-5/16	6	5416598	21.82	-	-
11/32	6	3-7/16	6	5416609	21.82	-	-
23/64	6	3-1/2	6	5416620	24.29	-	-
3/8	6	3-5/8	6	5416631	24.68	-	-

WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	PRICE	COBALT	PRICE
1	6	2-5/8	12	5416642	7.02	5416862	11.56
2	6	2-5/8	12	5416653	7.02	5416873	11.56
10	6	2-7/16	12	5416664	5.46	5416884	7.88
11	6	2-5/16	12	5416675	5.46	5416895	7.58
20	6	2-1/8	12	5416686	4.55	5416906	7.17
21	6	2-1/8	12	5416697	4.78	5416917	7.17
29	6	1-3/4	12	5416708	5.07	5416928	7.92
30	6	1-5/8	12	5416719	3.90	5416939	5.46
40	6	1-5/8	12	5416730	3.20	5416950	4.96

For technical information, please see pages 238 & 239.

Aircraft Extension Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



12" OVERALL LENGTH - 135° SPLIT POINT



HIGH SPEED STEEL - NAS 907 - TYPE "B"
OXIDE FINISH



M42 COBALT - NAS 907 - TYPE "J"

HSS & COBALT DRILLS

FRACTIONAL SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	PRICE	COBALT	PRICE
1/8	12	1-5/8	12	5416961	10.03	5418314	16.63
9/64	12	1-3/4	12	5416972	10.12	5418325	18.31
5/32	12	2	12	5416983	10.12	5418336	16.89
11/64	12	2-1/8	12	5416994	11.41	5418347	18.18
3/16	12	2-5/16	12	5417005	11.29	5418358	17.67
13/64	12	2-7/16	12	5417016	12.95	5418369	23.12
7/32	12	2-1/2	12	5417027	12.82	5418380	21.04
15/64	12	2-5/8	12	5417038	14.44	5418391	22.34
1/4	12	2-3/4	12	5417049	15.72	5418402	20.43
17/64	12	2-7/8	6	5417060	18.18	-	-
9/32	12	2-15/16	6	5417071	18.06	-	-
19/64	12	3-1/16	6	5417082	20.20	-	-
5/16	12	3-3/16	6	5417093	22.12	-	-
21/64	12	3-5/16	6	5417104	24.03	-	-
11/32	12	3-7/16	6	5417115	23.76	-	-
23/64	12	3-1/2	6	5417126	26.92	-	-
3/8	12	3-5/8	6	5417137	27.17	-	-
25/64	12	3-3/4	6	5417148	30.30	-	-
13/32	12	3-7/8	6	5417159	29.21	-	-
27/64	12	3-15/16	6	5417170	32.22	-	-
7/16	12	4-1/16	6	5417181	32.27	-	-
29/64	12	4-3/16	6	5417192	36.41	-	-
15/32	12	4-5/16	6	5417203	37.73	-	-
31/64	12	4-3/8	6	5417214	39.12	-	-
1/2	12	4-1/2	6	5417225	38.70	-	-

WIRE SIZES

SIZE	OVERALL LENGTH	FLUTE LENGTH	PACKAGE QUANTITY	HSS	PRICE	COBALT	PRICE
1	12	2-5/8	12	5417236	15.73	5418413	24.94
10	12	2-7/16	12	5417247	12.65	5418424	19.22
11	12	2-5/16	12	5417258	12.76	5418435	18.57
20	12	2-1/8	12	5417269	11.48	5418446	17.15
21	12	2-1/8	12	5417280	11.27	5418457	17.15
29	12	1-3/4	12	5417291	11.94	5418468	17.80
30	12	1-5/8	12	5417302	11.27	5418479	16.24
40	12	1-3/8	12	5417313	11.27	5418490	17.80

For technical information, please see pages 238 & 239.



Silver & Deming Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HSS & COBALT DRILLS



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

SIZE	OAL	ITEM#	PRICE
33/64	6	5420591	15.94
17/32	6	5420602	15.94
35/64	6	5420613	16.82
9/16	6	5420624	16.82
37/64	6	5420635	18.06
19/32	6	5420646	18.06
39/64	6	5420657	18.98
5/8	6	5420668	18.98
41/64	6	5420679	19.89
21/32	6	5420690	19.89
43/64	6	5420701	21.14
11/16	6	5420712	21.14
45/64	6	5420723	21.23
23/32	6	5420734	21.23
47/64	6	5420745	23.16

SIZE	OAL	ITEM#	PRICE
3/4	6	5420756	23.23
49/64	6	5420767	24.63
25/32	6	5420778	24.63
51/64	6	5420789	25.89
13/16	6	5420800	25.89
53/64	6	5420811	26.90
27/32	6	5420822	26.90
55/64	6	5420833	27.78
7/8	6	5420844	27.78
57/64	6	5420855	28.92
29/32	6	5420866	28.92
59/64	6	5420877	31.48
15/16	6	5420888	31.48
61/64	6	5420899	33.01
31/32	6	5420910	33.01

SIZE	OAL	ITEM#	PRICE
63/64	6	5420921	36.80
1	6	5420932	36.80
1-1/32	6	5420943	49.37
1-1/16	6	5420954	49.37
1-3/32	6	5420965	52.64
1-1/8	6	5420976	56.24
1-5/32	6	5420987	56.24
1-3/16	6	5420998	62.26
1-7/32	6	5421009	68.90
1-1/4	6	5421020	68.90
1-5/16	6	5421031	72.88
1-3/8	6	5421042	83.95
1-7/16	6	5421053	92.31
1-1/2	6	5421064	101.43



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

SIZE	OAL	ITEM#	PRICE
33/64	6	5421075	17.37
17/32	6	5421086	17.37
35/64	6	5421097	18.47
9/16	6	5421108	18.47
37/64	6	5421119	19.85
19/32	6	5421130	19.85
39/64	6	5421141	20.77
5/8	6	5421152	20.77
41/64	6	5421163	22.15
21/32	6	5421174	22.15
43/64	6	5421185	23.04

SIZE	OAL	ITEM#	PRICE
11/16	6	5421196	23.04
45/64	6	5421207	23.34
23/32	6	5421218	23.34
47/64	6	5421229	25.43
3/4	6	5421240	25.43
49/64	6	5421251	27.13
25/32	6	5421262	27.13
51/64	6	5421273	29.73
13/16	6	5421284	29.73
53/64	6	5421295	30.97
27/32	6	5421306	30.97

SIZE	OAL	ITEM#	PRICE
55/64	6	5421317	33.04
7/8	6	5421328	33.04
57/64	6	5421339	34.28
29/32	6	5421350	34.28
59/64	6	5421361	35.10
15/16	6	5421372	35.10
61/64	6	5421383	36.74
31/32	6	5421394	36.74
63/64	6	5421405	40.27
1	6	5421416	40.27

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

Silver & Deming Drills

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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

SIZE	OAL	ITEM#	PRICE
33/64	6	5421779	20.35
17/32	6	5421790	20.35
35/64	6	5421801	21.55
9/16	6	5421812	21.55
37/64	6	5421823	22.88
19/32	6	5421834	22.88
39/64	6	5421845	23.78
5/8	6	5421856	23.78
41/64	6	5421867	25.23
21/32	6	5421878	25.23
43/64	6	5421889	26.31

SIZE	OAL	ITEM#	PRICE
11/16	6	5421900	26.31
45/64	6	5421911	27.41
23/32	6	5421922	27.41
47/64	6	5421933	28.60
3/4	6	5421944	28.60
49/64	6	5421955	30.19
25/32	6	5421966	30.19
51/64	6	5421977	32.12
13/16	6	5421988	32.12
53/64	6	5421999	33.52
27/32	6	5422010	33.52

SIZE	OAL	ITEM#	PRICE
55/64	6	5422021	34.42
7/8	6	5422032	34.42
57/64	6	5422043	35.92
29/32	6	5422054	35.92
59/64	6	5422065	38.62
15/16	6	5422076	38.62
61/64	6	5422087	41.59
31/32	6	5422098	41.59
63/64	6	5422109	43.68
1	6	5422120	43.68

HSS & COBALT DRILLS



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

SIZE	OAL	ITEM#	PRICE
33/64	6	5421427	31.70
17/32	6	5421438	31.70
35/64	6	5421449	38.14
9/16	6	5421460	38.14
37/64	6	5421471	39.43
19/32	6	5421482	39.43
39/64	6	5421493	40.44
5/8	6	5421504	40.44
41/64	6	5421515	42.43
21/32	6	5421526	42.43
43/64	6	5421537	43.29

SIZE	OAL	ITEM#	PRICE
11/16	6	5421548	43.29
45/64	6	5421559	45.67
23/32	6	5421570	45.67
47/64	6	5421581	47.65
3/4	6	5421592	47.65
49/64	6	5421603	49.83
25/32	6	5421614	49.83
51/64	6	5421625	51.16
13/16	6	5421636	51.16
53/64	6	5421647	55.28
27/32	6	5421658	55.28

SIZE	OAL	ITEM#	PRICE
55/64	6	5421669	55.28
7/8	6	5421680	55.28
57/64	6	5421691	57.39
29/32	6	5421702	57.39
59/64	6	5421713	59.87
15/16	6	5421724	59.87
61/64	6	5421735	63.18
31/32	6	5421746	63.18
63/64	6	5421757	71.69
1	6	5421768	71.69

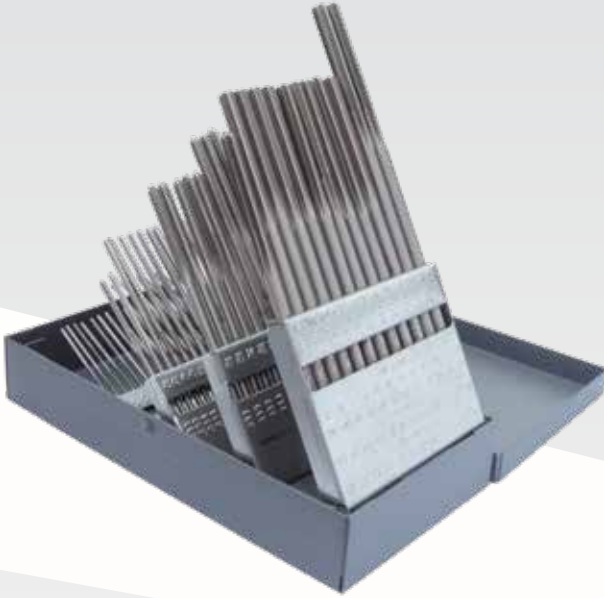
All S & D drills have 3" flute length.
For technical information, please see pages 238 & 239.



Reamer Sets

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HSS & COBALT REAMERS



ITEM# 5485799
60 PC. #1 - #60
HIGH SPEED STEEL



ITEM# 5485777
29 PC. 1/16" - 1/2" BY 64ths
HIGH SPEED STEEL

HSS & M42 COBALT

DESCRIPTION	FLUTE STYLE	ITEM#	PRICE
10Pc • #4 - 1/2" • Standard • Ctr Bore Set • HSS	RH Spiral	5485887	321.11
10Pc • #4 - 1/2" • 1/64" OS • Ctr Bore Set • HSS	RH Spiral	5485898	321.11
10Pc • #4 - 1/2" • 1/32" OS • Ctr Bore Set • HSS	RH Spiral	5485909	321.11
14Pc • Dowel Pin • .1230 - .4995 • HSS	Straight	5485755	326.68
14Pc • Dowel Pin • .1230 - .4995 • M42 Cobalt	Straight	5485766	428.50
14Pc • O/U • .1240 - .5010 • HSS	Straight	5485843	326.68
14Pc • O/U • .1240 - .5010 • M42 Cobalt	Straight	5485854	409.47
20Pc • #61 - #80 • HSS	Straight	5485865	382.93
26Pc • A-Z • HSS	Straight	5485821	582.83
26Pc • A-Z • M42 Cobalt	Straight	5485832	811.30
29Pc • 1/16" - 1/2" by 64ths • HSS	Straight	5485777	629.85
29Pc • 1/16" - 1/2" by 64ths • M42 Cobalt	Straight	5485788	825.09
60Pc • #1 - #60 • HSS	Straight	5485799	934.41
60Pc • #1 - #60 • M42 Cobalt	Straight	5485810	1014.51

For technical information, please see page 240.

Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
80	.0135	3/8	2	3/4	.0135	5482708	18.18	5485920	20.13
79	.0145	3/8	2	3/4	.0145	5482719	18.18	5485931	20.13
1/64	.0156	3/8	2	3/4	.0156	5482730	18.18	5485942	20.13
78	.0160	3/8	2	7/8	.0160	5482741	18.18	5485953	20.13
77	.0180	3/8	2	7/8	.0180	5482752	18.18	5485964	20.13
76	.0200	3/8	2	7/8	.0200	5482763	18.18	5485975	20.13
75	.0210	1/2	3	1	.0210	5482774	18.18	5485986	20.13
74	.0225	1/2	3	1	.0225	5482785	18.18	5485997	20.13
73	.0240	1/2	3	1-1/8	.0240	5482796	18.18	5486008	20.13
72	.0250	1/2	3	1-1/8	.0250	5482807	18.18	5486019	20.13
71	.0260	1/2	3	1-1/4	.0260	5482818	18.18	5486030	20.13
70	.0280	1/2	3	1-1/4	.0280	5482829	18.18	5486041	20.13
69	.0292	1/2	3	1-3/8	.0292	5482840	18.18	5486052	20.13
68	.0310	1/2	3	1-3/8	.0310	5482851	18.18	5486063	20.13
1/32	.0312	1/2	3	1-3/8	.0312	5482862	14.34	5486074	16.57
67	.0320	1/2	3	1-3/8	.0320	5482873	15.23	5486085	16.57
66	.0330	1/2	3	1-3/8	.0330	5482884	15.23	5486096	16.57
65	.0350	1/2	3	1-1/2	.0350	5482895	15.23	5486107	16.57
64	.0360	1/2	3	1-1/2	.0360	5482906	15.23	5486118	16.57
63	.0370	1/2	3	1-1/2	.0370	5482917	15.23	5486129	16.57
62	.0380	1/2	3	1-1/2	.0380	5482928	15.23	5486140	16.57
61	.0390	1/2	3	1-1/2	.0390	5482939	15.23	5486151	16.57
1.0mm	.0394	1/2	4	2-1/2	.0394	5482950	15.23	5486162	16.30
60	.0400	1/2	4	2-1/2	.0390	5482961	15.23	5486173	16.30
59	.0410	1/2	4	2-1/2	.0390	5482972	15.23	5486184	16.30
58	.0420	1/2	4	2-1/2	.0390	5482983	15.23	5486195	16.30
57	.0430	1/2	4	2-1/2	.0390	5482994	15.23	5486206	16.30
56	.0465	1/2	4	2-1/2	.0455	5483005	15.23	5486217	16.30
3/64	.0469	1/2	4	2-1/2	.0455	5483016	15.23	5486228	16.30
55	.0520	1/2	4	2-1/2	.0510	5483027	15.23	5486239	16.30
54	.0550	1/2	4	2-1/2	.0510	5483038	15.23	5486250	16.30
1.5mm	.0591	1/2	4	2-1/2	.0510	5483049	15.23	5486261	16.30
53	.0595	1/2	4	2-1/2	.0585	5483060	15.23	5486272	16.30
1/16	.0625	1/2	4	2-1/2	.0585	5483071	13.69	5486283	16.30
52	.0635	1/2	4	2-1/2	.0585	5483082	13.69	5486294	16.30
51	.0670	3/4	4	3	.0660	5483093	12.25	5486305	13.12
50	.0700	3/4	4	3	.0660	5483104	12.25	5486316	13.12
49	.0730	3/4	4	3	.0660	5483115	12.25	5486327	13.12
48	.0760	3/4	4	3	.0720	5483126	12.25	5486338	13.12
5/64	.0781	3/4	4	3	.0720	5483137	12.25	5486349	13.12

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
47	.0785	3/4	4	3	.0720	5483148	12.25	5486360	13.12
2.0mm	.0787	3/4	4	3	.0720	5483159	12.25	5486371	13.12
46	.0810	3/4	4	3	.0771	5483170	12.25	5486382	13.12
45	.0820	3/4	4	3	.0771	5483181	12.25	5486393	13.12
44	.0860	3/4	4	3	.0810	5483192	12.25	5486404	13.12
43	.0890	3/4	4	3	.0810	5483203	12.25	5486415	13.12
42	.0935	3/4	4	3	.0880	5483214	12.25	5486426	13.12
3/32	.0938	3/4	4	3	.0880	5483225	11.02	5486437	13.12
41	.0960	7/8	4	3-1/2	.0928	5483236	12.37	5486448	13.22
40	.0980	7/8	4	3-1/2	.0928	5483247	12.37	5486459	13.22
2.5mm	.0984	7/8	4	3-1/2	.0928	5483258	12.37	5486470	13.22
39	.0995	7/8	4	3-1/2	.0928	5483269	12.37	5486481	13.22
38	.1015	7/8	4	3-1/2	.0950	5483280	12.37	5486492	13.22
37	.1040	7/8	4	3-1/2	.0950	5483291	12.37	5486503	13.22
36	.1065	7/8	4	3-1/2	.1030	5483302	12.37	5486514	13.22
7/64	.1094	7/8	4	3-1/2	.1030	5483313	12.76	5486525	13.63
35	.1100	7/8	4	3-1/2	.1030	5483324	12.76	5486536	13.63
34	.1110	7/8	4	3-1/2	.1055	5483335	12.76	5486547	13.63
33	.1130	7/8	4	3-1/2	.1055	5483346	12.76	5486558	13.63
32	.1160	7/8	4	3-1/2	.1120	5483357	12.76	5486569	13.63
3.0mm	.1181	7/8	4	3-1/2	.1120	5483368	12.76	5486580	13.63
31	.1200	7/8	4	3-1/2	.1120	5483379	12.76	5486591	13.63
o/u	.1240	7/8	4	3-1/2	.1190	5483390	12.76	5486602	13.63
1/8	.1250	7/8	4	3-1/2	.1190	5483401	10.17	5486613	10.90
o/u	.1260	7/8	4	3-1/2	.1190	5483412	12.76	5486624	13.63
30	.1285	7/8	4	3-1/2	.1190	5483423	12.76	5486635	13.63
29	.1360	1	4	4	.1275	5483434	15.23	5486646	16.30
3.5mm	.1378	1	4	4	.1350	5483445	15.23	5486657	16.30
28	.1405	1	4	4	.1350	5483456	15.23	5486668	16.30
9/64	.1406	1	4	4	.1350	5483467	15.23	5486679	16.30
27	.1440	1	4	4	.1350	5483478	15.23	5486690	16.30
26	.1470	1	4	4	.1430	5483489	15.23	5486701	16.30
25	.1495	1	4	4	.1430	5483500	15.23	5486712	16.30
24	.1520	1	4	4	.1460	5483511	15.23	5486723	16.30
23	.1540	1	4	4	.1460	5483522	15.23	5486734	16.30
5/32	.1562	1	4	4	.1510	5483533	15.23	5486745	16.30
22	.1570	1	6	4	.1510	5483544	15.23	5486756	16.30
4.0mm	.1575	1	6	4	.1510	5483555	15.23	5486767	16.30
21	.1590	1-1/8	6	4-1/2	.1530	5483566	16.26	5486778	17.40
20	.1610	1-1/8	6	4-1/2	.1530	5483577	16.26	5486789	17.40

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
19	.1660	1-1/8	6	4-1/2	.1595	5483588	16.26	5486800	17.40
18	.1695	1-1/8	6	4-1/2	.1595	5483599	16.26	5486811	17.40
11/64	.1719	1-1/8	6	4-1/2	.1645	5483610	16.26	5486822	17.40
17	.1730	1-1/8	6	4-1/2	.1645	5483621	16.26	5486833	17.40
16	.1770	1-1/8	6	4-1/2	.1704	5483632	16.26	5486844	17.40
4.5mm	.1772	1-1/8	6	4-1/2	.1704	5483643	16.26	5486855	17.40
15	.1800	1-1/8	6	4-1/2	.1755	5483654	16.26	5486866	17.40
14	.1820	1-1/8	6	4-1/2	.1755	5483665	16.26	5486877	17.40
13	.1850	1-1/8	6	4-1/2	.1805	5483676	16.26	5486888	17.40
o/u	.1865	1-1/8	6	4-1/2	.1805	5483687	16.26	5486899	17.40
3/16	.1875	1-1/8	6	4-1/2	.1805	5483698	14.62	5486910	16.81
o/u	.1885	1-1/8	6	4-1/2	.1805	5483709	16.26	5486921	17.40
12	.1890	1-1/8	6	4-1/2	.1805	5483720	16.26	5486932	17.40
11	.1910	1-1/4	6	5	.1860	5483731	18.21	5486943	21.02
10	.1935	1-1/4	6	5	.1860	5483742	18.21	5486954	21.02
9	.1960	1-1/4	6	5	.1895	5483753	18.21	5486965	21.02
5.0mm	.1969	1-1/4	6	5	.1895	5483764	18.21	5486976	21.02
8	.1990	1-1/4	6	5	.1895	5483775	18.21	5486987	21.02
7	.2010	1-1/4	6	5	.1895	5483786	18.21	5486998	21.02
13/64	.2031	1-1/4	6	5	.1945	5483797	18.21	5487009	21.02
6	.2040	1-1/4	6	5	.1945	5483808	18.21	5487020	21.02
5	.2055	1-1/4	6	5	.2016	5483819	18.21	5487031	21.02
4	.2090	1-1/4	6	5	.2016	5483830	18.21	5487042	21.02
3	.2130	1-1/4	6	5	.2075	5483841	18.21	5487053	21.02
5.5mm	.2165	1-1/4	6	5	.2075	5483852	18.21	5487064	21.02
7/32	.2188	1-1/4	6	5	.2075	5483863	18.21	5487075	21.02
2	.2210	1-1/2	6	6	.2173	5483874	18.71	5487086	21.63
1	.2280	1-1/2	6	6	.2173	5483885	18.71	5487097	21.63
A	.2340	1-1/2	6	6	.2265	5483896	18.71	5487108	21.63
15/64	.2344	1-1/2	6	6	.2265	5483907	18.71	5487119	21.63
6.0mm	.2362	1-1/2	6	6	.2265	5483918	19.72	5487130	21.73
B	.2380	1-1/2	6	6	.2329	5483929	19.72	5487141	21.73
C	.2420	1-1/2	6	6	.2329	5483940	19.72	5487152	21.73
D	.2460	1-1/2	6	6	.2329	5483951	19.72	5487163	19.74
o/u	.2490	1-1/2	6	6	.2405	5483962	17.76	5487174	19.54
1/4	.2500	1-1/2	6	6	.2405	5483973	16.75	5487185	18.47
o/u	.2510	1-1/2	6	6	.2405	5483984	17.76	5487196	19.56
6.5mm	.2559	1-1/2	6	6	.2405	5483995	19.72	5487207	21.73
F	.2570	1-1/2	6	6	.2485	5484006	19.72	5487218	21.73
G	.2610	1-1/2	6	6	.2485	5484017	19.72	5487229	21.73

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
17/64	.2656	1-1/2	6	6	.2485	5484028	21.97	5487240	29.46
H	.2660	1-1/2	6	6	.2485	5484039	21.97	5487251	29.46
I	.2720	1-1/2	6	6	.2485	5484050	21.97	5487262	29.46
7.0mm	.2756	1-1/2	6	6	.2485	5484061	21.97	5487273	29.46
J	.2770	1-1/2	6	6	.2485	5484072	21.97	5487284	29.46
K	.2810	1-1/2	6	6	.2485	5484083	21.97	5487295	29.46
9/32	.2812	1-1/2	6	6	.2485	5484094	20.86	5487306	27.98
L	.2900	1-1/2	6	6	.2792	5484105	21.97	5487317	29.46
M	.2950	1-1/2	6	6	.2792	5484116	21.97	5487328	29.46
7.5mm	.2953	1-1/2	6	6	.2792	5484127	21.97	5487339	29.46
19/64	.2969	1-1/2	6	6	.2792	5484138	21.97	5487350	29.46
N	.3020	1-1/2	6	6	.2792	5484149	21.97	5487361	29.46
o/u	.3115	1-1/2	6	6	.2792	5484160	20.86	5487372	27.98
5/16	.3125	1-1/2	6	6	.2792	5484171	19.80	5487383	26.51
o/u	.3135	1-1/2	6	6	.2792	5484182	20.86	5487394	27.98
8.0mm	.3150	1-1/2	6	6	.2792	5484193	21.97	5487405	29.46
O	.3160	1-1/2	6	6	.2792	5484204	21.97	5487416	29.46
P	.3230	1-1/2	6	6	.2792	5484215	23.49	5487427	31.75
21/64	.3281	1-1/2	6	6	.2792	5484226	23.49	5487438	31.75
Q	.3320	1-1/2	6	6	.2792	5484237	23.49	5487449	31.75
8.5mm	.3346	1-1/2	6	6	.2792	5484248	23.49	5487460	31.75
R	.3390	1-1/2	6	6	.2792	5484259	23.49	5487471	31.75
11/32	.3438	1-1/2	6	6	.2792	5484270	23.49	5487482	31.75
S	.3480	1-3/4	6	7	.3105	5484281	23.73	5487493	32.28
9.0mm	.3543	1-3/4	6	7	.3105	5484292	23.73	5487504	32.28
T	.3580	1-3/4	6	7	.3105	5484303	23.73	5487515	32.28
23/64	.3594	1-3/4	6	7	.3105	5484314	23.73	5487526	32.28
U	.3680	1-3/4	6	7	.3105	5484325	23.73	5487537	32.28
9.5mm-o/u	.3740	1-3/4	6	7	.3105	5484336	22.54	5487548	30.64
3/8	.3750	1-3/4	6	7	.3105	5484347	21.32	5487559	29.04
o/u	.3760	1-3/4	6	7	.3105	5484358	22.54	5487570	30.64
V	.3770	1-3/4	6	7	.3105	5484369	25.80	5487581	39.34
W	.3860	1-3/4	6	7	.3105	5484380	25.80	5487592	39.34
25/64	.3906	1-3/4	6	7	.3105	5484391	25.80	5487603	39.34
10.0mm	.3937	1-3/4	6	7	.3105	5484402	25.80	5487614	39.34
X	.3970	1-3/4	6	7	.3105	5484413	25.80	5487625	39.34
Y	.4040	1-3/4	6	7	.3105	5484424	26.77	5487636	39.34
13/32	.4062	1-3/4	6	7	.3105	5484435	26.77	5487647	39.34
Z	.4130	1-3/4	6	7	.3730	5484446	26.77	5487658	39.34
10.5mm	.4134	1-3/4	6	7	.3730	5484457	27.03	5487669	39.34

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
27/64	.4219	1-3/4	6	7	.3730	5484468	26.77	5487680	39.34
11.0mm	.4331	1-3/4	6	7	.3730	5484479	26.77	5487691	39.34
o/u	.4365	1-3/4	6	7	.3730	5484490	25.43	5487702	39.34
7/16	.4375	1-3/4	6	7	.3730	5484501	25.43	5487713	39.34
o/u	.4385	1-3/4	6	7	.3730	5484512	25.43	5487724	39.34
11.5mm	.4528	1-3/4	6	7	.3730	5484523	29.16	5487735	45.09
29/64	.4531	1-3/4	6	7	.3730	5484534	29.16	5487746	45.09
15/32	.4688	1-3/4	6	7	.3730	5484545	29.16	5487757	45.09
12.0mm	.4724	2	6	8	.4355	5484556	29.16	5487768	45.09
31/64	.4844	2	6	8	.4355	5484567	29.16	5487779	45.09
12.5mm	.4921	2	6	8	.4355	5484578	29.16	5487790	45.09
o/u	.4990	2	6	8	.4355	5484589	27.68	5487801	45.09
1/2	.5000	2	6	8	.4355	5484600	27.68	5487812	45.09
o/u	.5010	2	6	8	.4355	5484611	27.68	5487823	45.09
13.0mm	.5118	2	6	8	.4355	5484622	36.12	-	-
33/64	.5156	2	6	8	.4355	5484633	36.12	-	-
17/32	.5312	2	6	8	.4355	5484644	34.40	5487834	50.58
13.5mm	.5315	2	6	8	.4355	5484655	36.12	-	-
35/64	.5469	2	8	8	.4355	5484666	36.12	-	-
14.0mm	.5512	2	8	8	.4355	5484677	36.12	-	-
o/u	.5615	2	8	8	.4355	5484688	36.12	-	-
9/16	.5625	2	8	8	.4355	5484699	34.40	5487845	50.58
o/u	.5635	2	8	8	.4355	5484710	36.12	-	-
14.5mm	.5709	2	8	8	.4355	5484721	36.12	-	-
37/64	.5781	2	8	8	.4355	5484732	36.12	-	-
15.0mm	.5906	2	8	8	.4355	5484743	36.12	-	-
19/32	.5938	2	8	8	.4355	5484754	34.40	5487856	50.58
39/64	.6094	2-1/4	8	9	.5615	5484765	42.16	-	-
15.5mm	.6102	2-1/4	8	9	.5615	5484776	42.16	-	-
o/u	.6240	2-1/4	8	9	.5615	5484787	42.16	-	-
5/8	.6250	2-1/4	8	9	.5615	5484798	40.30	5487867	59.02
o/u	.6260	2-1/4	8	9	.5615	5484809	42.16	-	-
16.0mm	.6299	2-1/4	8	9	.5615	5484820	42.16	-	-
41/64	.6406	2-1/4	8	9	.5615	5484831	42.16	-	-
16.5mm	.6496	2-1/4	8	9	.5615	5484842	42.16	-	-
21/32	.6562	2-1/4	8	9	.5615	5484853	45.40	5487878	66.72
17.0mm	.6693	2-1/4	8	9	.5615	5484864	47.65	-	-
43/64	.6719	2-1/4	8	9	.5615	5484875	47.65	-	-
o/u	.6865	2-1/4	8	9	.5615	5484886	47.65	-	-
11/16	.6875	2-1/4	8	9	.5615	5484897	45.40	5487889	66.72

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



HSS & COBALT REAMERS

SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
o/u	.6885	2-1/4	8	9	.5615	5484908	51.15	-	-
17.5mm	.6890	2-1/4	8	9	.5615	5484919	51.15	-	-
45/64	.7031	2-1/4	8	9	.5615	5484930	51.15	-	-
18.0mm	.7087	2-1/4	8	9	.5615	5484941	51.15	-	-
23/32	.7188	2-1/4	8	9	.5615	5484952	50.66	5487900	74.47
18.5mm	.7283	2-1/2	8	9-1/2	.6240	5484963	53.17	-	-
47/64	.7344	2-1/2	8	9-1/2	.6240	5484974	58.90	-	-
19.0mm	.7480	2-1/2	8	9-1/2	.6240	5484985	58.90	-	-
o/u	.7490	2-1/2	8	9-1/2	.6240	5484996	58.90	-	-
3/4	.7500	2-1/2	8	9-1/2	.6240	5485007	50.97	5487911	74.90
o/u	.7510	2-1/2	8	9-1/2	.6240	5485018	56.70	-	-
49/64	.7656	2-1/2	8	9-1/2	.6240	5485029	56.70	-	-
19.5mm	.7677	2-1/2	8	9-1/2	.6240	5485040	56.70	-	-
25/32	.7812	2-1/2	8	9-1/2	.6240	5485051	54.95	5487922	80.77
20.0mm	.7874	2-1/2	8	9-1/2	.6240	5485062	60.70	-	-
51/64	.7969	2-1/2	8	9-1/2	.6240	5485073	60.70	-	-
20.5mm	.8071	2-1/2	8	9-1/2	.6240	5485084	60.70	-	-
o/u	.8115	2-1/2	8	9-1/2	.6240	5485095	60.70	-	-
13/16	.8125	2-1/2	8	9-1/2	.6240	5485106	54.95	5487933	80.77
o/u	.8135	2-1/2	8	9-1/2	.6240	5485117	60.70	-	-
21.0mm	.8268	2-1/2	8	9-1/2	.6240	5485128	60.70	-	-
53/64	.8281	2-1/2	8	9-1/2	.6240	5485139	60.70	-	-
27/32	.8438	2-1/2	8	9-1/2	.6240	5485150	65.02	5487944	95.57
21.5mm	.8465	2-5/8	8	10	.7490	5485161	70.77	-	-
55/64	.8594	2-5/8	8	10	.7490	5485172	70.77	-	-
22.0mm	.8661	2-5/8	8	10	.7490	5485183	70.77	-	-
o/u	.8740	2-5/8	8	10	.7490	5485194	70.77	-	-
7/8	.8750	2-5/8	8	10	.7490	5485205	66.52	5487955	97.80
o/u	.8760	2-5/8	8	10	.7490	5485216	72.29	-	-
22.5mm	.8858	2-5/8	8	10	.7490	5485227	72.29	-	-
57/64	.8906	2-5/8	8	10	.7490	5485238	72.29	-	-
23.0mm	.9055	2-5/8	8	10	.7490	5485249	72.29	-	-
29/32	.9062	2-5/8	8	10	.7490	5485260	71.70	5487966	105.37
59/64	.9219	2-5/8	8	10	.7490	5485271	77.41	-	-
23.5mm	.9252	2-5/8	8	10	.7490	5485282	77.41	-	-
o/u	.9365	2-5/8	8	10	.7490	5485293	77.41	-	-
15/16	.9375	2-5/8	8	10	.7490	5485304	71.70	5487977	105.37
o/u	.9385	2-5/8	8	10	.7490	5485315	77.41	-	-
24.0mm	.9449	2-5/8	8	10	.7490	5485326	77.41	-	-
61/64	.9531	2-5/8	8	10	.7490	5485337	77.41	-	-

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



SIZE	DECIMAL EQUIVALENT	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	HSS	PRICE	M42 COBALT	PRICE
24.5mm	.9646	2-5/8	8	10	.7490	5485348	77.41	-	-
31/32	.9688	2-5/8	8	10	.7490	5485359	80.30	5487988	118.01
25.0mm	.9843	2-3/4	8	10-1/2	.8740	5485370	82.19	-	-
63/64	.9844	2-3/4	8	10-1/2	.8740	5485381	82.19	-	-
o/u	.9990	2-3/4	8	10-1/2	.8740	5485392	82.19	-	-
1	1.0000	2-3/4	8	10-1/2	.8740	5485403	81.05	5487999	119.12
o/u	1.0010	2-3/4	8	10-1/2	.8740	5485414	86.78	-	-
1-1/32	1.0312	2-3/4	8	10-1/2	.8740	5485425	112.76	-	-
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	5485436	89.84	5488010	132.06
1-3/32	1.0938	2-7/8	8	11	.8740	5485447	118.43	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	5485458	95.49	5488021	140.34
1-5/32	1.1562	2-7/8	10	11	.9990	5485469	134.75	-	-
1-3/16	1.1875	2-7/8	10	11	.9990	5485480	111.83	5488032	164.39
1-7/32	1.2188	3	10	11-1/2	.9990	5485491	141.45	-	-
1-1/4	1.2500	3	10	11-1/2	.9990	5485502	118.51	5488043	174.19
1-9/32	1.2812	3	10	11-1/2	.9990	5485513	161.19	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	5485524	138.23	5488054	203.17
1-11/32	1.3438	3-1/4	10	12	.9990	5485535	168.20	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	5485546	145.26	5488065	213.53
1-13/32	1.4062	3-1/4	10	12	1.2490	5485557	178.71	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	5485568	155.77	5488076	229.02
1-15/32	1.4688	3-1/2	10	12-1/2	1.2490	5485579	190.69	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	5485590	167.73	5488087	246.58
1-9/16	1.5625	3-1/2	12	13	1.2490	5492124	237.47	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	5492135	237.47	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	5492146	272.72	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	5492157	272.72	-	-
1-13/16	1.8125	4	12	14	1.4990	5492168	314.10	-	-
1-7/8	1.8750	4	12	14	1.4990	5492179	314.10	-	-
1-15/16	1.9375	4	12	14	1.4990	5492190	368.35	-	-
2	2.0000	4	12	14	1.4990	5492201	368.35	-	-

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"
+0.0002, -0.0000	+0.0003, -0.0000	+0.0001, +0.0004	+0.0002, +0.0006



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING

STOCKED INTERMEDIATE SIZES - STRAIGHT SHANK STRAIGHT FLUTE - HIGH SPEED STEEL

HSS & COBALT REAMERS

DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE
0.0140	5472346	22.64	0.0490	5472863	17.82	0.0770	5473380	15.98	0.1060	5473897	15.98	0.1340	5474414	18.73
0.0150	5472357	22.64	0.0495	5472874	17.82	0.0775	5473391	15.98	0.1070	5473908	15.98	0.1345	5474425	18.73
0.0155	5472368	22.64	0.0500	5472885	17.82	0.0780	5473402	15.98	0.1075	5473919	15.98	0.1350	5474436	18.73
0.0165	5472379	22.64	0.0505	5472896	17.82	0.0790	5473413	15.98	0.1080	5473930	15.98	0.1355	5474447	18.73
0.0170	5472390	22.64	0.0510	5472907	17.82	0.0795	5473424	15.98	0.1085	5473941	15.98	0.1365	5474458	18.73
0.0175	5472401	22.64	0.0515	5472918	17.82	0.0800	5473435	15.98	0.1090	5473952	15.98	0.1370	5474469	18.73
0.0185	5472412	22.64	0.0525	5472929	17.82	0.0805	5473446	15.98	0.1095	5473963	13.81	0.1375	5474480	18.73
0.0190	5472423	22.64	0.0530	5472940	17.82	0.0815	5473457	15.98	0.1105	5473974	13.81	0.1380	5474491	18.73
0.0195	5472434	22.64	0.0535	5472951	17.82	0.0825	5473468	15.98	0.1115	5473985	13.81	0.1385	5474502	18.73
0.0205	5472445	20.61	0.0540	5472962	17.82	0.0830	5473479	15.98	0.1120	5473996	13.81	0.1390	5474513	18.73
0.0215	5472456	20.61	0.0545	5472973	17.82	0.0835	5473490	15.98	0.1125	5474007	13.81	0.1395	5474524	18.73
0.0220	5472467	20.61	0.0555	5472984	17.82	0.0840	5473501	15.98	0.1135	5474018	13.81	0.1400	5474535	18.73
0.0230	5472478	20.61	0.0560	5472995	17.82	0.0845	5473512	15.98	0.1140	5474029	13.81	0.1410	5474546	17.82
0.0235	5472489	20.61	0.0565	5473006	17.82	0.0850	5473523	15.98	0.1145	5474040	13.81	0.1415	5474557	17.82
0.0245	5472500	20.61	0.0570	5473017	17.82	0.0855	5473534	15.98	0.1150	5474051	13.81	0.1420	5474568	17.82
0.0255	5472511	20.61	0.0575	5473028	17.82	0.0865	5473545	15.98	0.1155	5474062	13.81	0.1425	5474579	17.82
0.0265	5472522	20.61	0.0580	5473039	17.82	0.0870	5473556	15.98	0.1165	5474073	13.81	0.1430	5474590	17.82
0.0270	5472533	20.61	0.0585	5473050	17.82	0.0875	5473567	15.98	0.1170	5474084	13.81	0.1435	5474601	17.82
0.0275	5472544	20.61	0.0590	5473061	17.82	0.0880	5473578	15.98	0.1175	5474095	13.81	0.1445	5474612	17.82
0.0285	5472555	20.61	0.0600	5473072	17.82	0.0885	5473589	15.98	0.1180	5474106	13.81	0.1450	5474623	17.82
0.0290	5472566	20.61	0.0605	5473083	17.82	0.0895	5473600	15.98	0.1185	5474117	13.81	0.1455	5474634	17.82
0.0295	5472577	18.73	0.0610	5473094	17.82	0.0900	5473611	15.98	0.1190	5474128	13.81	0.1460	5474645	17.82
0.0300	5472588	18.73	0.0615	5473105	17.82	0.0905	5473622	15.98	0.1195	5474139	13.81	0.1465	5474656	17.82
0.0305	5472599	18.73	0.0620	5473116	17.82	0.0910	5473633	15.98	0.1205	5474150	13.81	0.1475	5474667	17.82
0.0315	5472610	18.73	0.0630	5473127	15.98	0.0915	5473644	15.98	0.1210	5474161	13.81	0.1480	5474678	17.82
0.0325	5472621	18.73	0.0640	5473138	15.98	0.0920	5473655	15.98	0.1215	5474172	13.81	0.1485	5474689	17.82
0.0335	5472632	18.73	0.0645	5473149	15.98	0.0925	5473666	15.98	0.1220	5474183	13.81	0.1490	5474700	17.82
0.0340	5472643	18.73	0.0650	5473160	15.98	0.0930	5473677	15.98	0.1225	5474194	13.81	0.1500	5474711	17.82
0.0345	5472654	18.73	0.0655	5473171	15.98	0.0940	5473688	15.98	0.1230	5474205	13.81	0.1505	5474722	17.82
0.0355	5472665	18.73	0.0660	5473182	15.98	0.0945	5473699	15.98	0.1235	5474216	13.81	0.1510	5474733	17.82
0.0365	5472676	18.73	0.0665	5473193	15.98	0.0950	5473710	15.98	0.1245	5474227	13.81	0.1515	5474744	17.82
0.0375	5472687	18.73	0.0675	5473204	15.98	0.0955	5473721	15.98	0.1247	5474238	13.81	0.1525	5474755	17.82
0.0385	5472698	18.73	0.0680	5473215	15.98	0.0965	5473732	15.98	0.1255	5474249	18.73	0.1530	5474766	17.82
0.0395	5472709	17.82	0.0685	5473226	15.98	0.0970	5473743	15.98	0.1265	5474260	18.73	0.1535	5474777	17.82
0.0405	5472720	17.82	0.0690	5473237	15.98	0.0975	5473754	15.98	0.1270	5474271	18.73	0.1545	5474788	17.82
0.0415	5472731	17.82	0.0695	5473248	15.98	0.0985	5473765	15.98	0.1275	5474282	18.73	0.1550	5474799	17.82
0.0425	5472742	17.82	0.0705	5473259	15.98	0.0990	5473776	15.98	0.1280	5474293	18.73	0.1555	5474810	17.82
0.0435	5472753	17.82	0.0710	5473270	15.98	0.1000	5473787	15.98	0.1290	5474304	18.73	0.1560	5474821	17.82
0.0440	5472764	17.82	0.0715	5473281	15.98	0.1005	5473798	15.98	0.1295	5474315	18.73	0.1565	5474832	18.73
0.0445	5472775	17.82	0.0720	5473292	15.98	0.1010	5473809	15.98	0.1300	5474326	18.73	0.1580	5474843	18.73
0.0450	5472786	17.82	0.0725	5473303	15.98	0.1020	5473820	15.98	0.1305	5474337	18.73	0.1585	5474854	18.73
0.0455	5472797	17.82	0.0735	5473314	15.98	0.1025	5473831	15.98	0.1310	5474348	18.73	0.1595	5474865	18.73
0.0460	5472808	17.82	0.0740	5473325	15.98	0.1030	5473842	15.98	0.1315	5474359	18.73	0.1600	5474876	18.73
0.0470	5472819	17.82	0.0745	5473336	15.98	0.1035	5473853	15.98	0.1320	5474370	18.73	0.1605	5474887	18.73
0.0475	5472830	17.82	0.0750	5473347	15.98	0.1045	5473864	15.98	0.1325	5474381	18.73	0.1615	5474898	18.73
0.0480	5472841	17.82	0.0755	5473358	15.98	0.1050	5473875	15.98	0.1330	5474392	18.73	0.1620	5474909	18.73
0.0485	5472852	17.82	0.0765	5473369	15.98	0.1055	5473886	15.98	0.1335	5474403	18.73	0.1625	5474920	18.73

For technical information, please see page 240.



CHUCKING

STOCKED INTERMEDIATE SIZES - STRAIGHT SHANK STRAIGHT FLUTE - HIGH SPEED STEEL

DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE
0.1630	5474931	18.73	0.1925	5475448	22.21	0.2205	5475965	22.01	0.2470	5476482	19.85	0.2740	5476999	25.31
0.1635	5474942	18.73	0.1930	5475459	22.21	0.2215	5475976	22.01	0.2475	5476493	19.85	0.2745	5477010	25.31
0.1640	5474953	18.73	0.1940	5475470	22.21	0.2220	5475987	22.01	0.2480	5476504	19.85	0.2750	5477021	25.31
0.1645	5474964	18.73	0.1945	5475481	22.21	0.2225	5475998	22.01	0.2485	5476515	19.85	0.2755	5477032	25.31
0.1650	5474975	18.73	0.1950	5475492	22.21	0.2230	5476009	22.01	0.2495	5476526	19.85	0.2760	5477043	25.31
0.1655	5474986	18.73	0.1955	5475503	22.21	0.2235	5476020	22.01	0.2505	5476537	25.31	0.2765	5477054	25.31
0.1665	5474997	18.73	0.1965	5475514	22.21	0.2240	5476031	22.01	0.2515	5476548	25.31	0.2775	5477065	25.31
0.1670	5475008	18.73	0.1970	5475525	22.21	0.2245	5476042	22.01	0.2520	5476559	25.31	0.2780	5477076	25.31
0.1675	5475019	18.73	0.1975	5475536	22.21	0.2250	5476053	22.01	0.2525	5476570	25.31	0.2785	5477087	25.31
0.1680	5475030	18.73	0.1980	5475547	22.21	0.2255	5476064	22.01	0.2530	5476581	25.31	0.2790	5477098	25.31
0.1685	5475041	18.73	0.1985	5475558	22.21	0.2260	5476075	22.01	0.2535	5476592	25.31	0.2795	5477109	25.31
0.1690	5475052	18.73	0.1995	5475569	22.21	0.2265	5476086	22.01	0.2540	5476603	25.31	0.2800	5477120	25.31
0.1700	5475063	18.73	0.2000	5475580	22.21	0.2270	5476097	22.01	0.2545	5476614	25.31	0.2805	5477131	25.31
0.1705	5475074	18.73	0.2005	5475591	22.21	0.2275	5476108	22.01	0.2550	5476625	25.31	0.2815	5477142	25.31
0.1710	5475085	18.73	0.2015	5475602	22.21	0.2285	5476119	22.01	0.2555	5476636	25.31	0.2820	5477153	25.31
0.1715	5475096	18.73	0.2020	5475613	22.21	0.2290	5476130	22.01	0.2560	5476647	25.31	0.2825	5477164	25.31
0.1720	5475107	17.60	0.2025	5475624	22.21	0.2295	5476141	22.01	0.2565	5476658	25.31	0.2830	5477175	25.31
0.1725	5475118	17.60	0.2030	5475635	22.21	0.2300	5476152	22.01	0.2575	5476669	25.31	0.2835	5477186	25.31
0.1735	5475129	17.60	0.2035	5475646	21.65	0.2305	5476163	22.01	0.2580	5476680	25.31	0.2840	5477197	25.31
0.1740	5475140	17.60	0.2045	5475657	21.65	0.2310	5476174	22.01	0.2585	5476691	25.31	0.2845	5477208	25.31
0.1745	5475151	17.60	0.2050	5475668	21.65	0.2315	5476185	22.01	0.2590	5476702	25.31	0.2850	5477219	25.31
0.1750	5475162	17.60	0.2060	5475679	21.65	0.2320	5476196	22.01	0.2595	5476713	25.31	0.2855	5477230	25.31
0.1755	5475173	17.60	0.2065	5475690	21.65	0.2325	5476207	22.01	0.2600	5476724	25.31	0.2860	5477241	25.31
0.1760	5475184	17.60	0.2070	5475701	21.65	0.2330	5476218	22.01	0.2605	5476735	25.31	0.2865	5477252	25.31
0.1765	5475195	17.60	0.2075	5475712	21.65	0.2335	5476229	22.01	0.2615	5476746	25.31	0.2870	5477263	25.31
0.1775	5475206	17.60	0.2080	5475723	21.65	0.2345	5476240	19.85	0.2620	5476757	25.31	0.2875	5477274	25.31
0.1780	5475217	17.60	0.2085	5475734	21.65	0.2350	5476251	19.85	0.2625	5476768	25.31	0.2880	5477285	25.31
0.1785	5475228	17.60	0.2095	5475745	21.65	0.2355	5476262	19.85	0.2630	5476779	25.31	0.2885	5477296	25.31
0.1790	5475239	17.60	0.2100	5475756	21.65	0.2360	5476273	19.85	0.2635	5476790	25.31	0.2890	5477307	25.31
0.1795	5475250	17.60	0.2105	5475767	21.65	0.2365	5476284	19.85	0.2640	5476801	25.31	0.2895	5477318	25.31
0.1805	5475261	17.60	0.2110	5475778	21.65	0.2370	5476295	19.85	0.2645	5476812	25.31	0.2905	5477329	25.31
0.1810	5475272	17.60	0.2115	5475789	21.65	0.2375	5476306	19.85	0.2650	5476823	25.31	0.2910	5477340	25.31
0.1815	5475283	17.60	0.2120	5475800	21.65	0.2385	5476317	19.85	0.2655	5476834	25.31	0.2915	5477351	25.31
0.1825	5475294	17.60	0.2125	5475811	21.65	0.2390	5476328	19.85	0.2665	5476845	25.31	0.2920	5477362	25.31
0.1830	5475305	17.60	0.2135	5475822	21.65	0.2395	5476339	19.85	0.2670	5476856	25.31	0.2925	5477373	25.31
0.1835	5475316	17.60	0.2140	5475833	21.65	0.2400	5476350	19.85	0.2675	5476867	25.31	0.2930	5477384	25.31
0.1840	5475327	17.60	0.2145	5475844	21.65	0.2405	5476361	19.85	0.2680	5476878	25.31	0.2935	5477395	25.31
0.1845	5475338	17.60	0.2150	5475855	21.65	0.2410	5476372	19.85	0.2685	5476889	25.31	0.2940	5477406	25.31
0.1855	5475349	17.60	0.2155	5475866	21.65	0.2415	5476383	19.85	0.2690	5476900	25.31	0.2945	5477417	25.31
0.1860	5475360	17.60	0.2160	5475877	21.65	0.2425	5476394	19.85	0.2695	5476911	25.31	0.2955	5477428	25.31
0.1870	5475371	17.60	0.2170	5475888	21.65	0.2430	5476405	19.85	0.2700	5476922	25.31	0.2960	5477439	25.31
0.1880	5475382	22.21	0.2175	5475899	21.65	0.2435	5476416	19.85	0.2705	5476933	25.31	0.2965	5477450	25.31
0.1895	5475393	22.21	0.2180	5475910	21.65	0.2440	5476427	19.85	0.2710	5476944	25.31	0.2970	5477461	22.66
0.1900	5475404	22.21	0.2185	5475921	21.65	0.2445	5476438	19.85	0.2715	5476955	25.31	0.2975	5477472	22.66
0.1905	5475415	22.21	0.2190	5475932	22.01	0.2450	5476449	19.85	0.2725	5476966	25.31	0.2980	5477483	22.66
0.1915	5475426	22.21	0.2195	5475943	22.01	0.2455	5476460	19.85	0.2730	5476977	25.31	0.2985	5477494	22.66
0.1920	5475437	22.21	0.2200	5475954	22.01	0.2465	5476471	19.85	0.2735	5476988	25.31	0.2990	5477505	22.66

HSS & COBALT REAMERS

For technical information, please see page 240.



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING

STOCKED INTERMEDIATE SIZES - STRAIGHT SHANK STRAIGHT FLUTE - HIGH SPEED STEEL

HSS & COBALT REAMERS

DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE
0.2995	5477516	22.66	0.3265	5478033	26.69	0.3515	5478550	27.07	0.3780	5479067	29.20	0.4025	5479584	29.95
0.3000	5477527	22.66	0.3270	5478044	26.69	0.3520	5478561	27.07	0.3785	5479078	29.20	0.4030	5479595	29.95
0.3005	5477538	22.66	0.3275	5478055	26.69	0.3525	5478572	27.07	0.3790	5479089	29.20	0.4035	5479606	29.95
0.3010	5477549	22.66	0.3280	5478066	26.69	0.3530	5478583	27.07	0.3795	5479100	29.20	0.4045	5479617	29.95
0.3015	5477560	22.66	0.3285	5478077	26.69	0.3535	5478594	27.07	0.3800	5479111	29.20	0.4050	5479628	29.95
0.3025	5477571	22.66	0.3290	5478088	26.69	0.3540	5478605	27.07	0.3805	5479122	29.20	0.4055	5479639	29.95
0.3030	5477582	22.66	0.3295	5478099	26.69	0.3545	5478616	27.07	0.3810	5479133	29.20	0.4060	5479650	29.95
0.3035	5477593	22.66	0.3300	5478110	26.69	0.3550	5478627	27.07	0.3815	5479144	29.20	0.4065	5479661	29.95
0.3040	5477604	22.66	0.3305	5478121	26.69	0.3555	5478638	27.07	0.3820	5479155	29.20	0.4070	5479672	29.95
0.3045	5477615	22.66	0.3310	5478132	26.69	0.3560	5478649	27.07	0.3825	5479166	29.20	0.4075	5479683	29.95
0.3050	5477626	22.66	0.3315	5478143	26.69	0.3565	5478660	27.07	0.3830	5479177	29.20	0.4080	5479694	29.95
0.3055	5477637	22.66	0.3325	5478154	26.69	0.3570	5478671	27.07	0.3835	5479188	29.20	0.4085	5479705	29.95
0.3060	5477648	22.66	0.3330	5478165	26.69	0.3575	5478682	27.07	0.3840	5479199	29.20	0.4090	5479716	29.95
0.3065	5477659	22.66	0.3335	5478176	26.69	0.3585	5478693	27.07	0.3845	5479210	29.20	0.4095	5479727	29.95
0.3070	5477670	22.66	0.3340	5478187	26.69	0.3590	5478704	27.07	0.3850	5479221	29.20	0.4100	5479738	29.95
0.3075	5477681	22.66	0.3345	5478198	26.69	0.3595	5478715	24.26	0.3855	5479232	29.20	0.4105	5479749	29.95
0.3080	5477692	22.66	0.3350	5478209	26.69	0.3600	5478726	24.26	0.3865	5479243	29.20	0.4110	5479760	29.95
0.3085	5477703	22.66	0.3355	5478220	26.69	0.3605	5478737	24.26	0.3870	5479254	29.20	0.4115	5479771	29.95
0.3090	5477714	22.66	0.3360	5478231	26.69	0.3610	5478748	24.26	0.3875	5479265	29.20	0.4120	5479782	29.95
0.3095	5477725	22.66	0.3365	5478242	26.69	0.3615	5478759	24.26	0.3880	5479276	29.20	0.4125	5479793	29.95
0.3100	5477736	22.66	0.3370	5478253	26.69	0.3620	5478770	24.26	0.3885	5479287	29.20	0.4135	5479804	29.95
0.3105	5477747	22.66	0.3375	5478264	26.69	0.3625	5478781	24.26	0.3890	5479298	29.20	0.4140	5479815	29.95
0.3110	5477758	22.66	0.3380	5478275	26.69	0.3630	5478792	24.26	0.3895	5479309	29.20	0.4145	5479826	29.95
0.3120	5477769	22.66	0.3385	5478286	26.69	0.3635	5478803	24.26	0.3900	5479320	29.20	0.4150	5479837	29.95
0.3130	5477780	26.69	0.3395	5478297	26.69	0.3640	5478814	24.26	0.3905	5479331	29.20	0.4155	5479848	29.95
0.3140	5477791	26.69	0.3400	5478308	26.69	0.3645	5478825	24.26	0.3910	5479342	29.95	0.4160	5479859	29.95
0.3145	5477802	26.69	0.3405	5478319	26.69	0.3650	5478836	24.26	0.3915	5479353	29.95	0.4165	5479870	29.95
0.3155	5477813	26.69	0.3410	5478330	26.69	0.3655	5478847	24.26	0.3920	5479364	29.95	0.4170	5479881	29.95
0.3165	5477824	26.69	0.3415	5478341	26.69	0.3660	5478858	24.26	0.3925	5479375	29.95	0.4175	5479892	29.95
0.3170	5477835	26.69	0.3420	5478352	26.69	0.3665	5478869	24.26	0.3930	5479386	29.95	0.4180	5479903	29.95
0.3175	5477846	26.69	0.3425	5478363	26.69	0.3670	5478880	24.26	0.3935	5479397	29.95	0.4185	5479914	29.95
0.3180	5477857	26.69	0.3430	5478374	26.69	0.3675	5478891	24.26	0.3940	5479408	29.95	0.4190	5479925	29.95
0.3185	5477868	26.69	0.3435	5478385	26.69	0.3685	5478902	24.26	0.3945	5479419	29.95	0.4195	5479936	29.95
0.3190	5477879	26.69	0.3440	5478396	27.07	0.3690	5478913	24.26	0.3950	5479430	29.95	0.4200	5479947	29.95
0.3195	5477890	26.69	0.3445	5478407	27.07	0.3695	5478924	24.26	0.3955	5479441	29.95	0.4205	5479958	29.95
0.3200	5477901	26.69	0.3450	5478418	27.07	0.3700	5478935	24.26	0.3960	5479452	29.95	0.4210	5479969	29.95
0.3205	5477912	26.69	0.3455	5478429	27.07	0.3705	5478946	24.26	0.3965	5479463	29.95	0.4215	5479980	29.95
0.3210	5477923	26.69	0.3460	5478440	27.07	0.3710	5478957	24.26	0.3975	5479474	29.95	0.4220	5479991	28.09
0.3215	5477934	26.69	0.3465	5478451	27.07	0.3715	5478968	24.26	0.3980	5479485	29.95	0.4225	5480002	28.09
0.3220	5477945	26.69	0.3470	5478462	27.07	0.3720	5478979	24.26	0.3985	5479496	29.95	0.4230	5480013	28.09
0.3225	5477956	26.69	0.3475	5478473	27.07	0.3725	5478990	24.26	0.3990	5479507	29.95	0.4235	5480024	28.09
0.3235	5477967	26.69	0.3485	5478484	27.07	0.3730	5479001	24.26	0.3995	5479518	29.95	0.4240	5480035	28.09
0.3240	5477978	26.69	0.3490	5478495	27.07	0.3735	5479012	24.26	0.4000	5479529	29.95	0.4245	5480046	28.09
0.3245	5477989	26.69	0.3495	5478506	27.07	0.3745	5479023	24.26	0.4005	5479540	29.95	0.4250	5480057	28.09
0.3250	5478000	26.69	0.3500	5478517	27.07	0.3755	5479034	29.20	0.4010	5479551	29.95	0.4255	5480068	28.09
0.3255	5478011	26.69	0.3505	5478528	27.07	0.3765	5479045	29.20	0.4015	5479562	29.95	0.4260	5480079	28.09
0.3260	5478022	26.69	0.3510	5478539	27.07	0.3775	5479056	29.20	0.4020	5479573	29.95	0.4265	5480090	28.09

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Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING

STOCKED INTERMEDIATE SIZES - STRAIGHT SHANK STRAIGHT FLUTE - HIGH SPEED STEEL

DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE	DEC. SIZE	ITEM#	PRICE
0.4270	5480101	28.09	0.4525	5480629	31.85	0.4765	5481157	31.85	0.5020	5481685	40.30	0.7525	5482202	64.63
0.4275	5480112	28.09	0.4530	5480640	31.85	0.4770	5481168	31.85	0.5025	5481696	40.30	0.7530	5482213	64.63
0.4280	5480123	28.09	0.4535	5480651	31.85	0.4775	5481179	31.85	0.5030	5481707	40.30	0.7540	5482224	64.63
0.4285	5480134	28.09	0.4540	5480662	31.85	0.4780	5481190	31.85	0.5035	5481718	40.30	0.7550	5482235	64.63
0.4290	5480145	28.09	0.4545	5480673	31.85	0.4785	5481201	31.85	0.5040	5481729	40.30	0.8095	5482246	64.63
0.4295	5480156	28.09	0.4550	5480684	31.85	0.4790	5481212	31.85	0.5045	5481740	40.30	0.8100	5482257	64.63
0.4300	5480167	28.09	0.4555	5480695	31.85	0.4795	5481223	31.85	0.5050	5481751	40.30	0.8105	5482268	64.63
0.4305	5480178	28.09	0.4560	5480706	31.85	0.4800	5481234	31.85	0.5060	5481762	40.30	0.8110	5482279	64.63
0.4310	5480189	28.09	0.4565	5480717	31.85	0.4805	5481245	31.85	0.5070	5481773	40.30	0.8120	5482290	64.63
0.4315	5480200	28.09	0.4570	5480728	31.85	0.4810	5481256	31.85	0.5080	5481784	40.30	0.8130	5482301	71.17
0.4320	5480211	28.09	0.4575	5480739	31.85	0.4815	5481267	31.85	0.5090	5481795	40.30	0.8140	5482312	71.17
0.4325	5480222	28.09	0.4580	5480750	31.85	0.4820	5481278	31.85	0.5100	5481806	40.30	0.8145	5482323	71.17
0.4330	5480233	28.09	0.4585	5480761	31.85	0.4825	5481289	31.85	0.5600	5481817	39.47	0.8150	5482334	71.17
0.4335	5480244	28.09	0.4590	5480772	31.85	0.4830	5481300	31.85	0.5605	5481828	39.47	0.8155	5482345	71.17
0.4340	5480255	28.09	0.4595	5480783	31.85	0.4835	5481311	31.85	0.5610	5481839	39.47	0.8720	5482356	73.02
0.4345	5480266	28.09	0.4600	5480794	31.85	0.4840	5481322	31.85	0.5620	5481850	39.47	0.8725	5482367	73.02
0.4350	5480277	28.09	0.4605	5480805	31.85	0.4845	5481333	29.95	0.5630	5481861	45.32	0.8730	5482378	73.02
0.4355	5480288	28.09	0.4610	5480816	31.85	0.4850	5481344	29.95	0.5640	5481872	45.32	0.8735	5482389	73.02
0.4360	5480299	28.09	0.4615	5480827	31.85	0.4855	5481355	29.95	0.5645	5481883	45.32	0.8745	5482400	73.02
0.4370	5480310	28.09	0.4620	5480838	31.85	0.4860	5481366	29.95	0.5650	5481894	45.32	0.8755	5482411	79.56
0.4380	5480321	31.85	0.4625	5480849	31.85	0.4865	5481377	29.95	0.5655	5481905	45.32	0.8765	5482422	79.56
0.4390	5480332	31.85	0.4630	5480860	31.85	0.4870	5481388	29.95	0.6220	5481916	45.52	0.8770	5482433	79.56
0.4395	5480343	31.85	0.4635	5480871	31.85	0.4875	5481399	29.95	0.6225	5481927	45.52	0.8775	5482444	79.56
0.4400	5480354	31.85	0.4640	5480882	31.85	0.4880	5481410	29.95	0.6230	5481938	45.52	0.8780	5482455	79.56
0.4405	5480365	31.85	0.4645	5480893	31.85	0.4885	5481421	29.95	0.6235	5481949	45.52	0.9340	5482466	79.56
0.4410	5480376	31.85	0.4650	5480904	31.85	0.4890	5481432	29.95	0.6245	5481960	45.52	0.9345	5482477	79.56
0.4415	5480387	31.85	0.4655	5480915	31.85	0.4895	5481443	29.95	0.6255	5481971	50.84	0.9350	5482488	79.56
0.4420	5480398	31.85	0.4660	5480926	31.85	0.4900	5481454	29.95	0.6265	5481982	50.84	0.9355	5482499	79.56
0.4425	5480409	31.85	0.4665	5480937	31.85	0.4905	5481465	29.95	0.6270	5481993	50.84	0.9360	5482510	79.56
0.4430	5480420	31.85	0.4670	5480948	31.85	0.4910	5481476	29.95	0.6275	5482004	50.84	0.9370	5482521	79.56
0.4435	5480431	31.85	0.4675	5480959	31.85	0.4915	5481487	29.95	0.6280	5482015	50.84	0.9380	5482532	87.33
0.4440	5480442	31.85	0.4680	5480970	31.85	0.4920	5481498	29.95	0.6300	5482697	50.84	0.9390	5482543	87.33
0.4445	5480453	31.85	0.4685	5480981	31.85	0.4925	5481509	29.95	0.6845	5482026	50.84	0.9395	5482554	87.33
0.4450	5480464	31.85	0.4690	5480992	31.85	0.4930	5481520	29.95	0.6850	5482037	50.84	0.9400	5482565	87.33
0.4455	5480475	31.85	0.4695	5481003	31.85	0.4935	5481531	29.95	0.6855	5482048	50.84	0.9405	5482576	87.33
0.4460	5480486	31.85	0.4700	5481014	31.85	0.4940	5481542	29.95	0.6860	5482059	50.84	0.9970	5482587	89.01
0.4465	5480497	31.85	0.4705	5481025	31.85	0.4945	5481553	29.95	0.6870	5482070	50.84	0.9975	5482598	89.01
0.4470	5480508	31.85	0.4710	5481036	31.85	0.4950	5481564	29.95	0.6880	5482081	56.05	0.9980	5482609	89.01
0.4475	5480519	31.85	0.4715	5481047	31.85	0.4955	5481575	29.95	0.6895	5482092	56.05	0.9985	5482620	89.01
0.4480	5480530	31.85	0.4720	5481058	31.85	0.4960	5481586	29.95	0.6900	5482103	56.05	0.9995	5482631	89.01
0.4485	5480541	31.85	0.4725	5481069	31.85	0.4965	5481597	29.95	0.6905	5482114	56.05	1.0005	5482642	123.63
0.4490	5480552	31.85	0.4730	5481080	31.85	0.4970	5481608	29.95	0.7470	5482125	59.55	1.0015	5482653	123.63
0.4495	5480563	31.85	0.4735	5481091	31.85	0.4975	5481619	29.95	0.7475	5482136	59.55	1.0020	5482664	123.63
0.4500	5480574	31.85	0.4740	5481102	31.85	0.4980	5481630	29.95	0.7485	5482147	59.55	1.0025	5482675	123.63
0.4505	5480585	31.85	0.4745	5481113	31.85	0.4985	5481641	29.95	0.7495	5482158	59.55	1.0030	5482686	123.63
0.4510	5480596	31.85	0.4750	5481124	31.85	0.4995	5481652	29.95	0.7505	5482169	64.63	-	-	-
0.4515	5480607	31.85	0.4755	5481135	31.85	0.5005	5481663	40.30	0.7515	5482180	64.63	-	-	-
0.4520	5480618	31.85	0.4760	5481146	31.85	0.5015	5481674	40.30	0.7520	5482191	64.63	-	-	-

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HSS & COBALT REAMERS



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



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	109.02	71.25	53.09	35.04	31.65	26.90	24.34	22.64	22.05	20.21	19.59	19.34	18.88
.0196 - .0290	99.12	64.77	48.30	31.85	28.76	25.21	22.12	20.62	19.11	18.35	18.27	18.24	18.17
.0291 - .0390	90.10	58.78	43.89	28.93	26.14	22.94	20.13	18.73	17.36	16.69	16.22	15.99	15.61
.0391 - .0624	81.44	54.22	43.89	27.90	25.16	21.80	19.18	17.82	16.44	15.43	15.19	15.13	15.03
.0626 - .1093	85.75	54.89	42.33	26.38	23.12	19.17	17.36	15.98	14.64	13.81	13.48	13.23	12.78
.1095 - .1249	84.62	53.71	39.79	23.05	20.24	18.52	15.19	13.81	13.61	13.39	13.17	12.92	12.82
.1251 - .1405	90.10	58.78	39.69	28.93	27.25	22.94	20.13	18.73	17.36	16.69	16.26	15.99	15.45
.1407 - .1561	88.74	57.85	43.94	28.05	25.16	21.97	19.18	17.82	16.82	16.44	16.07	15.69	15.29
.1563 - .1718	90.10	56.23	43.68	28.93	26.20	22.94	20.13	18.73	17.36	17.09	16.82	16.69	16.36
.1720 - .1874	86.42	53.94	43.66	26.95	24.22	21.64	19.04	17.60	17.41	17.15	16.90	16.47	16.26
.1876 - .2030	92.53	61.65	48.38	32.38	29.62	26.33	23.55	22.21	20.70	19.59	19.17	19.04	18.89
.2032 - .2187	92.53	61.65	47.86	31.88	29.14	25.79	22.98	21.65	20.24	19.04	18.80	18.58	18.49
.2189 - .2343	92.90	62.13	48.25	32.29	29.52	26.20	23.40	22.01	20.65	19.82	19.52	19.34	19.18
.2345 - .2499	92.90	62.13	45.93	29.96	27.17	23.97	21.23	19.84	18.37	18.27	18.02	17.83	17.76
.2501 - .2968	96.49	65.60	51.68	35.72	32.98	29.46	26.69	25.31	23.85	22.61	22.39	22.19	21.97
.2970 - .3124	93.81	62.95	49.02	33.00	30.23	26.90	24.07	22.66	22.56	22.37	22.26	22.11	21.97
.3126 - .3437	98.55	67.18	53.18	34.45	33.40	30.81	28.13	26.69	25.19	24.09	23.85	23.69	23.49
.3439 - .3593	98.41	67.54	53.58	37.59	34.80	32.67	28.13	27.07	25.70	24.47	24.22	24.02	23.85
.3595 - .3749	95.58	64.62	50.70	34.62	31.88	28.51	25.76	24.26	24.13	24.09	23.93	23.81	23.72
.3751 - .3905	100.05	69.21	55.37	39.24	36.47	33.43	30.59	29.20	27.85	26.38	26.23	26.01	25.79
.3907 - .4218	101.31	70.41	56.44	40.47	37.70	34.06	31.31	29.95	28.53	27.29	27.03	26.90	26.83
.4220 - .4374	99.39	68.56	54.53	38.61	35.86	32.29	29.46	28.08	27.85	27.75	27.63	27.06	26.77
.4376 - .4843	104.00	73.08	59.15	43.18	40.41	36.63	32.51	31.85	31.15	30.18	29.96	29.62	29.36
.4845 - .4999	101.55	70.66	56.71	40.67	37.97	34.21	30.04	29.95	29.71	29.59	29.36	29.26	29.16
.5001 - .5311	147.36	91.53	72.97	54.28	49.69	44.98	41.92	40.29	38.74	38.03	37.54	37.24	36.87
.5313 - .5624	146.53	90.67	72.07	53.42	48.83	44.11	41.08	39.47	37.88	37.11	36.65	36.31	36.14
.5626 - .5937	152.30	96.43	77.80	59.15	55.61	49.89	48.26	45.31	43.66	42.95	42.45	42.13	41.70
.5939 - .6249	152.51	96.59	77.97	59.33	54.74	50.09	46.99	45.52	43.84	43.14	42.61	42.33	42.15
.6251 - .6874	157.95	102.09	83.46	64.82	60.17	57.75	52.39	50.85	49.32	48.52	48.05	47.79	47.64
.6876 - .7187	163.06	107.25	88.60	69.73	65.19	60.63	57.56	56.05	54.51	53.71	53.20	52.83	52.52
.7189 - .7499	165.12	109.26	90.74	72.03	67.47	62.78	59.63	59.55	59.49	59.43	59.22	59.10	58.90
.7501 - .8124	171.63	115.81	97.26	78.58	73.95	69.31	66.20	64.63	63.09	62.32	61.86	61.51	61.09
.8126 - .8437	178.21	122.32	103.79	85.13	80.47	75.89	72.73	71.17	69.65	68.84	68.34	68.07	67.68
.8439 - .8749	179.86	124.01	105.36	86.71	82.08	77.45	74.30	73.01	72.33	70.41	69.91	69.61	68.29
.8751 - .9374	186.62	130.76	112.14	93.50	88.88	84.29	81.11	79.56	78.05	77.81	77.68	77.56	77.42
.9376 - .9687	194.37	137.69	119.91	101.31	96.66	92.02	88.88	87.33	85.80	85.08	84.50	84.32	83.85
.9689 - .9999	195.98	140.14	121.54	102.86	98.28	93.61	90.54	89.01	87.38	86.65	86.15	85.80	85.45
1.0001 - 1.0624	210.33	157.11	151.55	145.99	140.37	134.80	129.22	123.63	118.08	117.35	114.67	113.73	112.77
1.0626 - 1.1249	222.11	169.17	163.06	156.93	150.80	144.68	138.58	132.47	126.36	120.25	119.68	119.09	118.41
1.1251 - 1.1874	237.19	185.02	178.67	172.61	166.52	160.44	154.55	148.30	143.34	136.13	130.04	123.99	117.90
1.1876 - 1.2499	250.38	197.46	190.83	184.26	177.69	171.12	164.53	157.95	151.38	144.81	138.23	131.64	125.08
1.2501 - 1.3749	284.80	229.38	222.22	215.22	208.23	200.18	194.24	187.28	180.24	173.25	171.45	169.66	168.20
1.3751 - 1.4999	315.05	261.41	253.60	245.82	238.01	230.19	222.44	214.60	206.83	199.00	196.88	193.99	190.68

For technical information, please see page 240.

THRU 1/2" DIAMETER	ABOVE 1/2" TO 5/8"	ABOVE 5/8" TO 1-1/2"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004

HSS & COBALT REAMERS

Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - STRAIGHT FLUTE



M42 COBALT

SPECIAL SIZES - QUANTITY PRICING

HSS & COBALT REAMERS

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	157.49	83.26	61.71	40.28	34.91	29.50	25.95	24.14	22.35	21.47	20.94	20.21	20.13
.0196 - .0290	143.19	75.65	56.10	36.62	31.73	26.83	23.55	21.94	20.34	20.24	20.22	20.21	20.13
.0291 - .0390	130.18	68.82	51.02	33.26	28.82	25.79	21.42	19.97	18.49	17.76	17.32	17.00	16.61
.0391 - .0624	118.52	67.78	50.00	32.21	27.77	23.33	20.40	18.91	17.43	16.69	16.60	16.46	16.31
.0626 - .1093	119.34	66.26	48.49	30.70	26.30	21.81	18.88	17.39	15.90	15.19	15.10	15.03	14.91
.1095 - .1249	116.61	63.50	45.77	27.99	23.55	19.13	16.16	15.29	14.42	14.17	13.97	13.78	13.62
.1251 - .1405	121.88	68.79	50.81	33.26	28.82	24.40	21.42	19.97	18.49	17.76	17.32	17.00	16.61
.1407 - .1561	120.87	67.78	50.00	32.21	27.77	23.33	20.40	18.91	17.43	16.69	16.47	16.41	16.29
.1563 - .1718	121.99	68.84	51.07	33.34	28.91	24.47	21.53	20.03	18.54	17.79	17.66	17.54	17.39
.1720 - .1874	121.10	68.04	50.23	32.51	28.82	23.63	20.65	19.18	17.70	17.66	17.56	17.43	17.42
.1876 - .2030	126.06	72.97	55.15	37.42	32.99	28.51	25.60	24.10	22.61	21.87	21.42	21.15	21.03
.2032 - .2343	125.53	72.46	54.70	36.91	32.51	28.08	25.09	24.32	23.53	23.28	23.14	22.94	22.59
.2345 - .2499	123.37	70.41	52.65	34.91	30.44	26.00	23.05	22.92	22.77	22.59	22.37	21.97	21.69
.2501 - .2968	134.37	81.29	63.46	45.77	41.30	36.88	33.85	32.41	30.95	30.21	29.98	29.55	29.46
.2970 - .3124	130.99	77.85	60.09	42.33	37.86	33.44	30.52	30.33	30.14	30.00	29.74	29.70	29.49
.3126 - .3437	136.04	82.90	65.12	47.38	42.95	38.48	35.55	34.06	32.55	32.42	32.24	31.94	31.76
.3439 - .3593	136.28	83.20	65.42	47.66	43.24	38.82	35.82	34.38	32.92	32.69	32.50	32.42	32.21
.3595 - .3749	133.17	80.05	62.29	44.50	40.07	35.62	32.67	32.59	32.50	32.38	16.26	32.31	32.18
.3751 - .3905	145.45	92.37	74.62	56.85	52.39	47.97	44.88	43.47	42.05	41.30	40.85	40.58	40.20
.3907 - .4218	147.31	94.27	76.46	58.70	54.29	49.83	46.87	45.40	43.93	43.24	42.69	42.42	42.05
.4220 - .4374	144.42	91.33	73.57	55.80	51.39	46.93	43.95	42.49	41.00	40.29	39.83	39.54	39.18
.4376 - .4843	151.44	98.37	80.59	62.84	58.41	53.95	51.05	49.57	48.08	47.32	46.87	46.59	46.20
.4845 - .4999	147.62	94.50	76.75	58.98	54.51	50.10	47.16	46.36	45.55	45.43	45.27	45.17	45.10
.5001 - .5311	155.76	101.90	84.32	65.12	63.31	61.62	59.94	58.26	56.58	54.90	53.20	51.52	49.86
.5313 - .5624	156.93	103.62	86.64	67.20	65.22	63.31	61.42	59.53	57.63	55.74	53.85	51.96	50.06
.5626 - .5937	159.90	106.29	88.81	69.26	67.10	64.99	62.88	66.12	58.69	56.58	54.47	52.36	50.24
.5939 - .6249	164.96	111.62	94.66	75.05	73.03	71.17	69.31	67.44	65.58	63.67	61.82	59.94	58.08
.6251 - .6874	170.21	116.66	100.57	80.86	79.03	77.32	75.61	73.89	72.16	70.46	69.41	66.99	65.31
.6876 - .7187	175.38	121.76	104.60	84.79	83.32	81.94	80.47	79.13	77.80	76.44	75.05	74.62	74.48
.7189 - .7499	181.57	128.53	112.55	92.58	90.42	88.28	86.17	84.06	81.94	79.81	77.68	75.57	73.42
.7501 - .8124	191.15	137.68	120.99	101.70	95.34	93.30	91.24	89.21	87.18	85.13	83.07	81.03	79.00
.8126 - .8437	200.77	147.88	130.38	112.38	107.05	105.21	103.46	101.70	99.91	98.12	96.34	94.58	92.81
.8439 - .8749	211.21	157.69	140.51	121.56	114.48	112.06	109.71	107.35	104.97	102.61	100.22	97.89	95.52
.8751 - .9374	219.64	165.91	148.92	129.08	121.88	119.46	117.09	114.69	112.30	109.92	107.50	106.46	105.35
.9376 - .9687	230.89	176.05	159.26	139.93	137.01	134.41	131.64	128.93	126.16	123.39	120.66	119.28	118.00
.9689 - .9999	238.93	185.47	169.02	150.11	146.36	142.67	139.00	135.36	131.72	128.09	124.43	120.76	117.11
1.0001 - 1.0624	257.09	203.56	186.19	166.87	162.77	319.53	154.53	150.44	146.34	142.22	138.11	133.97	129.91
1.0626 - 1.1249	275.42	222.10	205.08	186.20	180.79	175.58	170.32	165.09	159.83	154.63	149.39	144.15	138.93
1.1251 - 1.1874	293.18	238.93	223.44	202.70	198.00	193.39	188.81	184.19	179.60	174.97	170.35	165.77	161.14
1.1876 - 1.2499	311.76	259.25	242.52	222.30	216.33	210.72	205.08	199.50	193.92	188.31	182.72	177.09	171.53
1.2501 - 1.3749	330.49	276.03	258.04	239.70	236.07	197.68	228.79	225.17	221.53	217.90	214.27	214.03	213.54
1.3751 - 1.4999	348.83	295.19	278.46	259.05	256.49	254.10	251.68	250.15	248.61	248.09	247.66	247.06	246.57

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



HSS & COBALT REAMERS

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	PRICE	M42 COBALT	PRICE
1.0mm	.0394	1/2	4	2-1/2	.0394	5488252	17.52	5490188	19.16
#60	.0400	1/2	4	2-1/2	.0390	5488263	17.52	5490199	19.16
#59	.0410	1/2	4	2-1/2	.0390	5488274	17.52	5490210	19.16
#58	.0420	1/2	4	2-1/2	.0390	5488285	17.52	5490221	19.16
#57	.0430	1/2	4	2-1/2	.0390	5488296	17.52	5490232	19.16
#56	.0465	1/2	4	2-1/2	.0455	5488307	17.52	5490243	19.16
3/64	.0469	1/2	4	2-1/2	.0455	5488318	17.52	5490254	19.16
#55	.0520	1/2	4	2-1/2	.0510	5488329	17.52	5490265	19.16
#54	.0550	1/2	4	2-1/2	.0510	5488340	17.52	5490276	19.16
1.5mm	.0591	1/2	4	2-1/2	.0510	5488351	17.52	5490287	19.16
#53	.0595	1/2	4	2-1/2	.0585	5488362	17.52	5490298	19.16
1/16	.0625	1/2	4	2-1/2	.0585	5488373	17.52	5490309	19.16
#52	.0635	1/2	4	2-1/2	.0585	5488384	17.52	5490320	19.16
#51	.0670	3/4	4	3	.0660	5488395	14.09	5490331	15.43
#50	.0700	3/4	4	3	.0660	5488406	14.09	5490342	15.43
#49	.0730	3/4	4	3	.0660	5488417	14.09	5490353	15.43
#48	.0760	3/4	4	3	.0720	5488428	14.09	5490364	15.43
5/64	.0781	3/4	4	3	.0720	5488439	14.09	5490375	15.43
#47	.0785	3/4	4	3	.0720	5488450	14.09	5490386	15.43
2.0mm	.0787	3/4	4	3	.0720	5488461	14.09	5490397	15.43
#46	.0810	3/4	4	3	.0771	5488472	14.09	5490408	15.43
#45	.0820	3/4	4	3	.0771	5488483	14.09	5490419	15.43
#44	.0860	3/4	4	3	.0810	5488494	14.09	5490430	15.43
#43	.0890	3/4	4	3	.0810	5488505	14.09	5490441	15.43
#42	.0935	3/4	4	3	.0880	5488516	14.09	5490452	15.43
3/32	.0938	3/4	4	3	.0880	5488527	13.97	5490463	15.43
#41	.0960	7/8	4	3-1/2	.0928	5488538	14.20	5490474	15.57
#40	.0980	7/8	4	3-1/2	.0928	5488549	14.20	5490485	15.57
2.5mm	.0984	7/8	4	3-1/2	.0928	5488560	14.20	5490496	15.57
#39	.0995	7/8	4	3-1/2	.0928	5488571	14.20	5490507	15.57
#38	.1015	7/8	4	3-1/2	.0950	5488582	14.20	5490518	15.57
#37	.1040	7/8	4	3-1/2	.0950	5488593	14.20	5490529	15.57
#36	.1065	7/8	4	3-1/2	.1030	5488604	14.20	5490540	15.57
7/64	.1094	7/8	4	3-1/2	.1030	5488615	14.62	5490551	16.06
#35	.1100	7/8	4	3-1/2	.1030	5488626	14.62	5490562	16.06
#34	.1110	7/8	4	3-1/2	.1055	5488637	14.62	5490573	16.06
#33	.1130	7/8	4	3-1/2	.1055	5488648	14.62	5490584	16.06
#32	.1160	7/8	4	3-1/2	.1120	5488659	14.62	5490595	16.06
3.0mm	.1181	7/8	4	3-1/2	.1120	5488670	14.62	5490606	16.06
#31	.1200	7/8	4	3-1/2	.1120	5488681	14.62	5490617	16.06
o/u	.1240	7/8	4	3-1/2	.1190	5488692	14.62	5490628	16.06
1/8	.1250	7/8	4	3-1/2	.1190	5488703	13.18	5490639	14.44
o/u	.1260	7/8	4	3-1/2	.1190	5488714	14.62	5490650	16.06
#30	.1285	7/8	4	3-1/2	.1190	5488725	14.62	5490661	16.06
#29	.1360	1	4	4	.1275	5488736	17.52	5490672	19.18
3.5mm	.1378	1	4	4	.1350	5488747	17.52	5490683	19.18

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	PRICE	M42 COBALT	PRICE
#28	.1405	1	4	4	.1350	5488758	17.52	5490694	19.18
9/64	.1406	1	4	4	.1350	5488769	17.52	5490705	19.18
#27	.1440	1	4	4	.1350	5488780	17.52	5490716	19.18
#26	.1470	1	4	4	.1430	5488791	17.52	5490727	19.18
#25	.1495	1	4	4	.1430	5488802	17.52	5490738	19.18
#24	.1520	1	4	4	.1460	5488813	18.23	5490749	19.18
#23	.1540	1	4	4	.1460	5488824	18.23	5490760	19.18
5/32	.1562	1	4	4	.1510	5488835	18.23	5490771	19.18
#22	.1570	1	6	4	.1510	5488846	18.23	5490782	19.18
4.0mm	.1575	1	6	4	.1510	5488857	18.23	5490793	19.18
#21	.1590	1-1/8	6	4-1/2	.1530	5488868	18.69	5490804	20.47
#20	.1610	1-1/8	6	4-1/2	.1530	5488879	18.69	5490815	20.47
#19	.1660	1-1/8	6	4-1/2	.1595	5488890	18.69	5490826	20.47
#18	.1695	1-1/8	6	4-1/2	.1595	5488901	18.69	5490837	20.47
11/64	.1719	1-1/8	6	4-1/2	.1645	5488912	18.69	5490848	20.47
#17	.1730	1-1/8	6	4-1/2	.1645	5488923	18.69	5490859	20.47
#16	.1770	1-1/8	6	4-1/2	.1704	5488934	18.69	5490870	20.47
4.5mm	.1772	1-1/8	6	4-1/2	.1704	5488945	18.69	5490881	20.47
#15	.1800	1-1/8	6	4-1/2	.1755	5488956	18.69	5490892	20.47
#14	.1820	1-1/8	6	4-1/2	.1755	5488967	18.69	5490903	20.47
#13	.1850	1-1/8	6	4-1/2	.1805	5488978	18.69	5490914	20.47
o/u	.1865	1-1/8	6	4-1/2	.1805	5488989	18.69	5490925	20.47
3/16	.1875	1-1/8	6	4-1/2	.1805	5489000	17.76	5490936	19.44
o/u	.1885	1-1/8	6	4-1/2	.1805	5489011	18.69	5490947	20.47
#12	.1890	1-1/8	6	4-1/2	.1805	5489022	18.69	5490958	20.47
#11	.1910	1-1/4	6	5	.1860	5489033	20.94	5490969	22.94
#10	.1935	1-1/4	6	5	.1860	5489044	20.94	5490980	22.94
#9	.1960	1-1/4	6	5	.1895	5489055	20.94	5490991	22.94
5.0mm	.1969	1-1/4	6	5	.1895	5489066	20.94	5491002	22.94
#8	.1990	1-1/4	6	5	.1895	5489077	20.94	5491013	22.94
#7	.2010	1-1/4	6	5	.1895	5489088	20.94	5491024	22.94
13/64	.2031	1-1/4	6	5	.1945	5489099	20.94	5491035	22.94
#6	.2040	1-1/4	6	5	.1945	5489110	20.94	5491046	22.94
#5	.2055	1-1/4	6	5	.2016	5489121	20.94	5491057	22.94
#4	.2090	1-1/4	6	5	.2016	5489132	20.94	5491068	22.94
#3	.2130	1-1/4	6	5	.2075	5489143	20.94	5491079	22.94
5.5mm	.2165	1-1/4	6	5	.2075	5489154	20.94	5491090	22.94
7/32	.2188	1-1/4	6	5	.2075	5489165	20.94	5491101	22.94
#2	.2210	1-1/2	6	6	.2173	5489176	21.53	5491112	23.59
#1	.2280	1-1/2	6	6	.2173	5489187	21.53	5491123	23.59
A	.2340	1-1/2	6	6	.2265	5489198	21.53	5491134	23.59
15/64	.2344	1-1/2	6	6	.2265	5489209	21.53	5491145	23.59
6.0mm	.2362	1-1/2	6	6	.2265	5489220	21.67	5491156	24.83
B	.2380	1-1/2	6	6	.2329	5489231	21.67	5491167	24.83
C	.2420	1-1/2	6	6	.2329	5489242	21.67	5491178	24.83
D	.2460	1-1/2	6	6	.2329	5489253	21.67	5491189	22.58

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"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CHUCKING

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



HSS & COBALT REAMERS

SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	PRICE	M42 COBALT	PRICE
o/u	.2490	1-1/2	6	6	.2405	5489264	23.13	5491200	26.59
1/4	.2500	1-1/2	6	6	.2405	5489275	18.45	5491211	21.10
o/u	.2510	1-1/2	6	6	.2405	5489286	23.13	5491222	26.59
6.5mm	.2559	1-1/2	6	6	.2405	5489297	21.67	5491233	24.83
F	.2570	1-1/2	6	6	.2485	5489308	21.67	5491244	24.83
G	.2610	1-1/2	6	6	.2485	5489319	21.67	5491255	24.83
17/64	.2656	1-1/2	6	6	.2485	5489330	24.18	5491266	30.66
H	.2660	1-1/2	6	6	.2485	5489341	24.18	5491277	30.66
I	.2720	1-1/2	6	6	.2485	5489352	24.18	5491288	30.66
7.0mm	.2756	1-1/2	6	6	.2485	5489363	24.18	5491299	30.66
J	.2770	1-1/2	6	6	.2485	5489374	24.18	5491310	30.66
K	.2810	1-1/2	6	6	.2485	5489385	24.18	5491321	30.66
9/32	.2812	1-1/2	6	6	.2485	5489396	22.94	5491332	29.14
L	.2900	1-1/2	6	6	.2792	5489407	24.18	5491343	30.66
M	.2950	1-1/2	6	6	.2792	5489418	24.18	5491354	30.66
7.5mm	.2953	1-1/2	6	6	.2792	5489429	24.18	5491365	30.66
19/64	.2969	1-1/2	6	6	.2792	5489440	24.18	5491376	30.66
N	.3020	1-1/2	6	6	.2792	5489451	24.18	5491387	30.66
o/u	.3115	1-1/2	6	6	.2792	5489462	22.94	5491398	29.14
5/16	.3125	1-1/2	6	6	.2792	5489473	21.75	5491409	27.60
o/u	.3135	1-1/2	6	6	.2792	5489484	22.94	5491420	29.14
8.0mm	.3150	1-1/2	6	6	.2792	5489495	24.18	5491431	30.66
O	.3160	1-1/2	6	6	.2792	5489506	24.18	5491442	30.66
P	.3230	1-1/2	6	6	.2792	5489517	25.86	5491453	33.03
21/64	.3281	1-1/2	6	6	.2792	5489528	25.86	5491464	33.03
Q	.3320	1-1/2	6	6	.2792	5489539	25.86	5491475	33.03
8.5mm	.3346	1-1/2	6	6	.2792	5489550	25.86	5491486	33.03
R	.3390	1-1/2	6	6	.2792	5489561	25.86	5491497	33.03
11/32	.3438	1-1/2	6	6	.2792	5489572	25.86	5491508	33.03
S	.3480	1-3/4	6	6	.3105	5489583	26.08	5491519	33.47
9.0mm	.3543	1-3/4	6	7	.3105	5489594	26.08	5491530	33.47
T	.3580	1-3/4	6	7	.3105	5489605	26.08	5491541	33.47
23/64	.3594	1-3/4	6	7	.3105	5489616	26.08	5491552	33.47
U	.3680	1-3/4	6	7	.3105	5489627	26.08	5491563	33.47
9.5mm-o/u	.3740	1-3/4	6	7	.3105	5489638	24.79	5491574	31.77
3/8	.3750	1-3/4	6	7	.3105	5489649	23.49	5491585	30.13
o/u	.3760	1-3/4	6	7	.3105	5489660	24.79	5491596	31.77
V	.3770	1-3/4	6	7	.3105	5489671	28.39	5491607	42.16
W	.3860	1-3/4	6	7	.3105	5489682	28.39	5491618	42.16
25/64	.3906	1-3/4	6	7	.3105	5489693	28.39	5491629	42.16
10.0mm	.3937	1-3/4	6	7	.3105	5489704	28.39	5491640	42.16
X	.3970	1-3/4	6	7	.3105	5489715	28.39	5491651	42.16
Y	.4040	1-3/4	6	7	.3105	5489726	29.44	5491662	42.16
13/32	.4062	1-3/4	6	7	.3105	5489737	29.44	5491673	42.16
Z	.4130	1-3/4	6	7	.3730	5489748	29.44	5491684	42.16
10.5mm	.4134	1-3/4	6	7	.3730	5489759	29.44	5491695	42.16

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CHUCKING STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



SIZE	DEC. EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	HSS	PRICE	M42 COBALT	PRICE
27/64	.4219	1-3/4	6	7	.3730	5489770	29.44	5491706	42.16
11.0mm	.4331	1-3/4	6	7	.3730	5489781	29.44	5491717	42.16
o/u	.4365	1-3/4	6	7	.3730	5489792	29.44	5491728	42.16
7/16	.4375	1-3/4	6	7	.3730	5489803	27.96	5491739	40.03
o/u	.4385	1-3/4	6	7	.3730	5489814	29.44	5491750	42.16
11.5mm	.4528	1-3/4	6	7	.3730	5489825	32.10	5491761	48.31
29/64	.4531	1-3/4	6	7	.3730	5489836	32.10	5491772	48.31
15/32	.4688	1-3/4	6	7	.3730	5489847	32.10	5491783	48.31
12.0mm	.4724	2	6	8	.4355	5489858	32.10	5491794	48.31
31/64	.4844	2	6	8	.4355	5489869	32.10	5491805	48.31
12.5mm	.4921	2	6	8	.4355	5489880	32.10	5491816	48.31
o/u	.4990	2	6	8	.4355	5489891	32.10	5491827	48.31
1/2	.5000	2	6	8	.4355	5489902	30.43	5491838	45.88
o/u	.5010	2	6	8	.4355	5489913	32.10	5491849	48.31
17/32	.5312	2	6	8	.4355	5489924	37.85	5491860	54.21
9/16	.5625	2	8	8	.4355	5489935	37.85	5491871	54.21
19/32	.5938	2	8	8	.4355	5489946	37.85	5491882	54.21
5/8	.6250	2-1/4	8	9	.5615	5489957	44.16	5491893	63.24
21/32	.6562	2-1/4	8	9	.5615	5489968	46.45	5491904	71.50
11/16	.6875	2-1/4	8	9	.5615	5489979	49.93	5491915	71.50
23/32	.7188	2-1/4	8	9	.5615	5489990	55.74	5491926	79.78
3/4	.7500	2-1/2	8	9-1/2	.6240	5490001	55.74	5491937	80.22
25/32	.7812	2-1/2	8	9-1/2	.6240	5490012	60.42	5491948	86.56
13/16	.8125	2-1/2	8	9-1/2	.6240	5490023	60.42	5491959	86.56
27/32	.8438	2-1/2	8	9-1/2	.6240	5490034	71.52	5491970	102.42
7/8	.8750	2-5/8	8	10	.7490	5490045	73.16	5491981	104.78
29/32	.9062	2-5/8	8	10	.7490	5490056	78.87	5491992	112.90
15/16	.9375	2-5/8	8	10	.7490	5490067	78.87	5492003	112.90
31/32	.9688	2-5/8	8	10	.7490	5490078	88.30	5492014	126.45
1	1.0000	2-3/4	8	10-1/2	.8740	5490089	89.15	5492025	127.46
1-1/16	1.0625	2-3/4	8	10-1/2	.8740	5490100	98.83	-	-
1-1/8	1.1250	2-7/8	8	11	.8740	5490111	105.03	-	-
1-3/16	1.1875	2-7/8	8	11	.9990	5490122	122.99	-	-
1-1/4	1.2500	3	8	11-1/2	.9990	5490133	130.36	-	-
1-5/16	1.3125	3	10	11-1/2	.9990	5490144	152.06	-	-
1-3/8	1.3750	3-1/4	10	12	.9990	5490155	159.82	-	-
1-7/16	1.4375	3-1/4	10	12	1.2490	5490166	171.36	-	-
1-1/2	1.5000	3-1/2	10	12-1/2	1.2490	5490177	184.48	-	-
1-9/16	1.5625	3-1/2	12	13	1.2490	5492036	261.28	-	-
1-5/8	1.6250	3-1/2	12	13	1.2490	5492047	261.28	-	-
1-11/16	1.6875	4	12	13-1/2	1.2490	5492058	300.01	-	-
1-3/4	1.7500	4	12	13-1/2	1.2490	5492069	300.01	-	-
1-13/16	1.8125	4	12	14	1.4990	5492080	345.53	-	-
1-7/8	1.8750	4	12	14	1.4990	5492091	345.53	-	-
1-15/16	1.9375	4	12	14	1.4990	5492102	404.51	-	-
2	2.0000	4	12	14	1.4990	5492113	404.51	-	-

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"
+ .0002, -.0000	+ .0003, -.0000	+ .0001, +.0004	+ .0002, +.0006



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

DOWEL PIN

STRAIGHT SHANK - STRAIGHT FLUTE



HIGH SPEED STEEL

M42 COBALT

STRAIGHT SHANK - RIGHT HAND SPIRAL - RIGHT HAND CUT



HIGH SPEED STEEL

M42 COBALT

HSS & COBALT REAMERS

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	STRAIGHT FLUTE				RIGHT HAND SPIRAL			
					HSS	PRICE	M42	PRICE	HSS	PRICE	M42	PRICE
.1230	7/8	4	3-1/2	.1190	5485601	12.76	5488098	13.20	5492212	14.62	5492366	15.25
.1247	7/8	4	3-1/2	.1190	5485612	12.76	5488109	13.20	5492223	14.62	5492377	15.25
.1855	1-1/8	6	4-1/2	.1805	5485623	16.28	5488120	16.59	5492234	18.69	5492388	19.60
.1870	1-1/8	6	4-1/2	.1805	5485634	16.28	5488131	16.59	5492245	18.69	5492399	19.60
.2480	1-1/2	6	6	.2405	5485645	17.76	5488142	18.61	5492256	19.52	5492410	21.28
.2495	1-1/2	6	6	.2405	5485656	17.76	5488153	18.61	5492267	19.52	5492421	21.28
.3105	1-1/2	6	6	.2792	5485667	20.86	5488164	26.65	5492278	22.96	5492432	27.64
.3120	1-1/2	6	6	.2792	5485678	20.86	5488175	26.65	5492289	22.96	5492443	27.64
.3730	1-3/4	6	7	.3105	5485689	22.52	5488186	29.20	5492300	24.79	5492454	30.27
.3745	1-3/4	6	7	.3105	5485700	22.52	5488197	29.20	5492311	24.79	5492465	30.27
.4355	1-3/4	6	7	.3730	5485711	25.41	5488208	37.46	5492322	29.44	5492476	40.15
.4370	1-3/4	6	7	.3730	5485722	25.41	5488219	37.46	5492333	29.44	5492487	40.15
.4980	2	6	8	.4355	5485733	27.68	5488230	42.97	5492344	32.07	5492498	46.03
.4995	2	6	8	.4355	5485744	27.68	5488241	42.97	5492355	32.07	5492509	46.03

TAPER SHANK - STRAIGHT FLUTE



HIGH SPEED STEEL

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	PRICE	SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	PRICE
1/4	.2500	1-1/2	6	6	1	5497591	29.89	29/32	.9062	2-5/8	8	10	2	5497822	80.06
9/32	.2812	1-1/2	6	6	1	5497602	31.29	15/16	.9375	2-5/8	8	10	3	5497833	80.06
5/16	.3125	1-1/2	6	6	1	5497613	30.76	31/32	.9688	2-5/8	8	10	3	5497844	87.86
11/32	.3438	1-1/2	6	6	1	5497624	33.33	1	1.0000	2-3/4	8	10-1/2	3	5497855	88.63
3/8	.3750	1-3/4	6	7	1	5497635	34.38	1-1/16	1.0625	2-3/4	8	10-1/2	3	5497866	96.89
13/32	.4062	1-3/4	6	7	1	5497646	34.99	1-1/8	1.1250	2-7/8	8	11	3	5497877	107.52
7/16	.4375	1-3/4	6	7	1	5497657	35.15	1-3/16	1.1875	2-7/8	10	11	3	5497888	120.50
15/32	.4688	1-3/4	6	7	1	5497668	37.97	1-1/4	1.2500	3	10	11-1/2	4	5497899	130.46
1/2	.5000	2	6	8	1	5497679	38.49	1-5/16	1.3125	3	10	11-1/2	4	5497910	142.67
17/32	.5312	2	6	8	1	5497690	42.85	1-3/8	1.3750	3-1/4	10	12	4	5497921	154.19
9/16	.5625	2	8	8	1	5497701	45.70	1-7/16	1.4375	3-1/4	10	12	4	5497932	167.13
19/32	.5938	2	8	8	1	5497712	46.51	1-1/2	1.5000	3-1/2	10	12-1/2	4	5497943	177.64
5/8	.6250	2-1/4	8	9	2	5497723	49.55	1-9/16	1.5625	3-1/2	12	13	4	5497954	249.41
21/32	.6562	2-1/4	8	9	2	5497734	50.01	1-5/8	1.6250	3-1/2	12	13	4	5497965	249.41
11/16	.6875	2-1/4	8	9	2	5497745	50.01	1-11/16	1.6875	4	12	13-1/2	5	5497976	286.39
23/32	.7188	2-1/4	8	9	2	5497756	56.39	1-3/4	1.7500	4	12	13-1/2	5	5497987	286.39
3/4	.7500	2-1/2	8	9-1/2	2	5497767	56.39	1-13/16	1.8125	4	12	14	5	5497998	329.84
25/32	.7812	2-1/2	8	9-1/2	2	5497778	64.45	1-7/8	1.8750	4	12	14	5	5498009	329.84
13/16	.8125	2-1/2	8	9-1/2	2	5497789	64.45	1-15/16	1.9375	4	12	14	5	5498020	386.15
27/32	.8438	2-1/2	8	9-1/2	2	5497800	71.96	2	2.0000	4	12	14	5	5498031	386.15
7/8	.8750	2-5/8	8	10	2	5497811	72.73								

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



EXPANSION

STRAIGHT SHANK - STRAIGHT FLUTE



HIGH SPEED STEEL

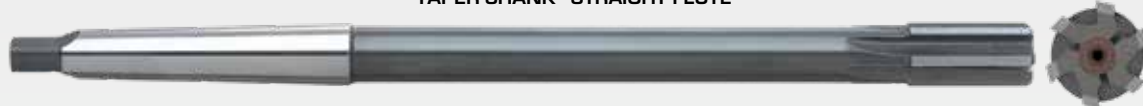
END VIEW

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	PRICE
3/8	3/4	6	7	5/16	5494456	77.36
13/32	3/4	6	7	5/16	5494467	82.41
7/16	7/8	6	7	3/8	5494478	82.41
15/32	7/8	6	8	27/64	5494489	85.59
1/2	1	6	8	7/16	5494500	87.11
17/32	1	6	8	7/16	5494511	90.79
9/16	1-1/8	6	8	7/16	5494522	93.10
19/32	1-1/8	6	8	7/16	5494533	94.52
5/8	1-1/4	6	9	9/16	5494544	97.39
21/32	1-1/4	6	9	9/16	5494555	101.28
11/16	1-1/4	6	9	9/16	5494566	101.99
23/32	1-1/4	6	9	9/16	5494577	108.61
3/4	1-3/8	6	9-1/2	5/8	5494588	112.36
25/32	1-3/8	8	9-1/2	5/8	5494599	118.96
13/16	1-3/8	8	9-1/2	5/8	5494610	123.51
27/32	1-3/8	8	9-1/2	5/8	5494621	130.13
7/8	1-1/2	8	10	3/4	5494632	132.50

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	PRICE
29/32	1-1/2	8	10	3/4	5494643	139.53
15/16	1-1/2	8	10	3/4	5494654	146.07
31/32	1-1/2	8	10	3/4	5494665	152.67
1	1-5/8	8	10-1/2	7/8	5494676	161.03
1-1/32	1-5/8	8	10-1/2	7/8	5494687	224.04
1-1/16	1-5/8	8	10-1/2	7/8	5494698	177.98
1-3/32	1-5/8	8	10-1/2	7/8	5494709	186.44
1-1/8	1-3/4	8	11	7/8	5494720	194.76
1-5/32	1-3/4	8	11	7/8	5494731	197.42
1-3/16	1-3/4	8	11	1	5494742	205.13
1-7/32	1-3/4	8	11	1	5494753	212.60
1-1/4	1-7/8	8	11-1/2	1	5494764	221.09
1-5/16	1-7/8	8	11-1/2	1	5494775	228.48
1-3/8	2	8	12	1	5494786	236.88
1-7/16	2	8	12	1-1/4	5494797	246.25
1-1/2	2-1/8	8	12-1/2	1-1/4	5494808	256.64

HSS & COBALT REAMERS

TAPER SHANK - STRAIGHT FLUTE



HIGH SPEED STEEL

END VIEW

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	PRICE
3/8	3/4	6	7	1	5494819	87.78
13/32	3/4	6	7	1	5494830	101.79
7/16	7/8	6	7	1	5494841	92.94
15/32	7/8	6	8	1	5494852	95.15
1/2	1	6	8	1	5494863	97.05
17/32	1	6	8	1	5494874	100.90
9/16	1-1/8	6	8	1	5494885	100.90
19/32	1-1/8	6	8	1	5494896	104.58
5/8	1-1/4	6	9	2	5494907	108.33
21/32	1-1/4	6	9	2	5494918	111.30
11/16	1-1/4	6	9	2	5494929	111.97
23/32	1-1/4	6	9	2	5494940	119.44
3/4	1-3/8	6	9-1/2	2	5494951	123.13
25/32	1-3/8	8	9-1/2	2	5494962	128.79
13/16	1-3/8	8	9-1/2	2	5494973	130.72
27/32	1-3/8	8	9-1/2	2	5494984	138.33
7/8	1-1/2	8	10	2	5494995	143.78

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	ITEM#	PRICE
29/32	1-1/2	8	10	2	5495006	151.25
15/16	1-1/2	8	10	3	5495017	155.01
31/32	1-1/2	8	10	3	5495028	161.56
1	1-5/8	8	10-1/2	3	5495039	170.87
1-1/32	1-5/8	8	10-1/2	3	5495050	177.41
1-1/16	1-5/8	8	10-1/2	3	5495061	185.90
1-3/32	1-5/8	8	10-1/2	3	5495072	194.20
1-1/8	1-3/4	8	11	3	5495083	200.90
1-5/32	1-3/4	8	11	3	5495094	209.18
1-3/16	1-3/4	8	11	3	5495105	217.54
1-7/32	1-3/4	8	11	3	5495116	225.93
1-1/4	1-7/8	8	11-1/2	4	5495127	236.37
1-5/16	1-7/8	8	11-1/2	4	5495138	245.63
1-3/8	2	8	12	4	5495149	255.81
1-7/16	2	8	12	4	5495160	270.81
1-1/2	2-1/8	8	12-1/2	4	5495171	280.07

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

HAND STRAIGHT SHANK STRAIGHT FLUTE



HIGH SPEED STEEL

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	PRICE
1/16	.0625	1	4	2	.0625	5496997	36.10
5/64	.0781	1	4	2	.0781	5497008	36.10
3/32	.0938	1-1/4	4	2-1/2	.0938	5497019	36.10
7/64	.1094	1-1/4	4	2-1/2	.1094	5497030	36.10
1/8	.1250	1-1/2	4	3	.1250	5497041	34.03
9/64	.1406	1-5/8	4	3-1/4	.1406	5497052	34.03
5/32	.1562	1-5/8	4	3-1/4	.1562	5497063	36.79
11/64	.1719	1-3/4	6	3-1/2	.1719	5497074	36.79
3/16	.1875	1-3/4	6	3-1/2	.1875	5497085	36.10
13/64	.2031	1-7/8	6	3-3/4	.2031	5497096	36.10
7/32	.2188	1-7/8	6	3-3/4	.2188	5497107	39.78
15/64	.2344	2	6	4	.2344	5497118	39.78
1/4	.2500	2	6	4	.2500	5497129	39.55
17/64	.2656	2-1/8	6	4-1/4	.2656	5497140	39.78
9/32	.2812	2-1/8	6	4-1/4	.2812	5497151	42.81
19/64	.2969	2-1/4	6	4-1/2	.2969	5497162	42.81
5/16	.3125	2-1/4	6	4-1/2	.3125	5497173	41.85
11/32	.3438	2-3/8	6	4-3/4	.3438	5497184	48.58
3/8	.3750	2-1/2	6	5	.3750	5497195	47.42
13/32	.4062	2-5/8	6	5-1/4	.4062	5497206	55.04
7/16	.4375	2-3/4	6	5-1/2	.4375	5497217	53.92
15/32	.4688	2-7/8	6	5-3/4	.4688	5497228	59.65
1/2	.5000	3	6	6	.5000	5497239	57.34
17/32	.5312	3-1/8	8	6-1/4	.5312	5497250	61.96
9/16	.5625	3-1/4	8	6-1/2	.5625	5497261	66.27
19/32	.5938	3-3/8	8	6-3/4	.5938	5497272	73.66
5/8	.6250	3-1/2	8	7	.6250	5497283	71.42
21/32	.6562	3-11/16	8	7-3/8	.6562	5497294	80.04
11/16	.6875	3-7/8	8	7-3/4	.6875	5497305	78.46
23/32	.7188	4-1/16	8	8-1/8	.7188	5497316	85.95
3/4	.7500	4-3/16	8	8-3/8	.7500	5497327	83.67
25/32	.7812	4-3/8	8	8-3/4	.7812	5497338	91.81
13/16	.8125	4-9/16	8	9-1/8	.8125	5497349	83.67
27/32	.8438	4-11/16	8	9-3/8	.8438	5497360	100.51
7/8	.8750	4-7/8	8	9-3/4	.8750	5497371	101.38
29/32	.9062	5	8	10	.9062	5497382	112.03
15/16	.9375	5-1/8	8	10-1/4	.9375	5497393	101.46
31/32	.9688	5-5/16	8	10-5/8	.9688	5497404	123.35
1	1.0000	5-7/16	8	10-7/8	1.0000	5497415	122.80
1-1/8	1.1250	5-13/16	8	11-5/8	1.1250	5497426	160.49
1-1/4	1.2500	6-1/8	8	12-1/4	1.2500	5497437	197.07
1-3/8	1.3750	6-5/16	10	12-5/8	1.3750	5497448	232.93
1-1/2	1.5000	6-1/2	10	13	1.5000	5497459	274.92

HAND STRAIGHT SHANK LEFT HAND SPIRAL - RIGHT HAND CUT



HIGH SPEED STEEL

SIZE	DECIMAL EQUIV.	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	PRICE
1/16	.0625	1	4	2	.0625	5495182	42.36
5/64	.0781	1	4	2	.0781	5495193	42.36
3/32	.0938	1-1/4	4	2-1/2	.0938	5495204	42.36
7/64	.1094	1-1/4	4	2-1/2	.1094	5495215	42.36
1/8	.1250	1-1/2	4	3	.1250	5495226	41.85
9/64	.1406	1-5/8	4	3-1/4	.1406	5495237	41.85
5/32	.1562	1-5/8	4	3-1/4	.1562	5495248	45.13
11/64	.1719	1-3/4	6	3-1/2	.1719	5495259	45.13
3/16	.1875	1-3/4	6	3-1/2	.1875	5495270	45.13
13/64	.2031	1-7/8	6	3-3/4	.2031	5495281	45.13
7/32	.2188	1-7/8	6	3-3/4	.2188	5495292	43.94
15/64	.2344	2	6	4	.2344	5495303	43.94
1/4	.2500	2	6	4	.2500	5495314	43.74
17/64	.2656	2-1/8	6	4-1/4	.2656	5495325	43.94
9/32	.2812	2-1/8	6	4-1/4	.2812	5495336	48.58
19/64	.2969	2-1/4	6	4-1/2	.2969	5495347	48.58
5/16	.3125	2-1/4	6	4-1/2	.3125	5495358	48.11
11/32	.3438	2-3/8	6	4-3/4	.3438	5495369	54.10
3/8	.3750	2-1/2	6	5	.3750	5495380	53.94
13/32	.4062	2-5/8	6	5-1/4	.4062	5495391	59.94
7/16	.4375	2-3/4	6	5-1/2	.4375	5495402	60.14
15/32	.4688	2-7/8	6	5-3/4	.4688	5495413	66.39
1/2	.5000	3	6	6	.5000	5495424	64.77
17/32	.5312	3-1/8	8	6-1/4	.5312	5495435	75.63
9/16	.5625	3-1/4	8	6-1/2	.5625	5495446	76.05
19/32	.5938	3-3/8	8	6-3/4	.5938	5495457	82.71
5/8	.6250	3-1/2	8	7	.6250	5495468	81.19
21/32	.6562	3-11/16	8	7-3/8	.6562	5495479	89.03
11/16	.6875	3-7/8	8	7-3/4	.6875	5495490	88.77
23/32	.7188	4-1/16	8	8-1/8	.7188	5495501	95.71
3/4	.7500	4-3/16	8	8-3/8	.7500	5495512	93.87
25/32	.7812	4-3/8	8	8-3/4	.7812	5495523	102.01
13/16	.8125	4-9/16	8	9-1/8	.8125	5495534	102.01
27/32	.8438	4-11/16	8	9-3/8	.8438	5495545	111.65
7/8	.8750	4-7/8	8	9-3/4	.8750	5495556	111.65
29/32	.9062	5	8	10	.9062	5495567	124.46
15/16	.9375	5-1/8	8	10-1/4	.9375	5495578	124.46
31/32	.9688	5-5/16	8	10-5/8	.9688	5495589	137.06
1	1.0000	5-7/16	8	10-7/8	1.0000	5495600	137.06
1-1/8	1.1250	5-13/16	8	11-5/8	1.1250	5495611	176.42
1-1/4	1.2500	6-1/8	10	12-1/4	1.2500	5495622	217.08
1-3/8	1.3750	6-5/16	10	12-5/8	1.3750	5495633	256.11
1-1/2	1.5000	6-1/2	10	13	1.5000	5495644	303.35

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, -.0000	+0.003, -.0000	+0.001, +0.004

Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



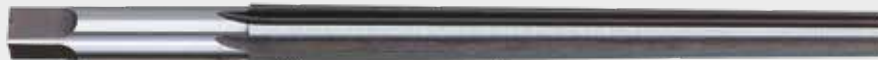
TAPER PIPE LEFT HAND SPIRAL - RIGHT HAND CUT



HIGH SPEED STEEL

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIAMETER	SIZE OF SQUARE	ITEM#	PRICE
1/16	0.2320	0.2750	3/4	6	2-1/8	.3125	.235	5497470	47.22
1/8	0.3160	0.3620	3/4	6	2-1/8	.4375	.328	5497481	44.02
1/4	0.4060	0.4720	1-1/16	6	2-7/16	.5625	.421	5497492	50.40
3/8	0.5400	0.6060	1-1/16	6	2-9/16	.7000	.531	5497503	57.06
1/2	0.6650	0.7510	1-3/8	6	3-1/8	.6875	.515	5497514	72.08
3/4	0.8760	0.9620	1-3/8	8	3-1/4	.9063	.679	5497525	99.94
1	1.1030	1.2120	1-3/4	8	3-3/4	1.1250	.843	5497536	147.06
1-1/4	1.4440	1.5530	1-3/4	10	4	1.3125	.984	5497547	247.69
1-1/2	1.6840	1.7930	1-3/4	12	4-1/4	1.5000	1.125	5497558	313.19
2	2.1590	2.2680	1-3/4	12	4-1/2	1.8750	1.406	5497569	418.34

TAPER PIN HIGH SPEED STEEL



STRAIGHT FLUTE



LEFT HAND SPIRAL
RIGHT HAND CUT



LEFT HAND HELICAL
RIGHT HAND CUT

SIZE	DIAMETER SMALL END	DIAMETER LARGE END	# OF FLUTES	STRAIGHT	PRICE	LH-SPIRAL	PRICE	LH-HELICAL	PRICE
7/0	0.0497	0.0666	4	5496117	37.76	5496579	39.18	5496348	35.03
6/0	0.0611	0.0806	4	5496128	37.76	5496590	39.18	5496359	32.99
5/0	0.0719	0.0966	4	5496139	34.42	5496601	37.76	5496370	34.22
4/0	0.0869	0.1142	4	5496150	34.42	5496612	37.76	5496381	34.22
3/0	0.1029	0.1302	4	5496161	34.42	5496623	37.76	5496392	30.90
2/0	0.1137	0.1462	4	5496172	30.78	5496634	32.99	5496403	31.26
0	0.1287	0.1638	4	5496183	29.60	5496645	31.53	5496414	32.01
1	0.1447	0.1798	6	5496194	28.67	5496656	32.01	5496425	32.50
2	0.1605	0.2008	6	5496205	28.67	5496667	32.01	5496436	36.79
3	0.1813	0.2294	6	5496216	28.67	5496678	32.01	5496447	38.03
4	0.2071	0.2604	6	5496227	32.01	5496689	34.91	5496458	42.81
5	0.2409	0.2994	6	5496238	34.42	5496700	37.24	5496469	46.84
6	0.2773	0.3540	6	5496249	41.55	5496711	45.88	5496480	54.97
7	0.3297	0.4220	6	5496260	53.52	5496722	58.01	5496491	67.85
8	0.3971	0.5050	6	5496271	68.58	5496733	75.02	5496502	79.61
9	0.4805	0.6066	6	5496282	83.16	5496744	90.53	5496513	87.47
10	0.5799	0.7216	6	5496293	91.30	5496755	100.35	5496524	111.06
11	0.7060	0.8780	8	5496304	97.29	5496766	107.05	5496535	117.72
12	0.8420	1.0500	8	5496315	150.54	5496777	165.59	5496546	182.23
13	1.0090	1.2590	10	5496326	291.99	5496788	321.19	5496557	493.53
14	1.2500	1.5420	10	5496337	467.86	5496799	519.23	5496568	570.14

For technical information, please see page 240.



Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

CAPSCREW COUNTERBORES HIGH SPEED STEEL



HSS & COBALT REAMERS

STANDARD TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	PRICE
4	0.1120	1/8	0.1830	9/16	3-7/8	5495655	21.67
5	0.1250	5/32	0.2050	5/8	4-1/8	5495666	21.67
6	0.1380	3/16	0.2270	3/4	4-5/8	5495677	22.94
8	0.1640	7/32	0.2700	3/4	5	5495688	24.58
10	0.1900	1/4	0.3120	7/8	5-1/4	5495699	25.11
1/4	0.2500	9/32	0.3800	1	5-5/8	5495710	26.41
5/16	0.3125	5/16	0.4740	1	6-1/8	5495721	32.99
3/8	0.3750	3/8	0.5690	1-1/4	6-1/2	5495732	36.02
7/16	0.4370	7/16	0.6610	1-1/4	7	5495743	43.33
1/2	0.5000	1/2	0.7550	1-1/2	7-1/2	5495754	49.59
5/8	0.6250	5/8	0.9430	1-1/2	7-5/8	5495765	80.91
3/4	0.7500	3/4	1.1310	1-5/8	7-3/4	5495776	94.13
7/8	0.8750	7/8	1.3200	1-7/8	8	5495787	114.66
1	1.0000	1	1.5080	2	8-1/2	5495798	145.46

1/64 O/S TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	PRICE
4	0.1270	1/8	0.1990	9/16	3-7/8	5495809	21.67
5	0.1400	5/32	0.2210	5/8	4-1/8	5495820	21.67
6	0.1530	3/16	0.2430	3/4	4-5/8	5495831	22.94
8	0.1790	7/32	0.2860	3/4	5	5495842	24.58
10	0.2050	1/4	0.3280	7/8	5-1/4	5495853	25.11
1/4	0.2650	9/32	0.3960	1	5-5/8	5495864	26.41
5/16	0.3280	5/16	0.4890	1	6-1/8	5495875	32.99
3/8	0.3900	3/8	0.5850	1-1/4	6-1/2	5495886	36.02
7/16	0.4520	7/16	0.6760	1-1/4	7	5495897	43.33
1/2	0.5150	1/2	0.7710	1-1/2	7-1/2	5495908	49.59
5/8	0.6400	5/8	0.9590	1-1/2	7-5/8	5495919	80.91
3/4	0.7650	3/4	1.1470	1-5/8	7-3/4	5495930	94.13
7/8	0.8910	7/8	1.3360	1-7/8	8	5495941	114.66
1	1.0150	1	1.5240	2	8-1/2	5495952	145.46

1/32 O/S TOLERANCE

SIZE	PILOT SIZE	PILOT LENGTH	FLUTE SIZE	BODY LENGTH	OVERALL LENGTH	ITEM#	PRICE
4	0.1430	1/8	0.2150	9/16	3-7/8	5495963	21.67
5	0.1560	5/32	0.2370	5/8	4-1/8	5495974	21.67
6	0.1690	3/16	0.2590	3/4	4-5/8	5495985	22.94
8	0.1950	7/32	0.3020	3/4	5	5495996	24.58
10	0.2180	1/4	0.3440	7/8	5-1/4	5496007	25.11
1/4	0.2810	9/32	0.4120	1	5-5/8	5496018	26.41
5/16	0.3430	5/16	0.5040	1	6-1/8	5496029	32.99
3/8	0.4060	3/8	0.6010	1-1/4	6-1/2	5496040	36.02
7/16	0.4680	7/16	0.6910	1-1/4	7	5496051	43.33
1/2	0.5310	1/2	0.7870	1-1/2	7-1/2	5496062	49.59
5/8	0.6560	5/8	0.9750	1-1/2	7-5/8	5496073	80.91
3/4	0.7810	3/4	1.1630	1-5/8	7-3/4	5496084	94.13
7/8	0.9060	7/8	1.3520	1-7/8	8	5496095	114.66
1	1.0310	1	1.5400	2	8-1/2	5496106	145.46

For technical information, please see page 240.

Reamers

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



CONSTRUCTION

HIGH SPEED STEEL
LEFT HAND SPIRAL
RIGHT HAND CUT

BLACK & GOLD
3 FLATS

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	SHANK DIA.	ITEM#	PRICE
3/8	2-1/2	5	4-5/8	3/8	5496876	41.57
7/16	3-1/4	5	5-3/8	7/16	5496887	44.86
1/2	3-3/4	5	5-7/8	1/2	5496898	49.65
9/16	3-3/4	5	5-7/8	1/2	5496909	51.67
5/8	4-1/4	5	6-3/8	1/2	5496920	57.47
11/16	4-1/4	5	6-3/8	1/2	5496931	62.65
3/4	4-1/2	5	6-7/8	1/2	5496942	72.55
13/16	4-1/2	5	6-7/8	1/2	5496953	72.55
7/8	4-1/2	5	6-7/8	1/2	5496964	82.29
15/16	4-1/2	5	6-7/8	1/2	5496975	82.29
1	4-1/2	5	6-7/8	1/2	5496986	93.96
1-1/16	4-1/2	5	6-7/8	1/2	5497580	110.54

HSS & COBALT REAMERS



SAFETY MAGNETIC HEX SHANK

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#	PRICE
9/16	4	5	5-1/2	1-1/16	5498196	87.62
11/16	4-1/2	5	6-3/8	1-1/16	5498207	105.95
13/16	5	5	7	1-1/4	5498218	126.70
15/16	5	5	7	1-7/16	5498229	143.16
1-1/16	5	5	7	1-5/8	5498240	189.61
1-3/16	5	5	7	1-13/16	5532956	244.25
1-5/16	5	5	7-7/8	2	5532967	291.77



BRIDGE

HIGH SPEED STEEL
LEFT HAND SPIRAL
RIGHT HAND CUT

SIZE	FLUTE LENGTH	# OF FLUTES	OVERALL LENGTH	MORSE TAPER #	SMALL DIA.	ITEM#	PRICE
7/16	5-1/8	5	9	2	.3050	5498042	55.33
1/2	5-1/8	5	9	2	.3125	5498053	60.10
9/16	5-1/8	5	9	2	.3430	5496810	60.10
5/8	6-1/8	5	10	2	.3750	5498064	64.94
11/16	7-1/8	5	11-3/4	3	.3906	5496821	69.41
3/4	7-3/8	5	12	3	.5000	5496832	90.40
13/16	7-3/8	5	12	3	.5000	5496843	90.40
7/8	7-3/8	5	12	3	.5625	5498075	99.07
15/16	7-3/8	5	12	3	.6250	5496854	105.77
1	7-3/8	5	12	3	.6875	5498086	115.07
1-1/16	7-3/8	5	12	3	.7500	5496865	119.41
1-1/8	7-3/8	5	12	3	.8125	5498097	145.62
1-3/16	7-3/8	5	12	3	.8750	5498108	186.12
1-1/4	7-3/8	5	13	4	.9375	5498119	211.80
1-5/16	7-3/8	5	13	4	1.000	5498130	250.40

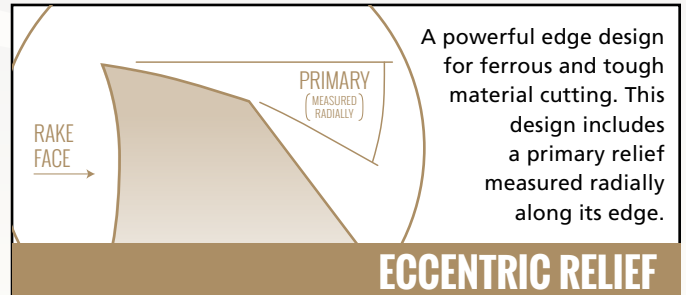
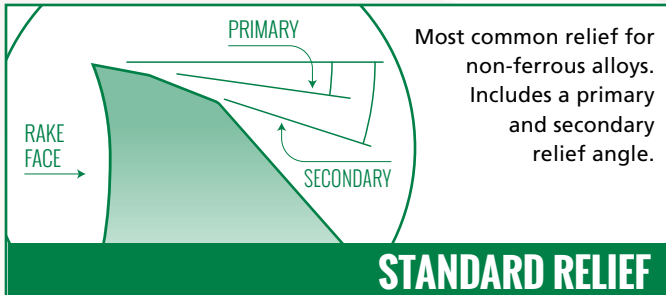
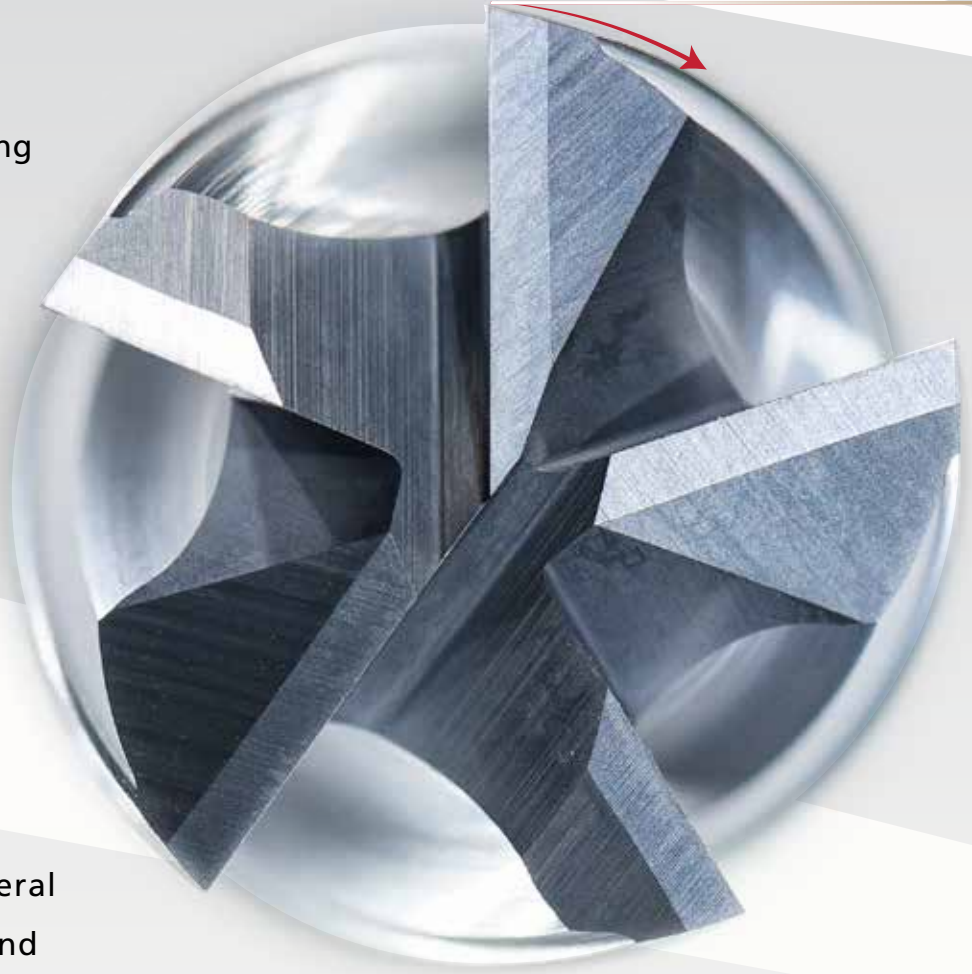
For technical information, please see page 240.



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.





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:

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

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

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

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

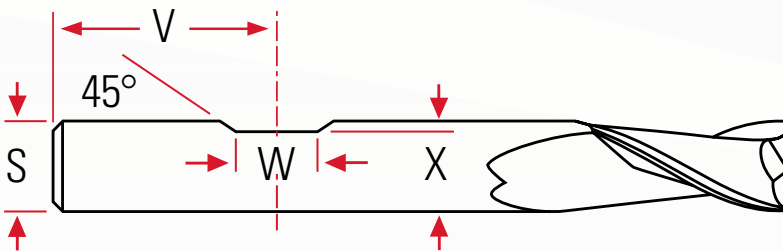
$$\text{IPT}(\text{chip load}) = \text{IPM} \div (\text{No. of teeth} \times \text{RPM})$$



Benefits of Post polishing

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

Weldon Flat specifications for the VI-PRO



STUB LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2"	.750"	.330"	.332"	.440"
5/8"	.750"	.400"	.402"	.560"
3/4"	.750"	.455"	.457"	.675"

REGULAR LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2" (1-1/4" LOC)	.750"	.330"	.332"	.440"
1/2"	.875"	.330"	.332"	.440"
5/8"	.875"	.400"	.402"	.560"
3/4"	.875"	.455"	.457"	.675"
1"	.875"	.515"	.517"	.925"

LONG LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2" (2" LOC)	.875"	.330"	.332"	.440"
1/2"	1.250"	.330"	.332"	.440"
5/8"	1.250"	.400"	.402"	.560"
3/4"	1.250"	.455"	.457"	.675"
1"	1.250"	.515"	.517"	.925"

EXTRA LONG LENGTH				
S SHANK DIAMETER	V	W		X
		MIN	MAX	
1/2"	1.5"	.330"	.332"	.440"
5/8"	1.5"	.400"	.402"	.560"
3/4"	1.5"	.455"	.457"	.675"
1"	1.5"	.515"	.517"	.925"
-	-	-	-	-



Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

VI-PRO CARBIDE END MILLS

VI-PRO VARIABLE INDEX GEOMETRY 4 FLUTE

SFM

MATERIAL / TYPE	Rc HARDNESS	4 FLUTE STUB LENGTH	4 FLUTE REG LENGTH	4 FLUTE LONG LENGTH	4 FLUTE EXTRA LONG
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32	125 - 175	125 - 175	80 - 125	80 - 125
	OVER 32	80 - 100	80 - 100	55 - 70	55 - 70
MONEL					
MONEL-65% NICKEL	-	150 - 200	150 - 200	105 - 140	105 - 140
TITANIUM ALLOYS					
COMMERCIAALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	-	-	-	-
	-	200 - 325	200 - 325	140 - 230	140 - 230
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32	250 - 300	250 - 300	175 - 210	175 - 210
	OVER 32	200 - 250	200 - 250	140 - 175	140 - 175
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	-	290 - 375	290 - 375	200 - 260	200 - 260
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32	250 - 300	250 - 300	175 - 210	175 - 210
	OVER 32	200 - 250	200 - 250	140 - 175	140 - 175
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	-	250 - 300	250 - 300	175 - 210	175 - 210
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32	250 - 350	250 - 350	175 - 210	175 - 210
	OVER 32	150 - 200	150 - 200	100 - 140	100 - 140
CARBON STEELS					
1000's, 1100's, 1300's	-	560 - 595	560 - 595	300 - 500	300 - 500
DUCTILE					
DUCTILE CAST IRONS	-	560 - 595	560 - 595	400 - 500	400 - 500
CAST IRONS					
GRAY CAST IRONS	-	560 - 595	560 - 595	400 - 500	400 - 500

Speed and feed chart parameters are for 4 flute full diameter slotting

Recommended slotting up to 1 x Diameter
 Tool holding important for maximizing tool life. Minimize TIR
 Max ramp angle recommended 3° or less

TECHNICAL INFORMATION

Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



VI-PRO CARBIDE END MILLS

VI-PRO
VARIABLE INDEX GEOMETRY

4 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS										
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS										
INCONEL-625/718, Waspalloy, RENE, HASTELLOY	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS										
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL										
MONEL-65% NICKEL	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS										
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)										
12/8, 15/5, 17/4, AM-350/355	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
200 SERIES, 302, 303, 304, 316	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
304L, 316L	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)										
403, 410, 416, 440	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS										
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS										
1000's, 1100's, 1300'S	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE										
DUCTILE CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS										
GRAY CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

Chip Thinning recommended for 4 Flute to optimize tool life:

5% of Diameter Radial engaged: Multiply Feed 3X
 10% of Diameter Radial engaged: Multiply Feed 2X
 20% of Diameter Radial engaged: Multiply Feed 1.5X

TECHNICAL INFORMATION



Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

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
COBALT BASE ALLOYS					
STELLITE, HS-21,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
HAYNES 25/188, X-40, L-605	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
RENE, HASTELLOY	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155,	UNDER 32	550 - 570	550 - 570	385 - 400	385 - 400
TIMKIN 16-25-6, CARPENTER 22-b3	OVER 32	200 - 225	200 - 225	140 - 160	140 - 160
MONEL					
MONEL-65% NICKEL	-	550 - 570	550 - 570	385 - 400	385 - 400
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V,	-	-	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	-	600 - 625	600 - 625	420 - 440	420 - 440
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	-	600 - 625	600 - 625	420 - 440	420 - 440
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2,	UNDER 32	600 - 625	600 - 625	420 - 440	420 - 440
D2, P20, H11, H13, S2, 01	OVER 32	550 - 570	550 - 570	385 - 400	385 - 400
CARBON STEELS					
1000's, 1100's, 1300's	-	800 - 850	800 - 850	560 - 595	560 - 595
DUCTILE					
DUCTILE CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595
CAST IRONS					
GRAY CAST IRONS	-	800 - 850	800 - 850	560 - 595	560 - 595

Chip Thinning recommended for optimized tool life:

5% of Diameter Radial engaged: Multiply Feed 3X

10% of Diameter Radial engaged: Multiply Feed 2X



VI-PRO CARBIDE END MILLS



5 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS										
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS										
INCONEL-625/718, WSPALLOY, RENE, HASTELLOY	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS										
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0004 - .0008	.0005 - .0011	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0014 - .0021	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL										
MONEL-65% NICKEL	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS										
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0019 - .0021	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)										
12/8, 15/5, 17/4, AM-350/355	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
200 SERIES, 302, 303, 304, 316	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)										
304L, 316L	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)										
403, 410, 416, 440	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS										
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	.0004 - .0008	.0009 - .0011	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0019 - .0031	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS										
1000's, 1100's, 1300's	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE										
DUCTILE CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS										
GRAY CAST IRONS	.0004 - .0008	.0011 - .0013	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0033 - .0035	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

TECHNICAL INFORMATION

VI-PRO CARBIDE END MILLS



6 FLUTE

SFM
FINISHING PASSES ONLY, UP TO 10% OF DIAMETER

MATERIAL / TYPE	Rc HARDNESS	6 FLUTE REG LENGTH	6 FLUTE LONG LENGTH
COBALT BASE ALLOYS			
STELLITE, HS-21,	UNDER 32	550 - 570	385 - 400
HAYNES 25/188, X-40, L-605	OVER 32	200 - 225	140 - 160
NICKEL BASE ALLOYS			
INCONEL-625/718, WASPALLOY,	UNDER 32	550 - 570	385 - 400
RENE, HASTELLOY	OVER 32	200 - 225	140 - 160
IRON BASE ALLOYS			
INCOLOY 800-802, MULTIMET N-155,	UNDER 32	550 - 570	385 - 400
TIMKIN 16-25-6, CARPENTER 22-b3	OVER 32	200 - 225	140 - 160
MONEL			
MONEL-65% NICKEL	-	550 - 570	385 - 400
TITANIUM ALLOYS			
COMMERCIALLY PURE, 6Al-4V,	-	-	-
ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	550 - 570	385 - 400
STAINLESS STEEL (PRECIPITATION)			
12/8, 15/5, 17/4, AM-350/355	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
STAINLESS STEEL (AUSTENITIC)			
200 SERIES, 302, 303, 304, 316	-	600 - 625	420 - 440
STAINLESS STEEL (AUSTENITIC)			
304L, 316L	UNDER 32	600 - 625	420 - 440
	OVER 32	550 - 570	385 - 400
STAINLESS STEEL (MARTENSITIC)			
403, 410, 416, 440	-	600 - 625	420 - 440
HIGH STRENGTH TOOL STEELS			
4140, 4340, 6150, 5210, A2,	UNDER 32	600 - 625	420 - 440
D2, P20, H11, H13, S2, 01	OVER 32	550 - 570	385 - 400
CARBON STEELS			
1000's, 1100's, 1300's	-	800 - 850	560 - 595
DUCTILE			
DUCTILE CAST IRONS	-	800 - 850	560 - 595
CAST IRONS			
GRAY CAST IRONS	-	800 - 850	560 - 595

Chip Thinning recommended for optimized tool life:

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



VI-PRO CARBIDE END MILLS



6 FLUTE

I.P.T. (Inch Per Tooth)

MATERIAL / TYPE	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS							
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
NICKEL BASE ALLOYS							
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
IRON BASE ALLOYS							
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	.0009 - .0016	.0010 - .0018	.0012 - .0019	.0016 - .0028	.0019 - .0031	.0024 - .0037	.0029 - .0041
MONEL							
MONEL-65% NICKEL	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
TITANIUM ALLOYS							
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	.0014 - .0016	.0015 - .0017	.0017 - .0019	.0026 - .0028	.0029 - .0031	.0035 - .0037	.0039 - .0041
STAINLESS STEEL (PRECIPITATION)							
12/8, 15/5, 17/4, AM-350/355	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)							
200 SERIES, 302, 303, 304, 316	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (AUSTENITIC)							
304L, 316L	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
STAINLESS STEEL (MARTENSITIC)							
403, 410, 416, 440	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
HIGH STRENGTH TOOL STEELS							
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	.0014 - .0016	.0016 - .0020	.0017 - .0025	.0026 - .0032	.0029 - .0037	.0035 - .0039	.0039 - .0041
CARBON STEELS							
1000's, 1100's, 1300's	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
DUCTILE							
DUCTILE CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056
CAST IRONS							
GRAY CAST IRONS	.0018 - .0020	.0024 - .0026	.0030 - .0032	.0035 - .0037	.0039 - .0041	.0041 - .0043	.0054 - .0056

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

PREMIUM QUALITY AMERICAN-MADE 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
ALLOYS											
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
ALUMINUM											
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
BRASS/BRONZE											
	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
CAST IRON											
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
COMPOSITES											
	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
COPPER											
		450-1000	.00025-.00035	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004	.0035-.0050
MAGNESIUM											
		800-1400	.0003-.0005	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007	.0060-.0100
STAINLESS STEEL											
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
STEELALLOY											
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
Premature Wear	<ul style="list-style-type: none"> • Cutting speed is too fast • Hard/Abrasive work-piece material • Speed and/or feed is too light • Helix angle is incorrect for application • Re-cutting chips 	<ul style="list-style-type: none"> • Decrease spindle speed • Use coatings (TiCN, AlTiN) • Increase speed and/or feed • Select tool with appropriate helix angle • Adjust speed & feed, axial and/or radial D.O.C., Increase coolant pressure and/or air to clear chips.
Edge Chipping	<ul style="list-style-type: none"> • Feed rate too aggressive • Feed rate too aggressive on initial cut • D.O.C. too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity 	<ul style="list-style-type: none"> • Reduce feed rate • Reduce feed rate on initial pass • Decrease axial and/or radial D.O.C. • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out
Breakage	<ul style="list-style-type: none"> • Feed rate too aggressive • D.O.C. too aggressive • Excessive tool overhang • Chip packing • Excessive wear 	<ul style="list-style-type: none"> • Reduce feed rate • Reduce axial and/or radial D.O.C. • Hold shank deeper, use shorter endmill • Adjust speed and/or feed, select endmill with fewer flutes, increase coolant pressure and/or air • Re-grind tool sooner
Chip Packing	<ul style="list-style-type: none"> • Speed and/or feed too aggressive • Flute gullet too small for chips • Insufficient coolant volume and/or pressure 	<ul style="list-style-type: none"> • Reduce speed and/or feed • Use endmill with less flutes • Increase coolant and/or air pressure, reposition nozzle to point of cut
Chattering	<ul style="list-style-type: none"> • Speed and/or feed too aggressive • Tool rigidity • Work-piece rigidity • Machine tool rigidity • D.O.C. too aggressive • Wrong tool geometry 	<ul style="list-style-type: none"> • Reduce speed and/or feed • Change tool holder, hold shank deeper and/or use shorter tool • Re-fixture work-piece and/or improve setup • Check spindle for run-out • Reduce axial and/or radial D.O.C.
Burs	<ul style="list-style-type: none"> • Incorrect speed & feed • Helix angle is incorrect for application • Primary cutting edge(s) are dull 	<ul style="list-style-type: none"> • Adjust speed & feed • Change to correct helix angle, use climb milling • Re-grind tool sooner
Poor Finish	<ul style="list-style-type: none"> • Feed rate too aggressive • Speed is too slow • D.O.C. too aggressive • Excessive wear 	<ul style="list-style-type: none"> • Reduce feed rate • Increase spindle speed (RPM) • Reduce axial and/or radial D.O.C. • Re-grind tool sooner
Poor Dimensional Accuracy	<ul style="list-style-type: none"> • D.O.C. too aggressive • Tool Rigidity • Machine tool rigidity 	<ul style="list-style-type: none"> • Reduce axial and/or radial D.O.C. • Use tool with more flutes • Check, inspect & repair machine tool, tool holder and fixtures



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

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



ROUGHING END MILLS - CARBIDE

TECHNICAL INFORMATION

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	ALTiN	UNCOATED	ALTiN	IPT	IPT	IPT	IPT	IPT	IPT
ALLOYS											
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
ALUMINUM											
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
BRASS/BRONZE											
	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
CAST IRON											
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
COMPOSITES											
	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
COPPER											
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MAGNESIUM											
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
STAINLESS STEEL											
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
STEELALLOY											
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

PREMIUM QUALITY AMERICAN-MADE 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
COBALT BASE ALLOYS				
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	200 - 275 125 - 175	250 - 300 150 - 200
NICKEL BASE ALLOYS				
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	150 - 200 90 - 125	250 - 300 150 - 200
IRON BASE ALLOYS				
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	- -	250 - 300 150 - 200	250 - 300 150 - 200
MONEL				
MONEL-65% NICKEL	-	-	200 - 300	225 - 350
TITANIUM ALLOYS				
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	500 min. -	250 - 400 -	250 - 400 -
STAINLESS STEEL (PRECIPITATION)				
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
STAINLESS STEEL (AUSTENITIC)				
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	250 - 350 175 - 275	250 - 350 175 - 275
STAINLESS STEEL (AUSTENITIC)				
304L, 316L	UNDER 32 OVER 32	- -	125 - 200 90 - 125	125 - 200 90 - 125
STAINLESS STEEL (MARTENSITIC)				
403, 410, 416, 440	UNDER 32 OVER 32	- -	200 - 350 150 - 250	200 - 350 150 - 250
HIGH STRENGTH TOOL STEELS				
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	225 - 300 125 - 200	225 - 300 125 - 200
MEDIUM ALLOY STEELS				
200, 250, 300	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
CARBON STEELS				
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	250 - 350 150 - 200	250 - 350 150 - 200
DUCTILE				
DUCTILE CAST IRONS	-	-	350 - 450	300 - 400
CAST IRONS				
GRAY CAST IRONS	-	-	300 - 400	250 - 350
ALUMINUM				
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -
MAGNESIUM				
	-	500 min.	500 min.	500 min.
COPPER, COPPER ALLOYS				
	-	400 - 500	400 - 500	250 - 350
BRASS BRONZE				
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	- -
COMPOSITES				
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	250 - 1000 -	- -	- -

TECHNICAL INFORMATION

Technical Information

PREMIUM QUALITY AMERICAN-MADE 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"
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
NICKEL BASE ALLOYS					
INCONEL-625/718, WASSPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
MONEL					
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0030"-.0050" -
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32 OVER 32	.0005"-.0008" .0003"-.0005"	.0005"-.0008" .0003"-.0005"	.0008"-.0015" .0005"-.0010"	.0015"-.0030" .0010"-.0020"
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	UNDER 32 OVER 32	.0005"-.0010" .0003"-.0005"	.0005"-.0010" .0003"-.0005"	.0008"-.0020" .0005"-.0015"	.0020"-.0040" .0010"-.0030"
MEDIUM ALLOY STEELS					
200, 250, 300	UNDER 32 OVER 32	.0007"-.0015" .0005"-.0010"	.0007"-.0015" .0005"-.0010"	.0010"-.0025" .0008"-.0020"	.0030"-.0050" .0020"-.0040"
CARBON STEELS					
1000's, 1100's, 1300's	UNDER 32 OVER 32	.0007"-.0015" .0005"-.0010"	.0007"-.0015" .0005"-.0010"	.0010"-.0025" .0008"-.0020"	.0030"-.0050" .0020"-.0040"
DUCTILE					
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
CAST IRONS					
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
ALUMINUM					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	.0010"-.0020" -	.0010"-.0020" -	.0015"-.0040" -	.0030"-.0150" -
MAGNESIUM					
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"
COPPER, COPPER ALLOYS					
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"
BRASS BRONZE					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	.0007"-.0015" -	.0007"-.0015" -	.0010"-.0025" -	.0020"-.0080" -
COMPOSITES					
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	.0010"-.0020" -	.0010"-.0020" -	.0015"-.0040" -	.0030"-.0100" -



Technical Information

PREMIUM QUALITY AMERICAN-MADE 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
COBALT BASE ALLOYS					
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	- -	- -	175 - 225 125 - 175	150 - 200 100 - 150
NICKEL BASE ALLOYS					
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	- -	- -	125 - 175 70 - 115	150 - 200 100 - 150
IRON BASE ALLOYS					
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	- -	- -	175 - 225 125 - 175	150 - 200 100 - 150
MONEL					
MONEL-65% NICKEL	-	175 - 300	125 - 175	175 - 300	125 - 175
TITANIUM ALLOYS					
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	200 - 300 -	125 - 250 -	200 - 300 -	125 - 250 -
STAINLESS STEEL (PRECIPITATION)					
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
STAINLESS STEEL (AUSTENITIC)					
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	- -	- -	200 - 250 150 - 200	125 - 175 100 - 150
STAINLESS STEEL (AUSTENITIC)					
304L, 316L	UNDER 32 OVER 32	- -	- -	90 - 125 75 - 110	80 - 120 60 - 90
STAINLESS STEEL (MARTENSITIC)					
403, 410, 416, 440	UNDER 32 OVER 32	- -	- -	150 - 250 125 - 175	100 - 150 80 - 150
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	- -	- -	150 - 225 60 - 125	125 - 175 80 - 120
MEDIUM ALLOY STEELS					
200, 250, 300	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
CARBON STEELS					
1000's, 1100's, 1300's	UNDER 32 OVER 32	- -	- -	200 - 250 125 - 175	150 - 200 100 - 150
DUCTILE					
DUCTILE CAST IRONS	-	250 - 350	200 - 300	300 - 400	200 - 300
CAST IRONS					
GRAY CAST IRONS	-	225 - 325	175 - 250	250 - 350	175 - 250
ALUMINUM					
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	500 min. -	500 min. -	500 min. -	500 min. -
MAGNESIUM					
	-	500 min.	500 min.	500 min.	500 min.
COPPER, COPPER ALLOYS					
	-	400 - 500	400 - 500	300 - 400	250 - 350
BRASS BRONZE					
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	- -	300 - 400 -	300 - 400 -	250 - 350 -	200 - 300 -
COMPOSITES					
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	250 - 1000 -	250 - 1000 -	250 - 1000 -	250 - 1000 -

TECHNICAL INFORMATION

Technical Information

PREMIUM QUALITY AMERICAN-MADE 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"
COBALT BASE ALLOYS						
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
NICKEL BASE ALLOYS						
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
IRON BASE ALLOYS						
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
MONEL						
MONEL-65% NICKEL	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
TITANIUM ALLOYS						
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
	-	-	-	-	-	-
STAINLESS STEEL (PRECIPITATION)						
12/8, 15/5, 17/4, AM-350/355	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
STAINLESS STEEL (AUSTENITIC)						
200 SERIES, 302, 303, 304, 316	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
STAINLESS STEEL (AUSTENITIC)						
304L, 316L	UNDER 32	.0005"-.0008"	.0005"-.0008"	.0008"-.0015"	.0015"-.0030"	.0020"-.0040"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0010"	.0010"-.0020"	.0015"-.0030"
STAINLESS STEEL (MARTENSITIC)						
403, 410, 416, 440	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
HIGH STRENGTH TOOL STEELS						
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	UNDER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
	OVER 32	.0003"-.0005"	.0003"-.0005"	.0005"-.0015"	.0010"-.0030"	.0020"-.0040"
MEDIUM ALLOY STEELS						
200, 250, 300	UNDER 32	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
	OVER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
CARBON STEELS						
1000's, 1100's, 1300's	UNDER 32	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0030"-.0050"	.0040"-.0060"
	OVER 32	.0005"-.0010"	.0005"-.0010"	.0008"-.0020"	.0020"-.0040"	.0030"-.0050"
DUCTILE						
DUCTILE CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
CAST IRONS						
GRAY CAST IRONS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
ALUMINUM						
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0150"	.0050"-.0150"
	-	-	-	-	-	-
MAGNESIUM						
	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
COPPER, COPPER ALLOYS						
	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
BRASS BRONZE						
BRASS, ALUM/BRONZE, LOW SILICON BRONZE	-	.0007"-.0015"	.0007"-.0015"	.0010"-.0025"	.0020"-.0080"	.0040"-.0100"
	-	-	-	-	-	-
COMPOSITES						
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	-	.0010"-.0020"	.0010"-.0020"	.0015"-.0040"	.0030"-.0100"	.0050"-.0100"
	-	-	-	-	-	-

TECHNICAL INFORMATION



Technical Information

PREMIUM QUALITY AMERICAN-MADE 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%

TECHNICAL INFORMATION

SFM & CHIP LOAD

MATERIAL TYPE (<32 HRC)	SFM	SUGGESTED CHIP LOAD PER TOOTH					
		1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
NON FERROUS							
ALUMINUM ALLOYS — 2024-T4/T6, 2014, 6061-T6/T651, 7075-T68	500 - 1000	.001	.002	.002	.002	.003	.004
COPPER — YELLOW BRASS, HIGH LEAD BRASS, RED BRASS	400 - 750	.001	.001	.002	.002	.0025	.003
COPPER ALLOYS — ALUM/BRONZE, LOW SILICON BRONZE	400 - 500	.001	.001	.002	.002	.0025	.003
MAGNESIUM — DE-CAT, EXTRUDED	450 - 650	.001	.002	.002	.002	.003	.004
PLASTICS, ACRYLICS, PHENOLICS — POLYSULFONE	100 - 300	.001	.002	.003	.003	.004	.006
CARBON, GRAPHITES	100 - 200	.040	.040	.060	.060	.080	.10
STAINLESS STEEL							
PRECIPITATION — 13/8, 15/5, AM-350/355	40 - 125	.0005	.0005	.001	.001	.001	.002
AUSTENIC — 200 SERIES, 302, 303, 304L, 316L	50 - 175	.0001	.0002	.0005	.0005	.001	.0015
MARTENSITIC — 403, 410, 416	50 - 125	.0001	.0002	.0005	.0005	.0005	.001
HIGH TEMP ALLOYS							
COBALT BASE — STELLITE, HS-21, HAYNES25/188, X-40, L-605	30 - 50	.0004	.0005	.001	.001	.001	.001
IRON BASE — INCOLY 600-802, MULTIMET N-155, TIMKIN 16-25-6	40 - 65	.0005	.0005	.001	.001	.0015	.002
TITANIUM ALLOYS — 6AL-4V, ASTM 1/2/3, 6 AL-25N-4ZR-2MO-SI	25 - 125	.0005	.0005	.0005	.0005	.001	.001
STEEL							
HIGH STRENGTH STEELS — 4340, 6150, 52100, H-11, H-13	25 - 125	.0005	.0005	.001	.001	.001	.001
HIGH ALLOY STEELS — A-2/6/10, P-3/10, 01, 02, 06	50 - 150	.0005	.0005	.001	.001	.001	.001
MEDIUM ALLOY STEELS — 200, 250, 300	75 - 175	.0005	.0005	.001	.001	.002	.0025
LOW ALLOY STEELS MARAGING — 10XX, 11XX, 13XX	50 - 200	.0005	.001	.0015	.0015	.002	.003
CAST IRON							
DUCTILE IRON — DUCTILE CAST IRON	50 - 200	.0005	.001	.0015	.0015	.002	.002
CAST IRON — GRAY CAST IRON	50 - 200	.0005	.001	.002	.002	.003	.004

FORMULAS

TO CALCULATE	USE THIS FORMULA
RPM	$\frac{\text{SFM} \times 3.82}{(\text{TOOL DIAMETER})}$
IPM	$(\text{CHIP LOAD PER TOOTH}) \times (\text{NUMBER OF FLUTES}) \times \text{RPM}$

Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



DRILLS - CARBIDE

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

MATERIAL / TYPE	Rc HARDNESS	25° HELIX	15° HELIX STR FLT	SUGGESTED CHIP LOAD PER TOOTH				
				1/16" - 1/8"	1/8" - 1/4"	1/4" - 3/8"	3/8" - 1/2"	1/2" - 5/8"
COBALT BASE ALLOYS								
STELLITE, HS-21, HAYNES 25/188, X-40, L-605	UNDER 32 OVER 32	100 - 150 80 - 110	100 - 150 80 - 110	.0004"-.0010" .0004"-.0010"	.0008"-.0020" .0005"-.0010"	.0015"-.0025" .0010"-.0015"	.0020"-.0040" .0010"-.0020"	.0025"-.0050" .0015"-.0030"
NICKEL BASE ALLOYS								
INCONEL-625/718, WASPALLOY, RENE, HASTELLOY	UNDER 32 OVER 32	125 - 150 100 - 125	125 - 175 100 - 125	.0005"-.0015" .0004"-.0010"	.0010"-.0015" .0008"-.0015"	.0015"-.0025" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
IRON BASE ALLOYS								
INCOLOY 800-802, MULTIMET N-155, TIMKIN 16-25-6, CARPENTER 22-b3	UNDER 32 OVER 32	150 - 200 150 - 175	175 - 200 150 - 200	.0010"-.0015" .0008"-.0015"	.0010"-.0020" .0010"-.0020"	.0015"-.0035" .0015"-.0025"	.0020"-.0020" .0020"-.0040"	.0030"-.0060" .0025"-.0050"
MONEL								
MONEL-65% NICKEL	-	100 - 150	100 - 150	.0004"-.0010"	.0008"-.0015"	.0010"-.0015"	.0015"-.0030"	.0020"-.0040"
TITANIUM ALLOYS								
COMMERCIALLY PURE, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si	- -	150 - 200 -	150 - 200 -	.0008"-.0015" -	.0010"-.0020" -	.0015"-.0030" -	.0020"-.0040" -	.0025"-.0050" -
STAINLESS STEEL (PRECIPITATION)								
12/8, 15/5, 17/4, AM-350/355	UNDER 32 OVER 32	125 - 175 80 - 125	150 - 200 100 - 150	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
STAINLESS STEEL (AUSTENITIC)								
200 SERIES, 302, 303, 304, 316	UNDER 32 OVER 32	100 - 175 100 - 125	150 - 200 125 - 150	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
STAINLESS STEEL (AUSTENITIC)								
304L, 316L	UNDER 32 OVER 32	80 - 100 60 - 90	90 - 125 80 - 100	.0004"-.0010" .0003"-.0008"	.0008"-.0015" .0005"-.0010"	.0010"-.0015" .0010"-.0015"	.0015"-.0030" .0010"-.0020"	.0020"-.0040" .0015"-.0030"
STAINLESS STEEL (MARTENSITIC)								
403, 410, 416, 440	UNDER 32 OVER 32	100 - 150 80 - 125	125 - 175 100 - 140	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0008"-.0015"	.0015"-.0035" .0010"-.0015"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
HIGH STRENGTH TOOL STEELS								
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, 01	UNDER 32 OVER 32	100 - 175 80 - 130	125 - 175 80 - 130	.0005"-.0015" .0004"-.0010"	.0010"-.0020" .0010"-.0020"	.0015"-.0025" .0010"-.0020"	.0015"-.0030" .0015"-.0030"	.0020"-.0040" .0020"-.0040"
MEDIUM ALLOY STEELS								
200, 250, 300	UNDER 32 OVER 32	125 - 175 100 - 150	125 - 175 100 - 150	.0010"-.0015" .0005"-.0010"	.0015"-.0025" .0010"-.0020"	.0020"-.0030" .0010"-.0025"	.0020"-.0040" .0015"-.0030"	.0025"-.0050" .0020"-.0040"
CARBON STEELS								
1000's, 1100's, 1300's	UNDER 32 OVER 32	125 - 175 100 - 125	150 - 200 100 - 175	.0010"-.0015" .0005"-.0010"	.0015"-.0025" .0010"-.0020"	.0020"-.0030" .0010"-.0025"	.0020"-.0040" .0015"-.0035"	.0025"-.0050" .0020"-.0040"
DUCTILE								
DUCTILE CAST IRONS	-	125 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
CAST IRONS								
GRAY CAST IRONS	-	100 - 200	150 - 250	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
ALUMINUM								
2014, 2024, 6061-(T1-T6) 7075, DIE CAST, EXTRUDED	- -	150 - 300 -	- -	.0010"-.0020" -	.0015"-.0040" -	.0020"-.0020" -	.0030"-.0060" -	.0035"-.0070" -
MAGNESIUM								
	-	200 - 500	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
COPPER, COPPER ALLOYS								
	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
BRASS BRONZE								
BRASS, ALUM/BRONZE	-	150 - 300	-	.0010"-.0020"	.0010"-.0030"	.0015"-.0035"	.0025"-.0040"	.0030"-.0050"
BRASS BRONZE								
LOW SILICON BRONZE	-	125 - 200	-	.0008"-.0015"	.0010"-.0020"	.0015"-.0030"	.0020"-.0040"	.0025"-.0050"
COMPOSITES								
G-10 FIBERGLASS, GRAPHITE, GRAPHITE/EPOXY, PLASTICS	- -	150 - 300 -	150 - 300 -	.0010"-.0020" -	.0010"-.0030" -	.0015"-.0035" -	.0025"-.0040" -	.0030"-.0050" -

TECHNICAL INFORMATION



Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

MICRO END MILLS - CARBIDE

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

TECHNICAL INFORMATION

SFM & CHIP LOAD

MATERIAL / TYPE	CONDITIONS	STARTING SFM	DIAMETER RANGE - SUGGESTED CHIP LOAD PER TOOTH							
			.005-.015	.015-.030	.030-.045	.045-.060	.06-.075	.075-.090	.090-.105	.105-.125
STAINLESS STEELS										
PRECIPITATION 13-8, 15-5, 17-4PH	Slotting @ ≤ 10% of D	90	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
AUSTENITIC 302, 303, 304L, 316L	Slotting @ ≤ 15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MARTENSITIC 302, 303, 304L, 316L	Slotting @ ≤ 15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 30% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH TEMP ALLOYS										
COBALT BASE Stellite, Haynes 25, 188, X-40, L-605	Slotting @ 7% of D	50	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial ≤ 20% of D Radial	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
NICKEL BASE Inconel 600, 625, 718, Nickel 200, 270, Invar, Monel 400, 405, K-Monel PermaNickel 300, Incoly 600	Slotting @ 7% of D	40	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial ≤ 20% of D Radial	60	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
IRON BASE Incoly 800-802, Multimet N-155, Timken 16-26-6	Slotting @ 7% of D	80	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
	Profiling @ 5% of D Axial ≤ 20% of D Radial	100	.0001"	.0001"	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"
STEELS										
HIGH STRENGTH STEELS 4140, 4340, 52100	Slotting @ ≤ 15% of D	100	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 30% of D Radial	180	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
HIGH ALLOY STEELS MOLD & DIE A-2, P20, 01, 02, D2, H-13	Slotting @ ≤ 10% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
MEDIUM ALLOY STEELS 200, 250, 300	Slotting @ ≤ 15% of D	125	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
	Profiling @ 6% of D Axial ≤ 30% of D Radial	250	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"
LOW ALLOY STEELS MARAGING 10XX, 11XX, 13XX	Slotting @ ≤ 15% of D	150	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @ 6% of D Axial ≤ 35% of D Radial	300	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRONS										
DUCTILE IRON Ductile Cast Iron	Slotting @ ≤ 15% of D	100	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
	Profiling @ 10% of D Axial ≤ 25% of D Radial	250	.0004"	.0004"	.0005"	.0005"	.0006"	.0006"	.0007"	.0007"
CAST IRON Gray Cast Iron	Slotting @ ≤ 25% of D	125	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
	Profiling @ 10% of D Axial ≤ 35% of D Radial	400	.0004"	.0004"	.0005"	.0005"	.0008"	.0008"	.0010"	.0010"
TITANIUMS										
TITANIUM ALLOYS 6AL-4V, ASTM 1, 2, 3, 6AL-2S For 5553, decrease SFM & IPM 25%	Slotting @ ≤ 15% of D	125	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
	Profiling @ 6% of D Axial ≤ 20% of D Radial	250	.0002"	.0002"	.0003"	.0003"	.0004"	.0004"	.0005"	.0005"
ALUMINUM										
ALUMINUM ALLOYS 6061-T6, 7075	Slotting @ ≤ 15% of D	650	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"
	Profiling @ 10% of D Axial ≤ 35% of D Radial	775	.0004"	.0004"	.0005"	.0006"	.0008"	.0008"	.0010"	.0010"

SPEED & FEED CALCULATION FORMULAS

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

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

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

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

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

Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



ROUGHING END MILLS - M42 COBALT

TECHNICAL INFORMATION

SFM & CHIP LOAD									
MATERIAL / TYPE	CONDITIONS	STARTING SFM ALTN	DIAMETER RANGE - SUGGESTED CHIP LOAD PER TOOTH						
			1/4"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
STAINLESS STEELS									
PRECIPITATION 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"
AUSTENITIC 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"
MARTENSITIC 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"
HIGH TEMP ALLOYS									
COBALT BASE 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"
NICKEL BASE 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"
IRON BASE 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"
STEELS									
HIGH STRENGTH STEELS 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"
HIGH ALLOY STEELS MOLD & DIE 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"
MEDIUM ALLOY STEELS 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"
LOW ALLOY STEELS MARAGING 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"
CAST IRONS									
DUCTILE IRON 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"
CAST IRON 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"
TITANIUMS									
TITANIUM ALLOYS 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"
ALUMINUM									
ALUMINUM ALLOYS 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

$RPM = (3.82 \times SFM) \div Dia.$	$IPR = IPM \div RPM$	$SFM = (RPM \times Dia.) \div 3.82$
$IPM = IPT(\text{chip load}) \times \text{No. of Teeth} \times RPM$		$IPT(\text{chip load}) = IPM \div (\text{No. of teeth} \times RPM)$



Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

PREDATOR TAPS - HIGH PERFORMANCE



SPEED CHART

MATERIAL / TYPE	HARDNESS		CUTTING SPEED (fpm)		CUTTING FLUID*
	Bhn	Rc	SPIRAL POINT	SPIRAL FLUTE	
ALUMINUM ALLOYS					
UNALLOYED - 1000 SERIES	-	-	80	60	WS, CO
CAST - 360, A380	-	-	60	45	WS, CO
WROUGHT - 2000-7000 SERIES	-	-	80	60	WS, CO
BRASS					
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60	45	WS
NAVAL, RED - C46400-C46700, C23000	-	-	60	45	WS
CAST IRON					
PEARLITIC, GRAY CAST IRON, FERRITIC - A48 CLASS 20, CLASS 25, CLASS 40	< 253	< 25	20	15	WS
MALLEABLE - ASTM A47 GRADE 32510, SAE J158 GRADE M3210	< 253	< 25	15	12	CO
NICKEL ALLOYS					
NICKEL BASE ALLOY, WROUGHT & CAST - NICKEL 200, MONEL ALLOY 400	< 253	< 25	15	12	CO
HIGH TEMPERATURE ALLOY, WROUGHT & CAST - INCONEL 600, 718, HASTALLOY B & C	253 - 390	25 - 42	10	10	CO
STEEL					
LOW CARBON - 1010, 1018, 1029, 1513, 1522	< 190	< 10	55	40	WS, CO
MEDIUM CARBON - 1030, 1040, 1045, 1050	< 208	< 15	35	25	WS, CO
HIGH CARBON - 1050, 1070, 1080, 1090, 1561, 1572	< 253	< 25	15	12	CO
HIGH STRENGTH STEEL - 4140, 4340	327 - 390	35 - 42	10	10	CO
STAINLESS STEEL					
AUSTENITIC - SAE (300 SERIES)	< 253	< 25	20	15	CO
MARTENSITIC & FERRITIC - 400 SERIES, 416, 420F, 446	253 - 301	25 - 32	15	12	CO
HARDENED - 15-5PH, 17-4PH, A286	< 327 - 390	< 35 - 42	10	10	CO
TITANIUM ALLOYS					
ALPHA & ALPHA-BETA ALLOYS ANNEALED - Ti-6Al-4V	253 - 301	25 - 32	10	10	CO
ALPHA & ALPHA-BETA ALLOYS SOLUTION TREATED & AGED - Ti-6Al-6V	327 - 390	35 - 42	8	8	CO
TOOL STEEL					
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	190 - 253	10 - 25	20	15	CO
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	327 - 390	35 - 42	15	12	CO

Your individual manufacturing conditions will greatly influence speeds.

* WS - Water Soluble
CO - Cutting Oil

In most instances cutting fluid manufacturers recommend specific fluid for different materials.

TECHNICAL INFORMATION



THREAD FORMING TAPS

SPEED CHART FOR THREAD FORMING TAPS			
MATERIAL / TYPE	HARDNESS		FORMING SPEED (fpm)
	Bhn	Rc	
ALUMINUM ALLOYS			
UNALLOYED - 1000 SERIES	-	-	80
CAST - 360, A380	-	-	60
WROUGHT - 2000-7000 SERIES	-	-	80
BRASS			
HIGH-LEADED, FREE CUTTING - C34000, C36000	-	-	60
NAVAL, RED - C46400-C46700, C23000	-	-	60
NICKEL ALLOYS			
NICKEL BASE ALLOY, WROUGHT & CAST - NICKEL 200, MONEL ALLOY 400	< 253	< 25	15
STEEL			
LOW CARBON - 1010, 1018, 1029, 1513, 1522	< 190	< 10	55
MEDIUM CARBON - 1030, 1040, 1045, 1050	< 208	< 15	35
HIGH CARBON - 1050, 1070, 1080, 1090, 1561, 1572	< 253	< 25	15
STAINLESS STEEL			
AUSTENITIC - SAE (300 SERIES)	< 253	< 25	20
MARTENSITIC & FERRITIC - 400 SERIES, 416, 420F, 446	253 - 301	25 - 32	15
TITANIUM ALLOYS			
ALPHA & ALPHA-BETA ALLOYS ANNEALED - Ti-6Al-4V	253 - 301	25 - 32	10
TOOL STEEL			
HOT WORK, COLD WORK & MOLD - A2, D2, H10, H14, P2, P13	190 - 253	10 - 25	20

CALCULATING TAP DRILL SIZES - THREAD FORMING TAPS

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

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

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

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

PREMIUM QUALITY AMERICAN-MADE 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

PREMIUM QUALITY AMERICAN-MADE 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"
STEEL													
12L14, 12L15	115	115	115	.0008-.0009	.0026-.0033	.0040-.0053	.0046-.0060	.0051-.0067	.0059-.0078	.0075-.0098	.009-.0117	.0096-.0124	.0107-.0137
1005-1025, 1214, 1215, A36	98	98	98	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
1000'S, 1100'S	82	89	89	0.0007	.0020-.0022	.0029-.0033	.0033-.0038	.0037-.0043	.0043-.0050	.0054-.0063	.0065-.0075	.0070-.0081	.0080-.0091
4140, 4340, 52100, 8620, H11-H41, A2, D2, 01, P20, 420	30-66	33-79	33-79	.0006-.0007	.0015-.0020	.0021-.0029	.0024-.0033	.0027-.0037	.0031-.0043	.0039-.0054	.0047-.0065	.0051-.0070	.0059-.0080
STAINLESS STEEL													
200, 303, 416, 440	49	72	72	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
300 SERIES	26	36	36	0.0007	0.0022	0.0033	0.0038	0.0043	0.005	0.0063	0.0075	0.0081	0.0091
318-329, 400-446, DUPLEX	30	49	49	0.0006	0.0013	0.0017	0.002	0.0022	0.0025	0.0031	0.0039	0.0043	0.0049
CAST IRON													
GREY, G10, Gg40, J431C, A48 CLASS 20	79-98	92-115	92-115	.0006-.0008	.0013-.0026	.0021-.0040	.0024-.0046	.0027-.0051	.0031-.0059	.0039-.0075	.0047-.009	.0051-.0096	.0059-.0107
A220, A436, A439, A602, BLACK	66	72	72	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
BLACK Gts/Gtw, J434C	46	56	56	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
TITANIUM													
COMMERCIALLY PURE	75	92	92	0.0007	.0017-.0020	.0024-.0029	.0028-.0033	.0031-.0037	.0037-.0043	.0045-.0054	.0055-.0065	.0059-.0070	.0068-.0080
6Al4V, 6A14V-2SnMonel, Monel K	20-39	36-66	36-66	0.0006	.0011-.0015	.0015-.0021	.0016-.0024	.0018-.0027	.0021-.0031	.0026-.0039	.0031-.0047	.0035-.0051	.0041-.0059
NICKEL													
COMMERCIALLY PURE, 17644, 200, 5553	33	49	49	0.0007	0.0022	0.0033	0.0038	0.0043	0.005	0.0063	0.0075	0.0081	0.0091
Monel 400, Hastelloy C, Inconel 625, Waspalloy	20	23	23	0.0007	0.0017	0.0024	0.0028	0.0031	0.0037	0.0045	0.0055	0.0059	0.0068
Inconel 718, Nimonic 75-95, Rene 41, Inconel 825, A286	10	20	20	.0004-.0006	.0009-.0011	.0011-.0015	.0013-.0016	.0014-.0018	.0017-.0021	.0021-.0026	.0024-.0031	.0027-.0035	.0032-.0041
COPPER													
COMMERCIALLY PURE	108	125	125	.0007-.0008	.0022-.0026	.0033-.0040	.0038-.0046	.0043-.0051	.0050-.0059	.0063-.0075	.0075-.0090	.0081-.0096	.0091-.0107
BRASS, BRONZE 314-340, 350-370	115	131	131	.0007-.0008	.0020-.0030	.0029-.0047	.0033-.0053	.0037-.0059	.0043-.0068	.0054-.0087	.0065-.0104	.0070-.0110	.008-.0122
BRASS ALLOYED Cu+Al+Fe, LONG CHIPPING	89	89	89	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
High Strength Bronze	52	69	69	0.0007	.0020-.0022	.0029-.0033	.0033-.0038	.0037-.0043	.0043-.0050	.0054-.0063	.0065-.0075	.0070-.0081	.0080-.0091
ALUMINUM, MAGNESIUM													
Commercially Pure	108	108	108	0.0009	0.0033	0.0053	0.006	0.0067	0.0078	0.0098	0.0117	0.0124	0.0137
6061, T6	89-98	98	98	.0007-.0009	.0022-.0033	.0033-.0053	.0038-.0060	.0043-.0067	.0050-.0078	.0063-.0098	.0075-.0117	.0081-.0124	.0091-.0137
SYNTHETIC MATERIALS													
Thermoplastics	98	-	-	0.0009	0.0033	0.0053	0.006	0.0067	0.0078	0.0098	0.0117	0.0124	0.0137
Thermosetting Plastics	92	-	-	0.0008	0.0026	0.004	0.0046	0.0051	0.0059	0.0075	0.009	0.0096	0.0107
Reinforced Plastic Material	46	-	-	0.0007	0.002	0.0029	0.0033	0.0037	0.0043	0.0054	0.0065	0.007	0.008

TECHNICAL INFORMATION



Technical Information

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS

TECHNICAL INFORMATION

REAMERS - CARBIDE

CARBIDE REAMERS - SFM & CHIP LOAD

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

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

REAMERS - HIGH SPEED STEEL

RECOMMENDED SPEEDS

MATERIAL	SFM
STEEL - ALL TYPES	
60+ Rc	8 - 12
50 - 60 Rc	15 - 30
40 - 50 Rc	20 - 40
30 - 40 Rc	35 - 65
Less than 30 Rc	60 - 90
CAST IRON & MALLEABLE IRON	50 - 85
NON-FERROUS	
ALUMINUM, BRASS, BRONZE, COPPER	90 - 175
FIBER, PLASTIC, HARD RUBBER, etc.	90 - 175

Work piece hardness and machinability must be considered when setting machine speed. The feed rate plays an important part in the life expectancy of a tool and the hole finish which one is looking to attain. Improper feed rate can cause excessive tool wear as well as an inadequate hole finish.

To eliminate chatter, slow cutting speed and increase feed appropriately. Stock removal on roughing operations should not exceed 2 to 4 percent of tool diameter in most cases. Stock removal recommendations on finishing operations are .002 to .004.

For best results with brass, cast iron and some plastics, use a Left-Hand Spiral-Fluted reamer with negative shear action. This type of reamer helps prevent chips from working back into the flutes and scoring the hole. In all reaming operations, use constant-flow coolants. Soluble oil is effective for most metals; however, sulphur-based oils are recommended for stainless and certain alloy steels. Lard oil and kerosene improve the finish on aluminum.

RECOMMENDED FEEDS

MATERIAL	FEED (IPR)
STEEL - ALL TYPES	
50+ Rc	.002 - .004
30 - 50 Rc	.004 - .008
CAST IRON & MALLEABLE IRON	.005 - .012
NON-FERROUS	
ALUMINUM, BRASS, BRONZE, COPPER	.005 - .012
FIBER, PLASTIC, HARD RUBBER, etc.	.005 - .012

RECOMMENDED STOCK REMOVAL

REAMER DIAMETER	REMOVAL (Inches)
Up to 1/16" incl.	.003 - .005
Over 1/16" to 1/8" incl.	.004 - .008
Over 1/8" to 1/4" incl.	.006 - .012
Over 1/4" to 3/8" incl.	.008 - .014
Over 3/8" to 1/2" incl.	.010 - .015
Over 1/2" to 3/4" incl.	.012 - .018

RECOMMENDED LUBRICANTS

MATERIAL	LUBRICANT
Steel harder than 50 Rc	Light Oil
Steel softer than 50 Rc	Light Oil for good finishes or Soluable Oil and Water
Cast Iron & Malleable Iron	Soluable Oil and Water
Non-Ferrous Materials	Soluable Oil and Water

Decimal Equivalent Chart

PREMIUM QUALITY AMERICAN-MADE CUTTING TOOLS



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	7mm	.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	1/4-18 ^{NPS} 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			

TECHNICAL INFORMATION

MADE IN THE USA



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