



AQT IZAR®

M42 Cobalt Cutting Tools

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2 Flute Cobalt Single End Center Cutting End Mills

M-42 8% cobalt



Features

- Use for plunge cutting and for milling slots and pockets
- Premium 8% cobalt for use in all types of materials including high strength, heat resistance and difficult to machine materials.
- Center cutting design with good chip removal capacity

CNC Qualified

Dia. + .00150 / -.00000

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Order No.	List Price
1/8	3/8	3/8	2-5/16	2	02000	\$ 12.00
5/32	3/8	7/16	2-5/16	2	02004	10.40
3/16	3/8	7/16	2-5/16	2	02008	10.40
7/32	3/8	1/2	2-5/16	2	02012	10.60
1/4	3/8	1/2	2-5/16	2	02016	10.60
1/4	3/8	1	3-1/16	2	02020	13.80
9/32	3/8	9/16	2-5/16	2	02024	10.60
5/16	3/8	9/16	2-5/16	2	02028	10.60
5/16	3/8	1-1/2	3-1/4	2	02032	16.10
11/32	3/8	9/16	2-5/16	2	02036	12.00
3/8	3/8	9/16	2-5/16	2	02040	12.00
3/8	3/8	1-1/2	3-1/4	2	02044	16.10
13/32	3/8	13/16	2-1/2	2	02048	13.10
7/16	3/8	13/16	2-1/2	2	02052	14.60
1/2	1/2	1	3	2	02056	14.60
1/2	1/2	2	4	2	02060	20.80
9/16	1/2	1-1/8	3-1/8	2	02064	18.90
5/8	5/8	1-5/16	3-7/16	2	02068	23.40
5/8	5/8	2-1/2	4-5/8	2	02072	34.20
11/16	5/8	1-5/16	3-7/16	2	02076	28.70
3/4	3/4	1-5/16	3-9/16	2	02080	28.70
3/4	3/4	3	5-1/4	2	02084	54.80
13/16	3/4	1-1/2	3-3/4	2	02088	43.60
7/8	3/4	1-1/2	3-3/4	2	02092	42.40
7/8	7/8	1-1/2	3-3/4	2	02096	42.40
1	3/4	1-1/2	3-3/4	2	02100	46.00
1	1	1-5/8	4-1/8	2	02104	46.00
1	1	4	6-1/2	2	02108	66.00
1-1/4	3/4	1-5/8	3-7/8	2	02112	80.00
1-1/2	1-1/4	1-5/8	4-1/8	2	02116	100.00

C O B A L T E N D M I L L S

AQT
IZAR®

4 Flute Cobalt Single End Center Cutting Endmills

M-42 8% cobalt



Features

- Premium 8% cobalt for use in all types of materials including high strength, heat resistance and difficult to machine materials.
- For use in finishing operations
- Designed for profiling and slotting

CNC Qualified

Dia. +.00150 / -.00000

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Order No.	List Price
1/8	3/8	3/8	2-5/16	4	02200	\$ 12.00
5/32	3/8	1/2	2-3/8	4	02202	12.00
3/16	3/8	1/2	2-3/8	4	02204	12.00
7/32	3/8	5/8	2-7/16	4	02208	12.00
1/4	3/8	5/8	2-7/16	4	02212	12.00
1/4	3/8	1-1/4	3-1/16	4	02216	17.20
1/4	3/8	1-3/4	3-9/16	4	02220	19.50
9/32	3/8	3/4	2-1/2	4	02224	12.00
5/16	3/8	3/4	2-1/2	4	02228	12.00
5/16	3/8	1-3/8	3-1/8	4	02232	18.30
5/16	3/8	2	3-3/4	4	02236	20.70
11/32	3/8	3/4	2-1/2	4	02240	12.00
3/8	3/8	3/4	2-1/2	4	02244	12.00
3/8	3/8	1-1/2	3-1/4	4	02248	17.20
3/8	3/8	2-1/2	4-1/4	4	02252	20.30
13/32	3/8	1	2-11/16	4	02256	17.30
7/16	3/8	1	2-11/16	4	02260	16.30
1/2	3/8	1	2-11/16	4	02264	15.60
1/2	1/2	1-1/4	3-1/4	4	02268	16.10
1/2	1/2	2	4	4	02272	23.60
1/2	1/2	3	5	4	02276	30.90
9/16	1/2	1-3/8	3-3/8	4	02280	17.20
5/8	1/2	1-3/8	3-3/8	4	02284	22.30
5/8	5/8	1-5/8	3-3/4	4	02288	22.30
5/8	5/8	2-1/2	4-5/8	4	02292	34.40
5/8	5/8	4	6-1/8	4	02296	45.20
11/16	5/8	1-5/8	3-3/4	4	02300	32.40
3/4	1/2	1-5/8	3-5/8	4	02304	33.30
3/4	3/4	1-5/8	3-7/8	4	02308	33.30
3/4	3/4	3	5-1/4	4	02312	46.70
3/4	3/4	4	6-1/4	4	02316	64.00
13/16	3/4	1-7/8	4-1/8	4	02320	37.00
7/8	3/4	1-7/8	4-1/8	4	02324	54.80
7/8	7/8	1-7/8	4-1/8	4	02328	43.30
15/16	3/4	1-7/8	4-1/8	4	02330	46.00
1	3/4	1-7/8	4-1/8	4	02332	57.20
1	1	2	4-1/2	4	02336	57.20
1	1	4	6-1/2	4	02340	77.40
1	1	6	8-1/2	4	02344	86.40
1-1/8	3/4	1-1/2	3-7/8	6	02348	74.80
1-1/4	3/4	1-1/2	3-7/8	6	02352	80.50
1-1/4	1	2	4-1/2	6	02356	80.50
1-1/4	1-1/4	4	6-1/2	6	02358	106.30
1-1/4	1-1/4	6	8-1/2	6	02359	124.00
1-1/2	3/4	2	4-3/8	6	02360	129.00
1-1/2	1-1/4	2	4-1/2	6	02364	102.00

2 Flute Cobalt Double End Center Cutting Endmills

M-42 8% cobalt



Features

- Use for plunge cutting and for milling slots and pockets
- Premium 8% cobalt for use in all types of materials including high strength, heat resistance and difficult to machine materials.
- Center cutting design with good chip removal capacity

CNC Qualified

Dia. + .00150 / -.00000

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Order No.	List Price
1/8	3/8	3/8	3-1/16	2	04500	\$ 12.60
5/32	3/8	7/16	3-1/8	2	04504	15.10
3/16	3/8	7/16	3-1/8	2	04508	15.10
7/32	3/8	1/2	3-1/8	2	04512	15.10
1/4	3/8	1/2	3-1/8	2	04516	15.10
5/16	3/8	9/16	3-1/8	2	04520	15.10
3/8	3/8	9/16	3-1/8	2	04524	15.10
7/16	1/2	13/16	3-3/4	2	04528	23.70
1/2	1/2	13/16	3-3/4	2	04532	23.70
9/16	5/8	1-1/8	4-1/2	2	04536	36.40
5/8	5/8	1-1/8	4-1/2	2	04540	36.40
3/4	3/4	1-5/16	5	2	04544	47.10
7/8	7/8	1-9/16	6-1/8	2	04548	62.40
1	1	1-5/8	5-7/8	2	04552	83.00

4 Flute Cobalt Double End Center Cutting Endmills

M-42 8% cobalt



Features

- M-42 8% cobalt for all types of materials including high temp alloys
- Designed for profiling, slotting, and pocket milling

CNC Qualified

Dia. + .00150 / -.00000

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Order No.	List Price
1/8	3/8	3/8	3-1/16	4	02400	\$ 15.60
9/64	3/8	7/16	3-1/8	4	02404	15.60
5/32	3/8	7/16	3-1/8	4	02408	15.60
11/64	3/8	1/2	3-1/4	4	02412	15.60
3/16	3/8	1/2	3-1/4	4	02416	15.60
7/32	3/8	9/16	3-1/4	4	02420	15.60
1/4	3/8	5/8	3-3/8	4	02424	15.60
9/32	3/8	11/16	3-3/8	4	02428	15.60
5/16	3/8	3/4	3-1/2	4	02432	15.60
11/32	3/8	3/4	3-1/2	4	02436	15.60
3/8	3/8	3/4	3-1/2	4	02440	15.60
13/32	1/2	1	4-1/8	4	02444	24.30
7/16	1/2	1	4-1/8	4	02448	24.30
15/32	1/2	1	4-1/8	4	02250	24.30
1/2	1/2	1	4-1/8	4	02452	24.30
9/16	5/8	1-3/8	5	4	02456	36.00
5/8	5/8	1-3/8	5	4	02460	36.00
11/16	3/4	1-5/8	5-5/8	4	02462	43.00
3/4	3/4	1-5/8	5-5/8	4	02464	47.00
7/8	7/8	1-7/8	6-1/8	4	02468	72.00
1	1	1-7/8	6-3/8	4	02472	72.50

COBALT ENDMILLS

AQT IZAR®

Fine Pitch M-42 8% Cobalt Roughing End Mills

Stub, Standard, Long, and Extra Long Lengths



Features

- Designed for heavy roughing cuts
- Can be used on mild steels, medium hard steels, stainless and non-ferrous materials
- Designed for profiling and slotting
- Non-Center Cutting

Coatings

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys. Coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. +.00150 / -.00000

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Uncoated Order No.	List Price	TiAlN Coated Order No.	List Price
1/4	3/8	5/8	2-7/16	3	03000	\$ 17.90	03004	\$ 24.70
1/4	3/8	1-1/4	3-1/16	3	03008	22.90	03012	29.60
5/16	3/8	3/4	2-1/2	3	03016	17.90	03020	24.70
5/16	3/8	1-3/8	3-1/8	3	03024	33.50	03028	40.30
3/8	3/8	3/4	2-1/2	4	03032	17.90	03036	25.40
3/8	3/8	1-1/2	3-3/16	4	03040	33.50	03044	40.30
7/16	3/8	1	2-11/16	4	03048	25.50	03052	33.60
1/2	1/2	1-1/4	3-1/4	4	03056	25.50	03060	34.60
1/2	1/2	2	4	4	03064	33.50	03068	42.60
1/2	1/2	3	5	4	03072	43.70	03076	55.30
5/8	5/8	1-5/8	3-3/4	4	03080	31.70	03084	43.00
5/8	5/8	2-1/2	4-5/8	4	03088	41.80	03092	53.10
3/4	5/8	1-5/8	3-3/4	4	03096	38.90	03100	52.90
3/4	3/4	1-5/8	3-3/4	4	03104	38.90	03108	52.90
3/4	3/4	3	5-1/4	4	03112	48.70	03116	65.40
7/8	3/4	1-7/8	4-1/8	5	03120	49.40	03124	69.30
7/8	7/8	3-1/2	5-5/8	5	03128	70.60	03132	93.60
1	3/4	2	4-1/4	5	03136	58.00	03140	85.30
1	1	2	4-1/2	5	03144	58.00	03148	85.30
1	1	3	5-1/2	5	03152	72.80	03156	100.00
1	1	4	6-1/2	5	03160	77.40	03164	110.00
1-1/4	3/4	2	4-1/2	6	03168	88.00	03172	115.00
1-1/4	1-1/4	2	4-1/2	6	03176	88.00	03180	115.00
1-1/4	1-1/4	3	5-1/2	6	03184	119.00	03188	147.00
1-1/4	1-1/4	4	6-1/2	6	03192	123.00	03196	155.50
1-1/2	1-1/4	2	4-1/2	6	03200	119.00	03204	158.00
1-1/2	1-1/4	3	5-1/2	6	03208	145.80	03212	184.00
1-1/2	1-1/2	4	6-1/2	6	03216	146.50	03220	193.00
2	1-1/4	2	4-1/2	8	03224	168.50	03228	223.00

Coarse Pitch M-42 8% Cobalt Roughing End Mills

Stub, Standard, Long, and Extra Long Lengths

Coatings

Features

- Designed for heavy roughing cuts
- Can be used on mild steels, medium hard steels, stainless and non-ferrous materials
- Designed for profiling and slotting
- Non-Center Cutting

TiAIN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. + .0039 / -.0019



Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. of Flutes	Uncoated Order No.	List Price	TiAIN Coated Order No.	List Price
3/16	3/8	1/2	2-3/8	3	02500	\$ 16.10	02504	\$ 22.00
1/4	3/8	5/8	2-7/16	3	02508	16.10	02512	22.90
1/4	3/8	1-3/8	3-1/8	3	02516	22.20	02520	29.00
5/16	3/8	3/4	2-1/2	3	02524	16.10	02528	22.90
5/16	3/8	1-3/8	3-1/8	3	02532	22.20	02536	29.00
11/32	3/8	3/4	2-1/2	3	02540	16.10	02544	23.50
3/8	3/8	3/4	2-1/2	4	02548	16.10	02552	23.50
3/8	3/8	1-1/2	3-1/4	4	02556	22.20	02560	29.70
13/32	3/8	1	2-11/16	4	02564	21.40	02568	29.50
7/16	3/8	1	2-11/16	4	02572	21.40	02576	29.50
15/32	1/2	1-1/4	3-1/4	4	02580	21.40	02584	29.50
1/2	1/2	1-1/4	3-1/4	4	02588	21.40	02592	30.50
1/2	1/2	2	4	4	02596	28.60	02600	37.80
1/2	1/2	3	5	4	02604	40.30	02608	52.40
9/16	1/2	1-3/8	3-3/8	4	02612	26.90	02616	38.30
5/8	5/8	1-5/8	3-3/4	4	02620	26.90	02624	38.30
5/8	5/8	2-1/2	4-5/8	4	02628	40.30	02632	52.40
5/8	5/8	3-1/8	5-1/4	4	02636	40.30	02640	52.40
11/16	5/8	1-5/8	3-3/4	4	02644	35.90	02648	48.60
3/4	5/8	1-5/8	3-3/4	4	02652	35.90	02656	49.80
3/4	3/4	1-5/8	3-3/4	4	02660	35.90	02664	49.80
3/4	3/4	3	5-1/4	4	02668	45.50	02672	62.20
7/8	3/4	1-7/8	4-1/8	5	02676	47.00	02680	66.00
7/8	7/8	1-7/8	4-1/8	5	02684	47.00	02688	66.00
7/8	3/4	3-1/2	5-5/8	5	02692	69.40	02696	92.40
1	3/4	1-1/8	3-3/8	6	02700	56.60	02704	87.80
1	3/4	2	4-1/4	5	02708	49.50	02712	76.80
1	1	2	4-1/2	5	02716	49.50	02720	76.80
1	1	3	5-1/2	5	02724	69.40	02728	96.60
1	1	4	6-1/2	5	02732	75.90	02736	108.00
1	1	6	8-1/2	5	02740	114.00	02744	146.00
1-1/8	3/4	1-1/8	3-3/8	6	02748	63.00	02752	94.20
1-1/8	3/4	2	4-1/4	6	02756	71.50	02760	98.00
1-1/8	1	2	4-1/2	6	02764	71.50	02768	98.00
1-1/4	3/4	1-1/8	3-3/8	6	02772	91.40	02776	122.50
1-1/4	1-1/4	2	4-1/2	6	02780	83.80	02784	111.00
1-1/4	1-1/4	3	5-1/2	6	02788	114.00	02792	141.00
1-1/4	1-1/4	4	6-1/2	6	02796	117.00	02800	149.00
1-1/4	1-1/4	6	8-1/2	6	02804	117.00	02808	149.00
1-3/8	3/4	1-1/8	3-3/8	6	02812	115.00	02816	149.00
1-1/2	3/4	1-1/8	3-3/8	6	02820	129.00	02824	173.00
1-1/2	1-1/4	2	4-1/2	6	02836	114.00	02840	152.20
1-1/2	1-1/4	3	5-1/2	6	02844	139.00	02848	177.00
1-3/4	3/4	1-1/8	3-3/8	6	02852	155.00	02856	216.00
2	3/4	1-1/8	3-3/8	8	02860	199.00	02864	260.00
2	1-1/4	2	4-1/2	8	02868	160.50	02872	214.00
2	1-1/4	4	6-1/2	8	02876	233.00	02880	288.00
2	2	4	7-3/4	8	02884	233.00	02888	298.00
2	2	8	11-3/4	8	02892	421.00	02896	486.00
2	2	10	13.3/4	8	02900	546.00	02904	612.00
2	2	12	15-3/4	8	02908	590.00		

ROUGHING END MILLS



3 Flute Fine Pitch Stub Length Roughing End Mills

M-42 8% Cobalt

Coatings



Features

- Stubby design allows for more rigidity than regular length
- Center Cut Design allows for plunging, then slotting

TiAIN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Uncoated Order No.	List Price	TiAIN Coated Order No.	List Price
1/4	3/8	1/4	2-1/16	3	03300	\$ 23.00	03304	\$ 30.80
3/8	3/8	3/8	2-5/32	3	03324	23.00	03328	31.50
1/2	1/2	1/2	2-1/2	3	03340	31.00	03344	41.50
5/8	5/8	5/8	2-3/4	3	03356	39.50	03360	52.50
1	1	1	3-1/2	3	03388	74.50	03392	105.70

3 Flute Coarse Pitch Stub Length Roughing End Mills

M-42 8% Cobalt

Coatings



Features

- Stubby design allows for more rigidity than regular length
- Center Cut Design allows for plunging, then slotting

TiAIN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Uncoated Order No.	List Price	TiAIN Coated Order No.	List Price
1/4	3/8	1/4	2-1/16	3	03508	\$ 23.00	03512	\$ 30.00
3/8	3/8	3/8	2-5/32	3	03532	23.00	03536	31.00
1/2	1/2	1/2	2-1/2	3	03556	31.00	03560	41.50
5/8	5/8	5/8	2-3/4	3	03572	39.50	03576	52.00
3/4	3/4	3/4	2-7/8	3	03588	52.50	03592	59.00
1	1	1	3-1/2	3	03612	74.50	03616	105.00

Coarse Pitch 3/4 Shank Stub Roughers

M-42 8% Cobalt

Coatings



Features

- Stubby design allows for more rigidity than regular length

TiAIN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Uncoated Order No.	List Price	TiAIN Coated Order No.	List Price
1	3/4	1-1/8	3-3/8	6	02700	\$ 56.60	02704	\$ 87.80
1-1/8	3/4	1-1/8	3-3/8	6	02748	63.00	02752	94.00
1-1/4	3/4	1-1/8	3-3/8	6	02772	91.40	02776	122.00
1-3/8	3/4	1-1/8	3-3/8	6	02812	115.00	02816	149.00
1-1/2	3/4	1-1/8	3-3/8	6	02820	129.00	02824	173.00
1-3/4	3/4	1-1/8	3-3/8	6	02852	155.00	02856	216.00
2	3/4	1-1/8	3-3/8	8	02860	199.00	02864	260.00

CENTER CUTTING M-42 8% COBALT ROUGHING ENDMILLS

Fine Pitch M-42 8% Cobalt Roughing End Mills

Stub, Standard, Long, and Extra Long Lengths

Coatings



Features

- Used for high production machining in a wide variety of materials
- Fine pitch design provides a better finish than coarse pitch

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Uncoated Order No.	List Price	TiAlN Coated Order No.	List Price
1/4	3/8	1/4	2-1/16	3	03300	\$ 23.00	03304	\$ 30.80
1/4	3/8	5/8	2-7/16	3	03308	21.50	03312	29.30
5/16	3/8	3/4	2-1/2	3	03316	21.50	03320	29.30
3/8	3/8	3/8	2-5/32	3	03324	23.00	03328	31.50
3/8	3/8	3/4	2-1/2	4	03332	21.50	03336	30.00
1/2	1/2	1/2	2-1/2	3	03340	31.00	03344	41.50
1/2	1/2	1-1/4	3-1/4	4	03348	30.50	03352	41.00
5/8	5/8	5/8	2-3/4	3	03356	39.50	03360	52.50
5/8	5/8	1-5/8	3-3/4	4	03364	41.50	03368	55.60
3/4	5/8	1-5/8	3-3/4	4	03372	43.40	03376	59.30
3/4	3/4	1-5/8	3-3/4	4	03380	46.70	03384	62.60
1	1	1	3-1/2	3	03388	74.50	03392	105.70
1	3/4	2	4-1/4	5	03396	73.00	03400	104.00
1	1	2	4-1/2	5	03404	73.00	03408	104.00
1-1/4	1-1/4	2	4-1/2	6	03412	126.00	03416	157.40
1-1/4	1-1/4	3	5-1/2	6	03420	137.00	03424	168.00
1-1/4	1-1/4	4	6-1/2	6	03428	150.00	03432	187.00
1-1/2	1-1/4	2	4-1/2	6	03436	156.00	03440	200.00

Coarse Pitch Center Cutting Roughing End Mills

M-42 8% Cobalt

Coatings



Features

- Can be used on mild steels, medium hard steels, stainless and non-ferrous materials
- Designed for profiling and slotting

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Uncoated Order No.	List Price	TiAlN Coated Order No.	List Price
3/16	3/8	1/2	2-3/8	3	03500	\$ 18.00	03504	\$ 24.00
1/4	3/8	1/4	2-1/16	3	03508	23.00	03512	30.00
1/4	3/8	5/8	2-7/16	3	03516	18.00	03520	25.00
5/16	3/8	3/4	2-1/2	3	03524	18.00	03528	25.00
3/8	3/8	3/8	2-5/32	3	03532	23.00	03536	31.00
3/8	3/8	3/4	2-1/2	4	03540	18.00	03544	25.50
7/16	3/8	1	2-11/16	4	03548	25.90	03552	34.00
1/2	1/2	1/2	2-1/2	3	03556	31.00	03560	41.50
1/2	1/2	1-1/4	3-1/4	4	03564	25.90	03568	35.00
5/8	5/8	5/8	2-3/4	3	03572	39.50	03576	52.00
5/8	5/8	1-5/8	3-3/4	4	03580	30.60	03584	42.00
3/4	3/4	3/4	2-7/8	3	03588	52.50	03592	59.00
3/4	3/4	1-5/8	3-3/4	4	03596	39.40	03600	53.80
7/8	3/4	1-7/8	4-1/8	5	03604	51.50	03608	69.90
1	1	1	3-1/2	3	03612	74.50	03616	105.00
1	1	2	4-1/2	5	03620	59.60	03624	89.00

ROUGHING ENDMILLS



3 Flute Coarse Pitch Center Cutting Roughing End mills for Aluminum

M-42 8% Cobalt



Features

- Three flute design for increased chip removal
- Recommended for cutting Aluminum, Aluminum Alloys and other materials that produce a long stringy chip

CNC Qualified

Dia. + .0039 / -.0019

Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Order No.	List Price
3/16	3/8	1/2	2-3/8	3	03700	\$ 24.50
1/4	3/8	5/8	2-7/16	3	03704	24.50
1/4	3/8	1-3/8	3-1/8	3	03708	32.20
3/8	3/8	3/4	2-1/2	3	03712	26.00
3/8	3/8	1-5/8	3-3/16	3	03716	34.50
7/16	3/8	1	2-11/16	3	03720	29.30
1/2	1/2	1-1/4	3-1/4	3	03724	38.70
1/2	1/2	2	4	3	03728	47.00
5/8	5/8	1-5/8	3-3/4	3	03732	44.00
5/8	5/8	2-1/2	4-5/8	3	03736	63.00
3/4	3/4	1-5/8	3-7/8	3	03740	60.00
3/4	3/4	2	4-1/4	3	03744	75.00
3/4	3/4	3	5-1/4	3	03748	79.00
1	1	2	4-1/2	3	03752	85.50
1	1	3	5-1/2	3	03756	103.80
1	1	4	6-1/2	3	03760	113.00
1-1/4	1-1/4	3	5-1/2	3	03764	160.00
1-1/4	1-1/4	4	6-1/2	3	03768	173.00
1-1/2	1-1/4	4	6-1/2	3	03772	232.00
2	1-1/4	4	6-1/2	3	03776	350.00

Rougher / Finisher Non-Center Cutting

M-42 8% Cobalt



Features

- Rough and Finish in one pass
- Use for general purpose roughing of soft to medium hard materials at heavier feed rates.
- Reduces chatter

CNC Qualified

Dia. + .0039 / -.0019

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Order No.	List Price
1/4	3/8	5/8	2-7/16	4	03800	\$ 19.00
5/16	3/8	1-1/8	2-15/16	4	03804	21.50
3/8	3/8	1-1/8	2-15/16	4	03808	21.50
7/16	3/8	1	2-11/16	4	03812	26.30
1/2	1/2	1-1/4	3-1/4	4	03816	26.30
5/8	5/8	1-5/8	3-3/4	4	03820	34.00
3/4	3/4	1-1/4	3-1/2	4	03824	39.00
1	1	2	4-1/2	6	03828	58.00

P-5 END MILLS

Sinterised powder metal allows for higher torque and greater wear resistance TiAlN coating for dry or semi-dry milling. Designed for high speed machining applications Multiple applications from cast iron to nickle-based high temperature alloys can be run up to 20 times faster than HSS and Cobalt TiAlN Coatings designed to run at high temperatures produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

P5 4 Flute Center Cutting Finishing End Mills

Coatings

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified +.0015/- .0000

Features

- Can be run up to 20 times faster than HSS and Cobalt
- Designed for high speed machining applications



Mill Dia.	Shank Dia.	Length Of Cut	Overall Length	No. Of Flutes	Order No.	List Price
1/4	3/8	5/8	2-7/16	4	04200	\$ 22.80
9/32	3/8	3/4	2-1/2	4	04204	22.80
5/16	3/8	3/4	2-1/2	4	04208	24.40
3/8	3/8	3/4	2-1/2	4	04212	26.00
7/16	3/8	1	2-11/16	4	04216	29.50
1/2	1/2	1-1/4	3-1/4	4	04220	29.00
5/8	5/8	1-5/8	3-3/4	4	04224	39.40
3/4	3/4	1-5/8	3-7/8	4	04228	58.50
1	1	2	4-1/2	4	04232	102.80
1-1/4	1-1/4	2	4-1/2	4	04236	140.00

P5 TiAlN Coated Fine Pitch Roughing End Mills

Coatings

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified Dia. +.0039 / -.0019

Features

- Center Cutting
- Regular and Long Length



Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Order No.	List Price
1/4	3/8	5/8	2-7/16	3	04300	\$ 33.00
5/16	3/8	3/4	2-1/2	3	04304	33.00
3/8	3/8	3/4	2-1/2	4	04308	33.50
1/2	1/2	1-1/4	3-1/4	4	04312	46.00
1/2	1/2	2	4	4	04316	77.00
5/8	5/8	1-5/8	3-3/4	4	04320	56.50
5/8	5/8	2-1/2	4-5/8	4	04324	82.00
3/4	3/4	1-5/8	3-3/4	4	04328	71.80
3/4	3/4	3	5-1/4	4	04332	95.00
7/8	3/4	1-7/8	4-1/8	5	04336	105.00
1	3/4	2	4-1/2	5	04340	121.00
1	1	2	4-1/2	5	04344	121.00
1	1	3	5-1/2	5	04348	150.00
1-1/4	1-1/4	2	4-1/2	6	04352	198.00
1-1/4	1-1/4	3	5-1/2	6	04356	215.00

P-5 END MILLS

P-5 Powder Metal End Mills

P5 TiALN Coated Coarse Pitch Roughing End Mills Coatings



Features

- Center Cutting
- Regular and Long Length

TiAlN Coatings designed to run at high temperatures. Produces good results in stainless steel, nickel based alloys, high temperature, and titanium alloys coating allows for high speed, semi-dry or dry machining operations. Increase speed rate (SFM) 50% over the parameters of uncoated tools.

CNC Qualified

Dia. +.0039 / -.0019

Mill Dia.	Shank Dia.	Length of Cut	Overall Length	No. of Flutes	Order No.	List Price
1/4	3/8	5/8	2-7/16	3	04400	\$ 31.54
1/4	3/8	1-1/4	3-1/16	3	04404	47.68
5/16	3/8	3/4	2-1/2	3	04408	31.54
5/16	3/8	1-3/8	3-1/8	3	04412	54.12
3/8	3/8	3/4	2-1/2	4	04416	32.27
3/8	3/8	1-1/2	3-1/4	4	04420	56.81
1/2	1/2	1-1/4	3-1/4	4	04424	44.23
1/2	1/2	2	4	4	04428	73.63
5/8	5/8	1-5/8	3-3/4	4	04432	54.21
5/8	5/8	2-1/2	4-5/8	4	04436	78.27
3/4	3/4	1-5/8	3-3/4	4	04440	68.97
3/4	3/4	3	5-1/4	4	04444	86.35
1	1	2	4-1/2	5	04448	116.48
1	1	3	5-1/2	5	04452	144.34
1-1/4	1-1/4	2	4-1/2	6	04456	189.91
1-1/2	1-1/4	2	4-1/2	6	04460	221.00
2	1-1/4	2	4-1/2	8	04464	364.32
2	2	4	7-3/4	8	04468	503.67

TECHNICAL INFORMATION

Speed And Feed Data For Roughing End Mills

Material	SFM	Chip Load Per Tooth		
		1/4	1/2	1
Aluminum Alloys	125-250	0.0020	0.0025	0.0030
Copper	75-100	0.0015	0.0030	0.0060
Brass	85-110	0.0015	0.0030	0.0060
Bronze	75-100	0.0015	0.0030	0.0060
Cast Iron Cast Steel	100-125	0.0015	0.0025	0.0050
Malleable Iron	80-120	0.0015	0.0025	0.0050
Stainless Steel				
Free Machining	75-90	0.0007	0.0012	0.0020
Other Steel	50-75	0.0007	0.0012	0.0020
Annealed	100-125	0.0020	0.0040	0.0060
Rc 18-24	75-100	0.0012	0.0030	0.0050
Rc 25-37	40-75	0.0010	0.0020	0.0040
Titanium				
Up to Rc30	40-75	0.0012	0.0025	0.0050
Rc >30	20-25	0.0010	0.0020	0.0035
High Temp Alloys				
Nickel Base	20-25	0.0007	0.0015	0.0030
Cobalt Base	8-15	0.0007	0.0015	0.0030

Machining Formulas

$$\text{S.F.M.} = 0.262 \times D \times \text{R.P.M.}$$

$$\text{R.P.M.} = 3.82 \times \text{S.F.M.}/D$$

$$\text{I.P.R.} = \text{I.P.M.}/\text{R.P.M.}$$

$$\text{I.P.M.} = \text{R.P.M.} \times \text{I.P.R.}$$

$$\text{Chip Load} = \text{I.P.M.}/\text{R.P.M.} \times F$$